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THE FINANCING OF EDUCATION IN EUROPEAN UNION IN THE ERA OF ECONOMIC CRISIS. THE CASE STUDY OF GREEK HIGHER EDUCATION

Abstract:

High quality education and training is the cornerstone to economic growth. Teaching citizens valuable skills in all sectors will spur innovation and ultimately can help improve corporate competitiveness. The European Union concurs, and overtime has instituted a series of education policies for development, notably in the field of higher education. A good example would be the Bologna Process.

Yet the economic crisis has put tremendous pressure on all Member States. While governments are implementing policies to reduce their budget deficits and to manage their public debt, they remain committed to establishing a sustainable economy. Despite good intentions to boost national competitiveness, in practice education funding has been negatively affected by austerity measures, especially in Southern Europe. Given that research demonstrates correlation between the level of funding for education and students' learning outcomes, the urgency to review education funding policies becomes a priority.

In this article, we will try to outline the trends in expenditure in higher education in Greece in the period 2008-2012 compared with those of the European Union Member States in the same time frame. We will present the effects of the economic and financial crises in education expenditure and how these affect the quality of education. The comparative analysis is set in five parts. The first, describes the financial environment in European Union and Greece during the reporting period. The second and the third review the financing of education in Europe and in Greece. The fourth analyses the allocation of costs and the fifth estimates the per student cost of education in academic departments of Greek universities.

Keywords:

Education funding; financial and economic crisis; higher education; human resource funding; cost per student

JEL Classification: H52

INTRODUCTION

High quality education and training is the cornerstone to economic growth. Etymologically, the word education is derived from the verb "educere" which means to develop a person morally and mentally so that he is sensitive to individual and social choices and able to act on them; it means to fit him for a calling by systematic instruction; and it means to train, discipline, or form abilities (Schultz, 1963). Much of the analysis concerning the value of education to the individual and to society is far from new. This had been understood by Adam Smith in 1776, who wrote that education confers both direct and indirect benefits upon the individual receiving the education and the society to which the individual receiving the education belongs. Even though several economists referred to the benefits of education and the value of human capital during the 1800's and the early 1900's, these topics did not receive serious attention, until the early '60s when Theodore Schultz (1963) published his work entitled "*The Economic Value of Education*" which becomes known as the economics of education. In conjunction with Schultz's work, the publication of the "*Human Capital: A Theoretical and Empirical Analysis, with special reference to Education*" by Gary Becker (1964) and earlier work by Jacob Mincer (1958, 1962) provided the seminal work needed to stimulate major research efforts into the different dimensions of human capital formation.

Nowadays it is common belief that teaching citizens' valuable skills in all sectors will spur innovation and ultimately can help improve corporate competitiveness. The European Union concurs, and overtime has instituted a series of education policies for development, notably in the field of higher education. A good example would be the Bologna Process. The aim of European policy is to train skilled personnel with the necessary skills so as to enable them to strengthen the economy of the European Union in the fields of innovation and competitiveness improvement.

However, as a result of the financial and economic crisis, public finances in all Member States are under enormous pressure. Governments are seeking for ways to reduce budget deficits and manage public debt, without disassembling the foundations of sustainable development. In this difficult era, education funding has been negatively affected by austerity measures, especially in Southern Europe. Although, it cannot be argued that there is direct relationship between the level of funding of education systems and learning outcomes of students, however, there is a close correlation between these two variables.

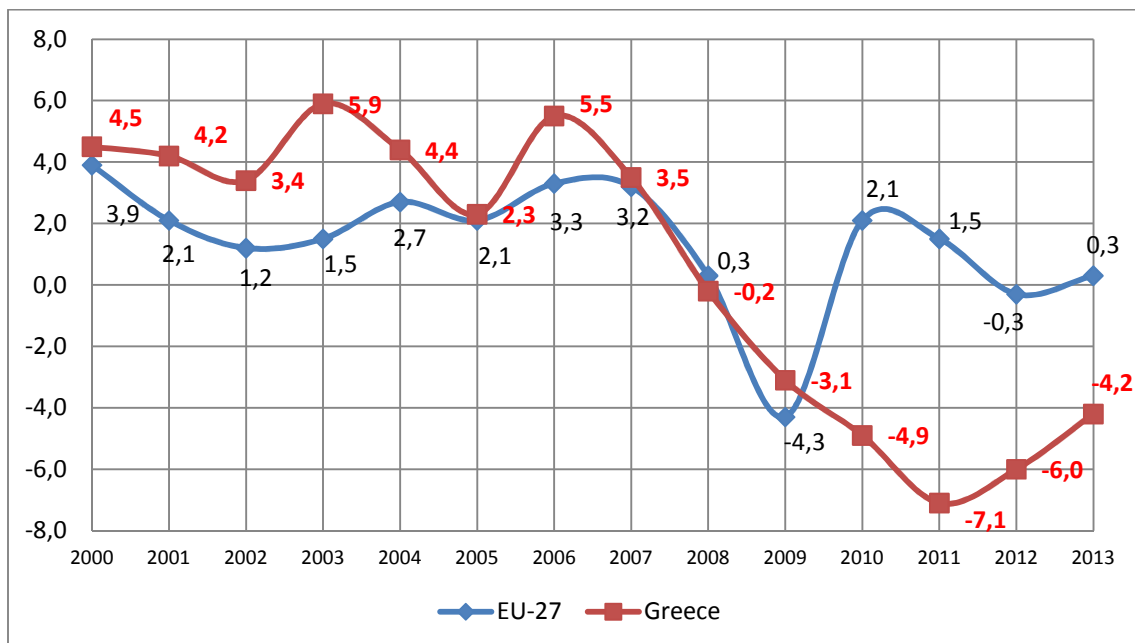
In this article, we will try to outline the trends in expenditure in higher education in Greece in the period 2008-2012 compared with those of the European Union Member States in the same time frame. We will present the effects of the economic and financial crises in education expenditure and how these affect the quality of education. The comparative analysis is set in five parts. The first, describes the financial environment in European Union and Greece during the reporting period. The second and the third review the financing of education in Europe and in Greece. The fourth analyses the allocation of costs and the fifth estimates the per student cost of education in academic departments of Greek universities. The data are taken from Eurostat, OECD, National Budgets and Hellenic Statistical Authority.

1. Economic data

Before analyzing the trends of recent years in the financing of education, it is important to understand the context in which European economies and

public finances have worked over the last decade. This overview provides us with the framework in which the educational policies are developed.

In the diagram (Figure 1) we see the Gross Domestic Product (GDP) growth rate in the EU-27 and Greece from 2000 to 2013.



* percentage change over previous year

Fig. 1. Real GDP growth rate in the EU-27 and Greece (source: Eurostat, 2012)

The financial crisis that started in 2007-2008 and the subsequent economic recession has had a huge impact on public finances in all EU countries, and the increase of public deficits made it unsafe for the sustainability of public finances in all EU countries.

The European Commission and Member States had to take strong measures to stabilize and consolidate their financial situation. They reinforced Stability and Growth Pact, which requires Member States to "*make significant progress towards medium-term budgetary objectives for their budgetary balances*".

The gross debt ratio for the Euro Area countries in 2011 reached 87.3 % of GDP, which is more than 20% than the Maastricht criteria (set up at 60 %).

However, despite the increases recorded in the gross debt ratio, the 1/3 of the countries remained below the Maastricht limit in 2011, with gross debt ratio of below 20 % in Estonia and Luxembourg. At the other end of the scale the gross debt ratio stands above 100% of GDP in Ireland (106 %), Greece (170.6 %), Italy (120.7 %) and Portugal (108.1 %). In these countries, public debt increased in 2011 between 17.4 and 81.3 percentage points in 2011 compared with 2007. In Belgium, the gross debt represents 98 % of GDP and stood at 86 % in France and in UK (Fig. 2).

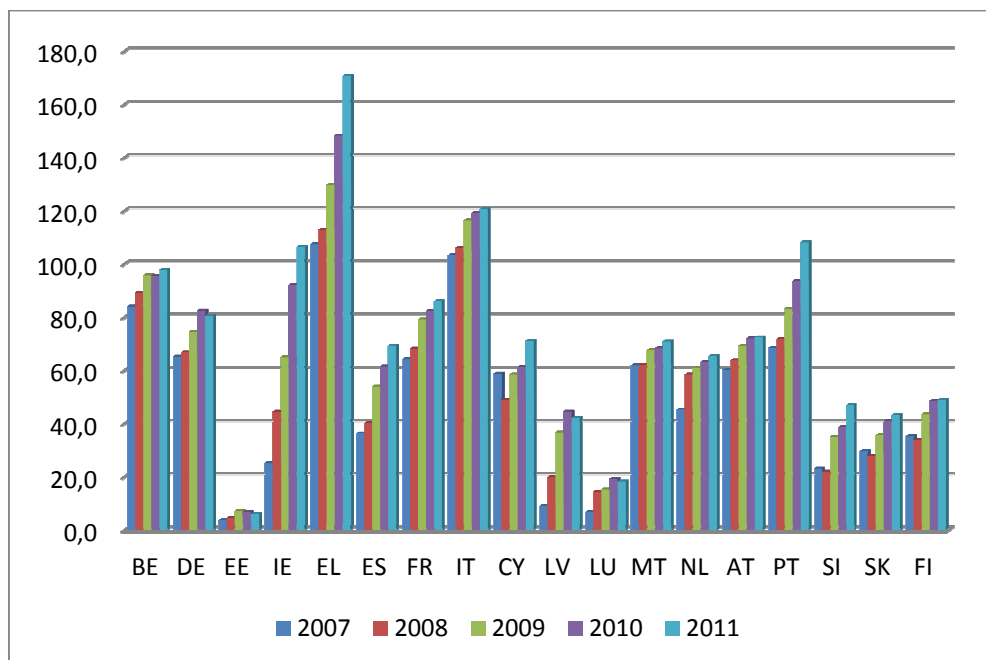


Fig. 2. The gross debt of Eurozone countries, as a percentage of GDP for the years 2007-2011 (source: Eurostat, December 2012)

2. Education funding in the EU

All EU member countries during the period 2000-2010 increased, in general, their total public spending on education, with Slovakia, Cyprus, Luxembourg and Greece reaching an increase of 50%. This level of increase was retained by the first three countries, while Greece from 2008 onwards decreased substantially its total spending.

Due to the current economic circumstances and the EU member countries' commitment to reduce their public deficit to sustainable levels, it is really interesting to observe the analysis of public expenditure on education, as percentage of the total public spending, in order to discover the extent of importance that each member State gives to the education sector. According to the diagram (Fig.3), we notice that the lowest percentage of education expenditure corresponds with Greece.

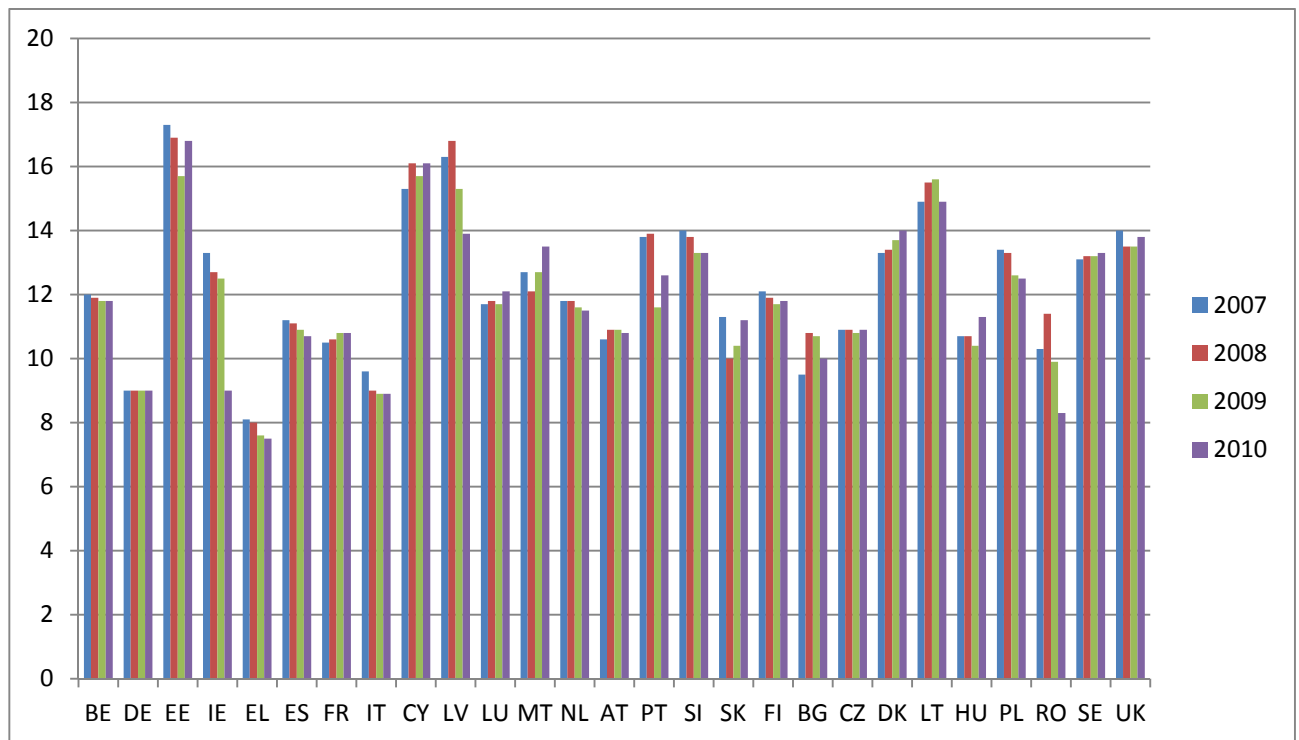


Fig. 3. Education expenditure as a share of total public expenditure, 2007-2010 (source: Eurostat, December 2012)

We can also notice the same for the education spending, expressed as percentage of the Gross Domestic Product. It becomes obvious in the graph (Fig. 4), that Greece is below the EU-27 average rate.

Considering that the period 2000-2007 the country increased its education spending by 50% and that the country's Gross Domestic Product during this particular period was far higher than the EU average rate, we conclude that the public spending for education in Greece is far behind when compared with the other EU-27 member States. However, it should be stressed that from 2008 onwards and while the country was in great recession, the fall in education spending was not equivalent to the Gross Domestic Product reduction.

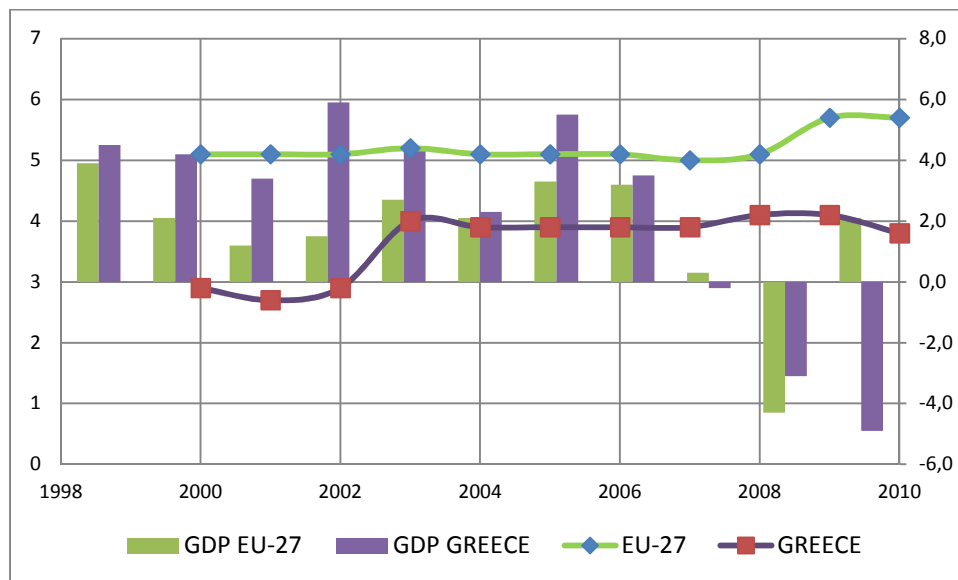


Fig. 4. Public expenditure on education as a percentage of GDP in the EU-27 and Greece, 2007-2010

Hence, we conclude that the education expenditure for years 2008, 2009 and 2010 remained close to 4%, while the Gross Domestic Product fell by almost 3, 6 and 8 per cent. We cannot suggest with certainty that this trend in expenditure to remain to pre-crisis levels can be attributed to governments' will for high quality education, since public spending on this sector includes long-range commitments, such as capital cost and salaries, which can hardly be adjusted in the short run.

2.1. Higher Education Funding in the EU-27 and Greece

In Europe, the majority of students study in public higher education institutions. The provision of studies from the private sector is rather rare and in 11 countries does not exist at all.

In weighted average terms, all study programs included, the 72% of the EU students study in public institutions, even though in most countries these percentages are even higher.

In Greece and Malta, all higher education institutions, regardless of the program of study, are public. On the other hand, in the UK, almost all Higher Education Institutions are considered to be state-funded private institutions. Only in Belgium the percentage of students that study in state-funded private institutions is slightly higher than those who study in public institutions.

In Greece, the function and funding of Higher Education Institutions is regulated by the 16th article of Constitution (1975) where it is stipulated that “*Higher education is provided exclusively by institutions that constitute public law entities, with full self-government. These institutions are under the authority of the State and have the right to be financially aided by it...* ”.

In Greece, higher education funding during the reference period is indicated in the chart (Fig. 5). From the information in the histogram we deduce that during the critical period of 2011-2012 the public spending cut for higher education was by 25% more in comparison to the spending on 2010, and was far greater than the reduction which occurred in the Ministry of Education & Religious Affairs’ total budget.

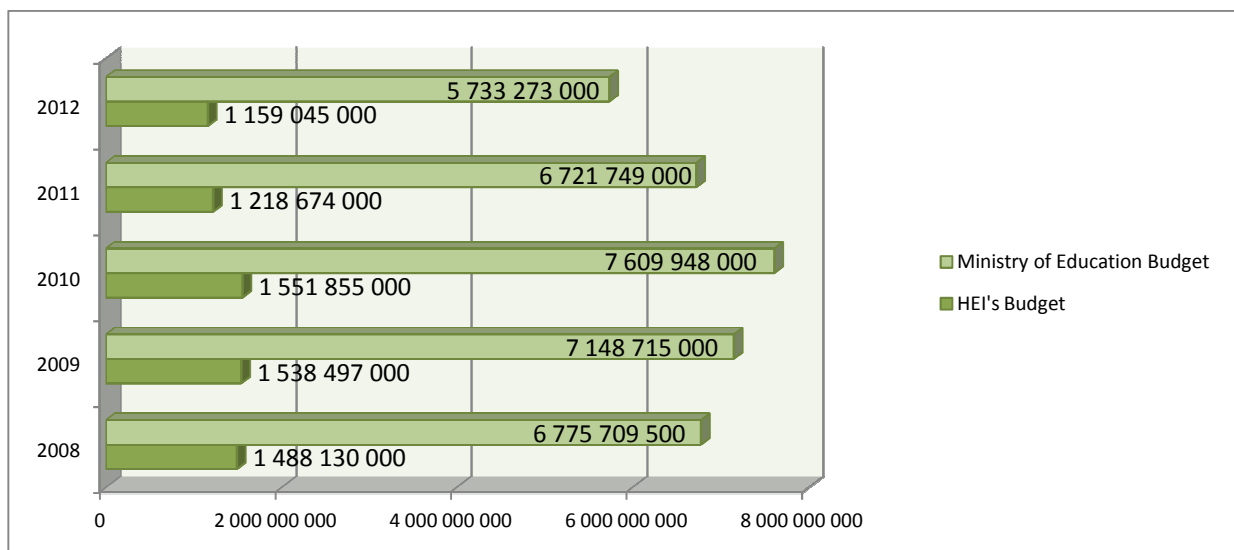


Fig. 5. HEI's expenditure in Greece as a share of total expenditure for education, 2008-2012 (source: Greek National Budgets, Ministry of Finance)

We have to note that in more than half the EU-27 States occurred reductions in Higher Education Institutions' funding, yet only in Cyprus and Lithuania (-30%) the percentage reduction was higher than that in Greece. Additionally, it has to be emphasized that the equivalent cut in elementary and secondary education was substantially lower than that in

higher (Fig.6). Considering that the student population the period 2008-2012 is constantly increasing – something that is not happening in the other education levels- one can understand that the Higher Education Institutions’ budget reduction is even more important.

2.2. Cost Allocation

Education spending can be divided into two categories (1) operating costs and (2) capital costs. Operating costs refer mainly to the labor costs of the educational and administrative staff as well as the other operating expenses, whereas capital costs refer mainly to the university facilities.

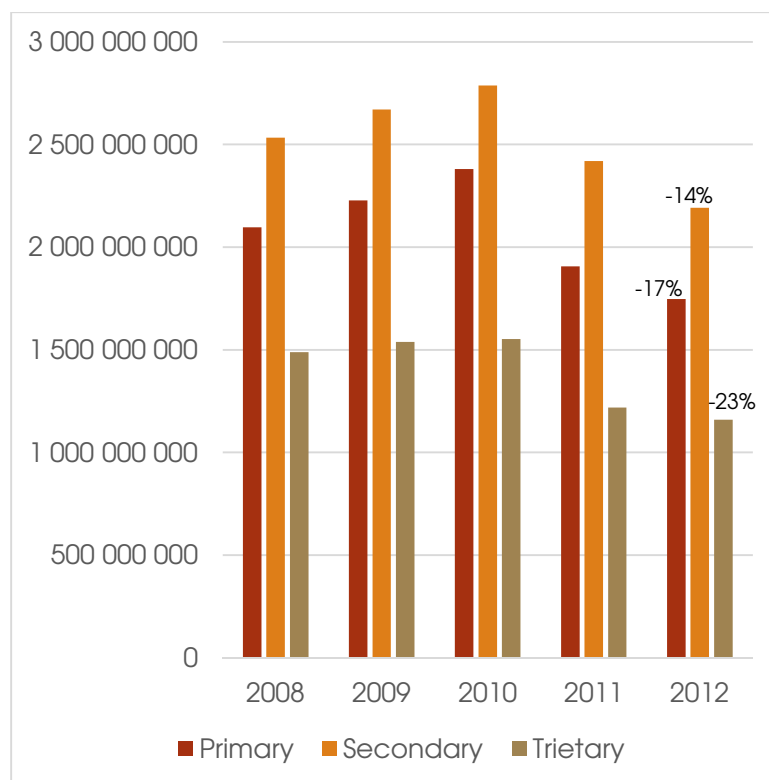


Fig. 6. Public expenditure on primary, secondary and tertiary education in Greece during the period 2008-2012 (source: National budgets, Ministry of Finance)

2.2.1. Human resource cost and the other operating costs

In the EU-27, operating costs represent higher than 84% of the total annual education expenditure. Labor costs reach the 70% and overshadow all other categories. This percentage was slightly decreased – by 2.2 per cent- during 2000-2009, yet in the majority of countries it remained stable.

As far as Greece is concerned, the corresponding percentages appear in the graph (Fig. 7) and in absolute values in Fig. 8.

Even though we observe a severe reduction in the absolute values of labor costs for year 2012, we also notice that as cost percentage it appears to be the highest in the five-year period. This occurs because, while budgets decrease in all education levels, labor costs cannot decrease equally in the short-term, despite the reductions in wages and the retirement of a large number of educators and other members of the staff.

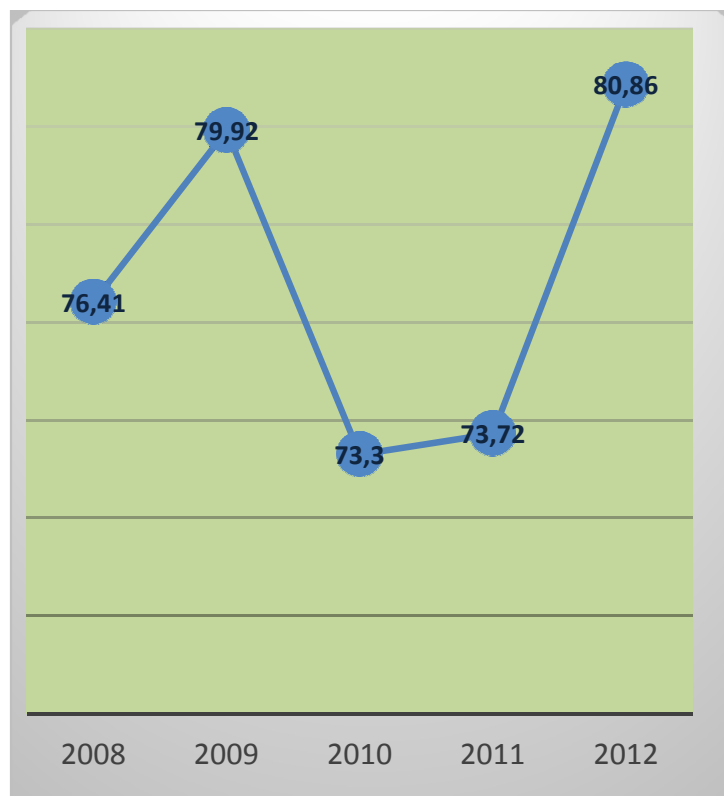


Fig. 7. Human resource costs as a percentage of the amount spent on education (source: Greek National Budgets, Ministry of Finance)

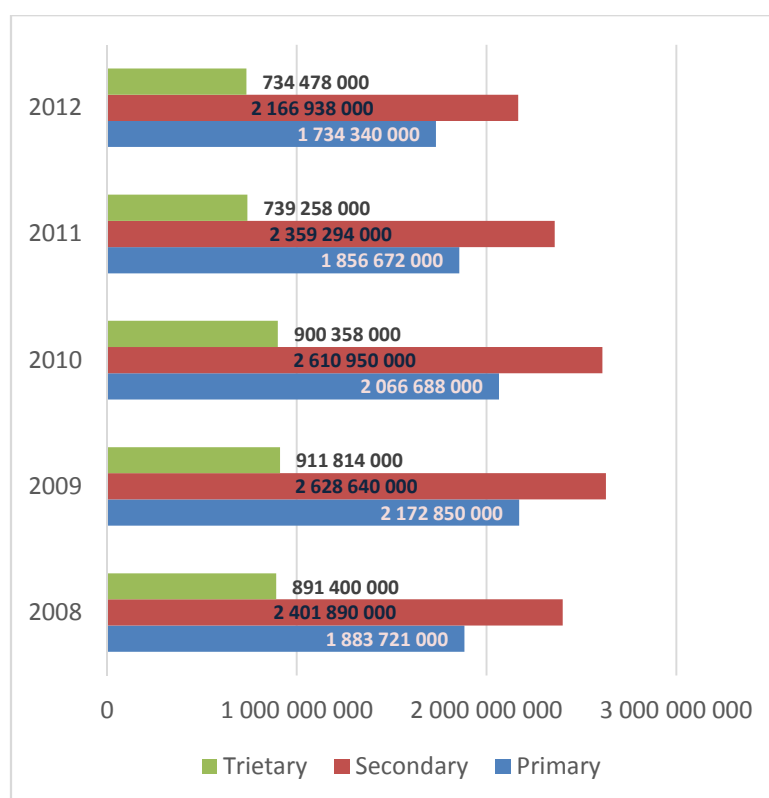


Fig 8. Payroll expenses for the three levels of education in absolute numbers (source: Greek National Budgets, Ministry of Finance)

As we infer from the above graphs, the reduction in labor costs (for the educational and the rest of the staff) in higher education was critically larger than the one occurred in the other education levels' labor costs. According to the histogram in Fig. 8, the reduction in higher education labor cost, totally for the five-year period of 2008-2012, reaches 18% while for the other education levels does not go above 10% (nearly 8% for elementary and 10% for secondary education). Comparing the income of university professors in EU member countries (Table 1) we observe that the university professor's salary in our country is lower – apart from Hungary's- than in the countries referred to in Table 1.

Table 1. Professor's salaries in EU countries (fiscal year 2009)

Country	New comer Lecturer	Assistant Professor (15 years experience)	Full Professor (30 years experience)
HU	413.00	689.00	916.00
EL	1,197.00	1,663.00	2,125.00
IT	1,363.66	3,267.38	5,271.25
ES	1,983.33	2,800.00	3,383.33

FR	2,043.33	3,296.67	5,175.00
PT	2,106.60	2,340.67	2,938.93
BE	2,124.46	3,552.01	4,113.64
FI	2,250.00	3,300.00	4,000.00
NL	2,333.33		5,250.00
DE	2,433.70	3,407.64	4,882.05
AT	2,500.00	3,916.67	4,450.00
CY	3,070.56	4,198.66	5,307.73
IE	3,100.00	5,150.00	5,900.00

(source: Eleni Mischou, 2010)

So, as higher education institution budgets from 2010 onwards are decreasing and labor cost, although it decreases, it does not follow the same rate of decrease as the budget's, this results in the substantial decrease in the other university operating costs. These operating costs represent, mainly, the cost of expendable goods, the equipment referring to the education of the students and also the cost of electricity, fuels, the cost of water supply etc.

Thus, by noticing the histogram in Fig. 9, we realize that the decrease percentage of the other expenses in 2012 amount to 35% in comparison to the numbers incurred in 2010, while the total decrease percentage for the five-year period amounts to 29%. This fact has a great impact on the quality of the provided education.

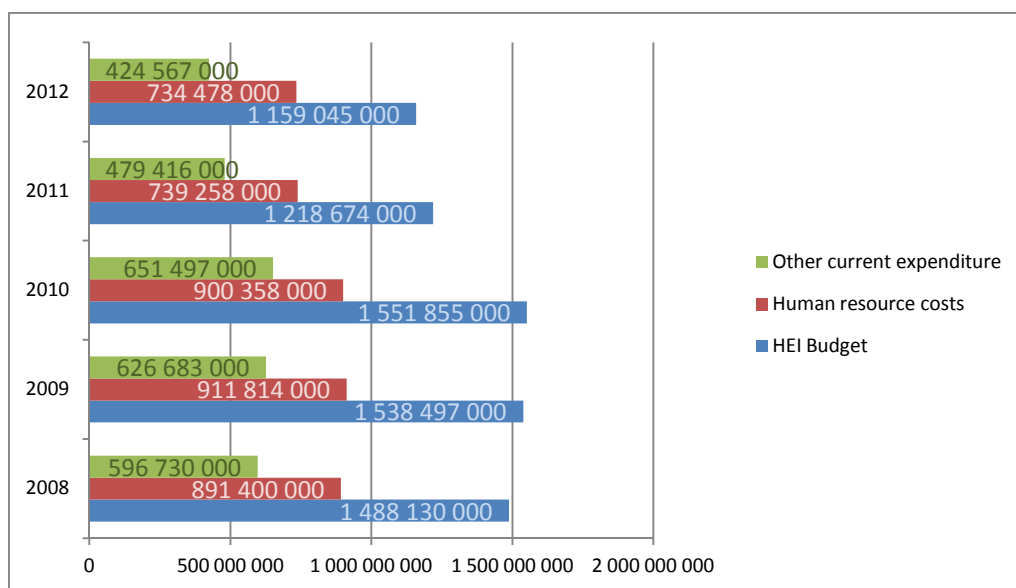


Fig. 9. Distribution of public expenditure on HEI in payroll and other current expenditure (source: Greek National Budgets, Ministry of Finance)

2.2.2. Capital costs

Capital costs refer mainly to the education facilities and even though they constitute a small percentage of the total funding- when compared to the workforce- yet, they are considered to be an important quality indicator of an educational system. Efficiency in education is based, primarily, on the ability of the facilities to correspond with the constantly changing needs for innovate ways of teaching and learning. Most EU countries have reduced critically this sort of expenses as a consequence of the financial crisis. In the field of higher education, the effort to reduce public deficits led to mergers and closures of educational institutions and to the drastic reduction of construction, maintenance and restoration funding.

Italy, Latvia and Lithuania after certain legislation settlements, went on to merge and abolish higher education institutions, so as to enhance the quality and efficiency of the higher education sector, achieve economies of scale and anticipate the excessive disintegration and overlap between fields of knowledge. Similar processes were implemented and in France, Finland, the United Kingdom and Norway, yet the principal reason for the mergers and the abolitions was not economical but referred to the quality of the provided education.

In Greece, mergers and closures have resulted from legislation in 2012, through the project “Athena”. This legislation is intended not only to achieve economies of scale but even more important is the prevention of excessive fragmentation and duplication. Two Universities and several academic departments were abolished.

2.3. Cost per student

The most explicit quality indicator, that’s taken into account in all the quality assurance systems, is the cost per student. This cost is calculated by considering the total cost divided by the number of students. The cost per student in higher education in our country has concerned those who deal with evaluation. Occasionally, extreme opinions have been expressed. Some consider the cost very high and others consider it very inadequate. According to the facts, we’ll try to verify the real cost per student, by adding, however, in the equation and other, significant parameters.

The histogram in Fig. 10 represents the cost per student (fiscal year 2009) in EU countries as well as the average spending in the EU-21 (data OECD, 2013).

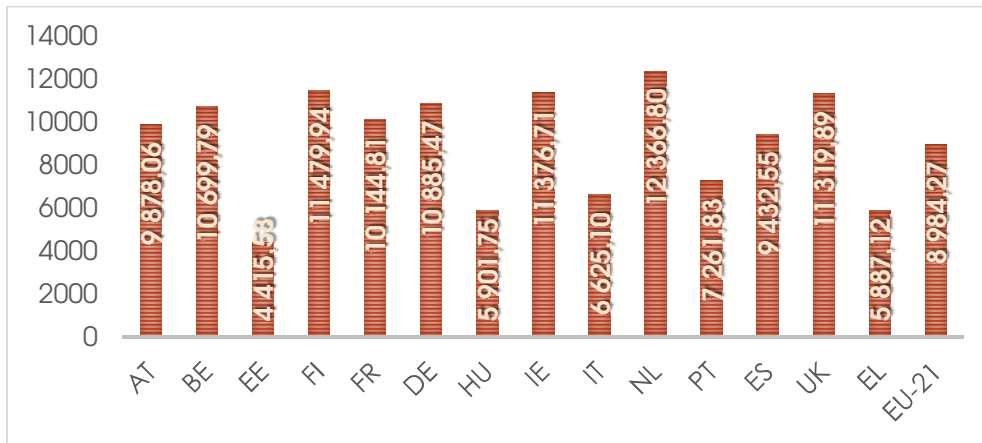


Fig. 10. Cost per student in EU countries as well as the average spending in the EU-21(2009) (source: OECD, 2013)

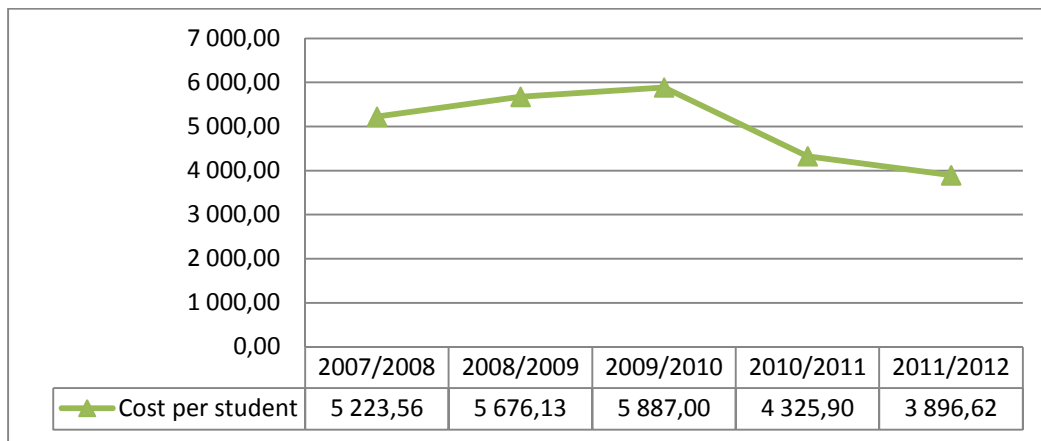


Fig. 11. Cost per student in Greece during the reference period (2008-2012) (source: Greek National Budgets, Ministry of Finance)

In the diagram in Fig. 10 we see the average cost per student in our country. We notice that for the academic year 2007-2008 it amounted to 5,223.56 Euro and that until 2009-2010 it has been increased by 11.2%. From academic year 2010-2011 onwards that the cutting in spending begins, the cost per student decreases by 26.5% and the academic year 2011-2012 it undergoes a 10% of further reduction.

By combining the two diagrams we deduce that –after Estonia- we have the lowest cost per student, which is far behind the average cost per student of the Euro Area countries. We should keep in mind that these economic data refer to 2009, that is to say prior to the dramatic spending reductions in higher education.

The graphs in Fig. 10 and 11 show the general cost per student trend by taking into account the number of the active enrolled students in the acceptable duration of study and the amount of public spending for higher education. There are though, crucial differences in the above mentioned costs if one wishes to consider particularly the real cost per student in every educational institution. The graph in fig. 12 indicates the cost per student – for years 2009 and 2011-in the 21 Universities of the country (ADIP, 2011). It becomes clear that there is a big difference between the cost per student in the institutions of theoretical studies (for instance AUEB, PANTEION, UNIPI, and UOM) and/or in those which teach applied sciences (for instance UOA, AUTH, NTUA, AUA).

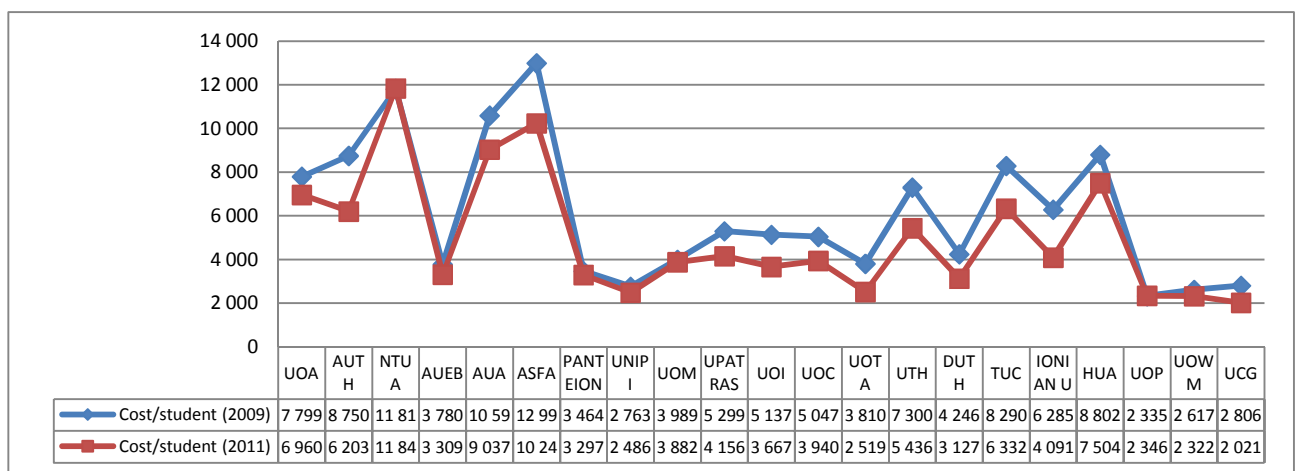


Fig. 11. Cost / student at 21 Universities in Greece in the years 2009 and 2011 (source: HQAA, 2011)

This great extend can be attributed to the increased operating cost that the applied sciences oriented institutions have in comparison to those of theoretical studies.

3. Discussion-Conclusions

According to the economic theory and the empirical analyses the relation between education and economic growth in a country is strong. Contemporary researchers suggest that a country has to rise above a certain threshold in the development process of its educational system prior to achieving economic growth. In the EU member States, it has been proven that for every year added to the average educational level, productivity increases by an average rate of 6.2% and by 3.1% more in the long term, due to the rapid technological advancement. Aghion et al. (2009) discovered that the patent growth in the USA is connected with academic research findings and this fact had a positive effect on a country’s economic progress. Moreover, Vandenbussche et al. (2006) demonstrated the link between higher education and economic

growth, through technological innovation. They shot down results of previous researches, which defended that economic growth through technology can be realized solely in developing countries. The writers proved that it is the specialized human capital which leads to growth, especially in technologically advanced countries, where innovation production leads to economic growth.

To summarize the results examined above, we conclude to the following discoveries:

- I. The State practiced no significant higher education funding policy, which could strengthen it and serve its efficiency as well as society's objectives. Therefore we observe that from 2008-2010, public expenditure on HEI was equal to the allocations spent the preceding year, adjusted to the inflation. During 2011-2012, there was a cut by 25% in comparison with the rates in 2010. The above mentioned cut was higher than the two other educational sectors and was not planned but rather horizontal, so as to meet fiscal targets.
- II. We conclude that the Professor's in Greece is lower than in the other Euro Area countries and that the wage bill –as an inflexible expense- absorbs the largest part of the budget that has been used for HEI funding.
- III. The above results in limiting the other operating costs, which are rendered unbearable for the higher education institutions, if we also consider the increased number of students.
- IV. Finally, the low cost per student, decreases further, by 35% in comparison with the 2010 rates.

Considering the above discoveries we conclude that higher education strengthening in Greece does not constitute a government's practice priority for education. One could contradict this view by mentioning the growth of higher education institutions that occurred the last fifteen years in the country. It is a fact that during 1984-2009, thirteen new HEI were founded in Greece. The total numbers of departments (universities, technological educational institutes and armed forces schools, police and fire brigade academies) were 648 in 2010 and in 2013 – after the mergers and closures- became to 580. Nevertheless, the higher education institutions' development in our country occurred in a chaotic way, without planning and academic criteria. Most importantly though, without taking into consideration the latest job market trends, a condition that would ensure that graduates would easily find a job and consequently would also ensure the economic development of the country. However, the political choice of the

governments, the local authorities as well as of academicians themselves played an important role in the establishment of new higher education institutions. According to Holmes (2013), the generalization in higher education does not pre-suppose a country's economic growth, since critical role will play the skills of the graduates. In addition, he suggests that the economic growth, through education, can occur mainly through research in fields of study such as mathematics, medicine and applied sciences rather than through humanitarian sciences.

By making a review on the newly founded universities, we observe that from the total 67 departments, 41 belong to humanitarian studies and only 26 to applied sciences. On top of that, remarkable is the large total number of educational studies departments for nursery and primary school education, which accept annually 3.3043 students; if one considers that the country's population-according to the latest census- is ageing. Evidence of the unplanned higher education institution establishment is the closure of the newly founded universities of West and Central Greece, which were abolished before completing the first 5 years of operation. Yet, the most significant consequence of the uncritical establishment of higher education departments is the unemployment among fresh graduates, which reaches the 24% in our country. This is an expected phenomenon, since the increase in the number of graduates caused by the establishment of new universities led- due to the oversupply of labor- to the accumulation of human capital of high value, which cannot be absorbed from the local job market. This results in hetero-employment on the one hand and in the tension of the "brain drain" phenomenon. Greece is unable to stop the flight of "brains" to Northern Europe, the USA, Australia, Canada etc. and thus is deprived of its superior workforce, for which it has invested substantial amounts of money. In the medium term, the flight of scientists from our country will inflict a huge wound on its economic recovery.

In modern societies, education serves not only social and cultural purposes but also has economic value, since people-though this process- acquire education, knowledge and skills so as to increase their value in the job market and at the same time contribute greatly to the country's economic ascent. So, it has been made clear that in order to deal with the recession the new development model should be based upon knowledge economy –in other words education and on scientific research for the production of innovative products and services. Higher education institutions as the main institutions responsible for providing knowledge and performing original research should play a leading role in the new era. It lies upon the will of the State and of the institutions themselves to rise to the occasion and, by overcoming past malaises, offer their best services to the country and the citizens.

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Abbreviations

EU-27	European Union	CH	Switzerland
RO	Romania	PT	Portugal
BE	Belgium	FI	Finland
SI	Slovenia	UOA	University of Athens
UK	The United Kingdom	AUTH	Aristotelian University of Thessaloniki
CZ	Czech Republic	NTUA	National Technical University of Athens
DK	Denmark	AUEB	Athens University of Economic and Business
DE	Germany	AUA	Agricultural University of Athens
EE	Estonia	ASFA	School of Fine Arts
IE	Ireland	PANTEION	Panteion University
EL	Greece	UNIPI	University of Piraeus
ES	Spain	UOM	University of Macedonia
FR	France	UPATRAS	University of Patras
IT	Italy	UOI	University of Ioannina
CY	Cyprus	UOC	University of Crete
LV	Latvia	UOTA	University of the Aegean
LT	Lithuania	UTH	University of Thessaly
LU	Luxembourg	DUTH	Democritus University of Thrace
HU	Hungary	TUC	Technical University of Crete
MT	Malta	IONIAN U	Ionian University
NL	The Netherlands	HUA	Harokopeio University of Athens
AT	Austria	UOP	University of Peloponnese
NO	Norway	UOWM	University of Western Macedonia
PL	Poland	UCG	University of Central Greece
GDP	Gross Domestic Product	HEI	Higher education institutions