

HIGHER EDUCATION FUNDING IN THE CZECH REPUBLIC IN THE YEARS 2001-2011

Jaromir Tichy, Ing., Mgr., MBA

The University of Finance and Administration, Czech Republic

Abstract

This paper is focused on the financing of higher education and its present, very discussed changes, which go hand in hand not only with the adopted strategic document, White Paper on tertiary education, but also with the overall economic and social situation of the Czech Republic. Based on data from Czech statistical office, Ministry of Education, Youth and Sport and the Eurostat database which are compared according to the relation to the problem, the status of higher education in the national economy is deduced. The issue of public and private resources are also discussed. The aim of the paper is to summarize information related to the decision making regarding interconnection between tertiary education and national economy and the possibilities of financing of higher education. Work analyses the above mentioned contexts by quantifying the relationship between changes in total public expenditure on education in the Czech Republic and changes of GDP of the Czech Republic based on available sources.

Keywords: Public expenditures, private expenditures, GDP, education funding, education

Introduction: Development of number of university students

In the last decade, with the emergence of private education, the need to increase the competitiveness of individual universities appears, which forces them to submit to the market mechanism reflecting their differing quality. This leads to a somewhat paradoxical situation - the authoritative role of the state recedes into the background and carries a large part of public financial support. Public higher education is forced to look for alternative sources, although the market is developing and the number of students at public universities is constantly increasing - the total number of 207 170 students in the academic year 2001/2002 to 387 719 in 2010/2011. (Ministry of Education, 2013). See tab. In Annex III. However, at the public universities studied in 2011 345 689 students and at private universities 53 883 students, which is 13,5 % (Ministry of Education, 2012). Overall, there is a minor decrease in the number of students, in the year 2011 it was -1 % and in 2012 was a decrease of -3 %. In the coming year (2013/2014) further decline is expected. Significantly, this trend is visible among newly admitted students, where is a decrease of -6,6 %, while at the private universities, this trend is more pronounced, there was a decrease of 17,3 %. This trend is even more pronounced when the information that the percentage of students admitted to public universities is 71 % and private high schools 94 % (Ministry of Education, 2012) is taken into account.

Most students studies in undergraduate courses (61,6 %) 32 % in master studies and in the form of a doctoral degree is 6,4 % of students. In 2011 there is a decrease in undergraduate courses (-1,6 %), a slight increase in the number of students at master level (0,1 %) and a reduction in the number of doctoral students (1 %). For all forms of study in 2012, there is a decrease, which is most pronounced at bachelor forms (-3,6 %). The PhD has

a similar decline, by 3,0 %. The mildest drop is in the master form (1,8 %). (Ministry of Education, 2013) See tab. In Annex III.

Due to gradual changes in tertiary education, the need for change of tertiary education subfinancing is evident (Gherghina et al., 2010). Since the eighties in Western Europe or nineties in post-communist countries there are gradual changes in tertiary education, namely the decentralization of financing and establishing national criteria for evaluating the outputs of the education system. Ideally, a new system of providing resources policy should be set up to support a direct link between finance provided and the resulting performance (ie quality of graduates).

And although the Bologna process has identified a number of beneficial actions on amendments to the tertiary education, agreement on ways and forms of financing have not been included in discussions (Oxford Analytica, 2012). At present, the Bologna Process has got to the stage where it needs to be carefully evaluated what has been achieved, to think about how to improve what has partly failed and to tighten the reforms that have not been in the spotlight (Ministry of Education, 2012). Financing of tertiary education is one of them. However, students may benefit at least that they are able to move freely within European universities and they can choose where and how they want to study. The unsatisfactory conditions in connection with the financing can this way be bypassed.

Article The reasons why the Czech Republic and other post-communist countries still did not widely apply principle and forms of tertiary education that are applied in Western Europe may be following (Nemec et al., 2011):

- Limited competition and short-term business strategies.
- "Insufficiently developed" democracy, where citizens can not evaluate the decisions of the ruling minority.
- Limited "quality" of state law.
- Territorial fragmentation in some postcommunist countries.
- Relatively widespread and deep corruption in these countries.

Another paradox is, that higher education is in terms of financial resources strictly divided to education private, not financed by public funds and higher education public, which is dependent on public funding, in the situation where there is no distinction whether future taxpayers are studying at one or the other type of high school. Financing of tertiary education then becomes an issue.

Access of individual countries in the European Union to the ways of financing tertiary education (the ratio of public and private funding) is different. The model is historically based rather on public funding (EU average is almost 80% public funding sources (Oxford Analytica, 2012)), which increase with the number of students, however, ceases to be satisfactory (Prudký et al., 2010), and sometimes the system is rather closer to non-European standards e.g. in the UK where the ratio of private finance is even lower than in the U.S. On the contrary, other European countries have rather high above the average public funding sources.

Engagement of education in expenditure of the public budget is an indisputable fact the vast majority of countries. Comparison of these expenses with a total GDP also predicts the role that education plays in relation to other sectors of the national economy, and thus reveals the importance that is attributed to education in the overall economic development of the country.

Stagnation or necessary spending cuts in the state budget expenditures in times of crisis help the logical idea of decentralization of funding of public universities towards multi-source acquisition of funds, both from multinational funds and the private sources. Decrease in economy performance ultimately substantially burdens the individual, whose participation in the financing of his higher education deepens this economic "chasm".

As noted in the White Paper on Tertiary Education (2009), the growing demand for higher education, which is presented as a guarantee of the future career (and the associated economic) success along with its modernization and increasing dynamics, by which the attractiveness of higher education is supported caused a "sharp increase in the number students" in the Czech Republic, but "it was not accompanied by a corresponding increase in expenditure, so there was the fastest decline in spending per student among the whole OECD." (Matějů et al., 2009, s. 42) These long-term below-average numbers, along with a significant increase in the number of students fell primarily on the quality of higher education, which was in this regard, despite its commercial success, frozen. Although higher education is the key mean for raising living standards and quality of life of individuals, and thus an important factor for GDP growth, real increase in state funds flowing to this sector is insatiable. Given the current economic situation, as well as current demographic changes, importance of public budget chapters that promote social development and health is emphasized.

The paper focuses on the changes and their causes in higher education funding in the Czech Republic. It deals with the role of higher education in the national economy and particularly the ratio between private and public funding of universities. The aim is to provide a summary of information relevant to decision-making regarding the consistency of tertiary education with the national economy and the possibilities of its funding.

The paper will address the weighing of public and private funds spent on education currently marked by global economic crisis. Seminar work tries to find out if there is a correlation between changes in total public expenditure on education in the Czech Republic and changes in GDP. Based on data from the Czech Statistical Office (data on tertiary education were received and processed from the public database of CSO (2013)), the Ministry of Education, Youth and Sports (mainly from annual reports (Ministry of Education, 2001-2012)) and Eurostat (data related to tertiary education and the criteria of the Lisbon strategy (Eurostat, 2013, b)), which are compared in view of the the examined subject, deduces the work status of higher education in the national economy devoted to the issue of public and private funding sources inserted into it. Data were compiled into tables using MS Excel. For further processing the correlation analysis and regression were used.

Due to the heterogeneous publication of data from different years, or non-disclosure of data from the period prior to 2007, some tables and time series are given only since 2007. In other cases, there was an attempt to make the longest time series. The specifics and particular length of time series are highlighted in the text.

Current development of higher education

From Table 1 is clearly apparent downward trend of support of education from the public finances due to the increasing number of university students. Figure 2 gives an insight beyond our Republic, and thus reveals not only that the percentage of this expenditure is low in an international comparison, but also really negligible share that the private sector occupies in the financing of this resort. Table 1 contains data only from 2007-2011, as other data on the CSO and the Ministry of Education was not traceable in these contexts. The year 2012 still isn't available in the database. The number of students are always listed, but not the normative. It is available only since 2007. The total number of students and its development in the Czech Republic and other EU countries, USA and Japan in the period 2000-2011 can be found in the Annexes in Table II. Figure 2 below shows the trend in the number of students at private schools and universities, for comparison.

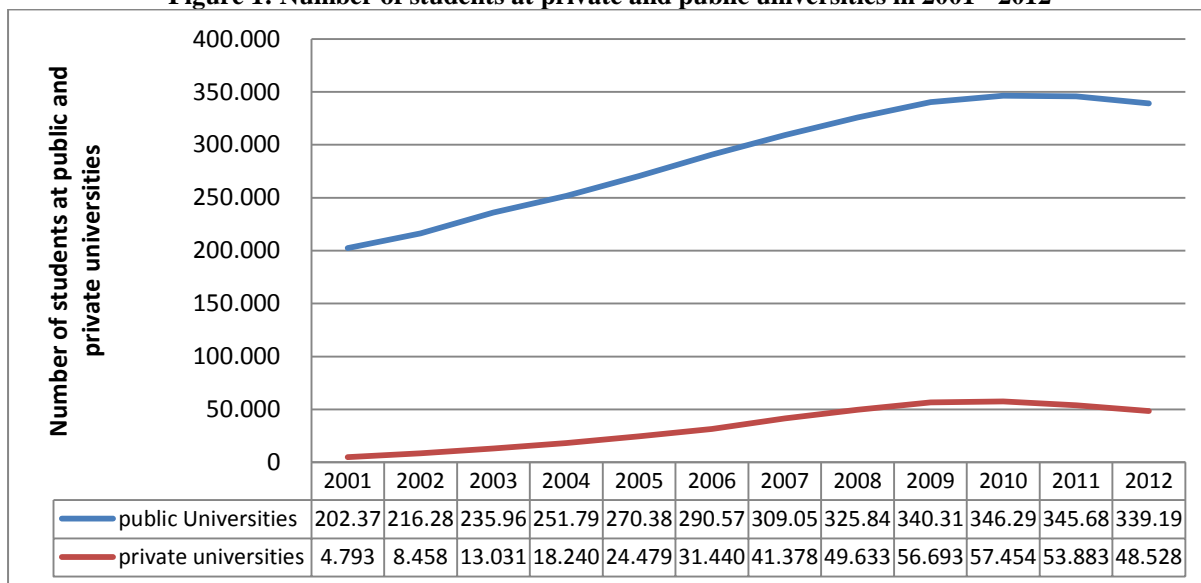
Table 1: Number of students vs. basic normative per one study [14]

Number of students	2006/07	2007/08	Annually	2008/09	Annually	2009/10	Annually	2010/11	Annually
Full-time study	241 151	250 269	3,78 %	264 304	5,61 %	277 184	4,87 %	283 486	2,27 %
Other forms of study	85 815	97 283	13,36 %	109 209	12,26 %	116 396	6,58 %	117 097	0,60 %
Total	326 966	347 552	6,30 %	373 513	7,47 %	393 580	5,37 %	400 583	1,78 %
Basic norm (in CZK)	2007	2008	Annually	2009	Annually	2010	Annually	2011	Annually
	34 325	34 325	0,00 %	34 325	0,00 %	29 554	-13,90 %	26 428	-10,58 %

Source: Ministry of Education (2011), CSO (2013)

Funds per one student from public finance are set out as a normative contribution, which is then multiplied by the coefficient of accredited field, this coefficient is proportionately increased especially with its technical complexity. Although the basic norm, as the table clearly shows in the first three years monitored (2007 - 2009), does not change, its real value decreases. The year 2010 brings the total decline, to the extent of almost 14%. This trend given not only by the state of the economy, but also by the policy of the Ministry of Education is also reflected further - year 2011 brings more than 10% reduction in this expenditure, the balance for this year (not included in the table), according to the Ministry of Education is about -7,5 %. (Ministry of Education, 2011). Indicator of the number of students responds to the high drop these numbers in 2010. Although the number of students does not drop in average to minus items, its rapid growth slows from 7,47 % in the academic year 2008/2009 to 5,37 %, respectively to 1,78 % in 2010/2011. The biggest drop is recorded in students studying out of the full-time study. The effort to meet the demand for higher education for economically active persons of middle age that immediately after the acquisition of secondary education could not or would not continue their studies, is evident by the dominance in this percentage that between 2007 - 2009 exceeds 10% limit and almost disappears to 0,60 % in 2011 with the growing financial crisis.

Figure 1: Number of students at private and public universities in 2001 - 2012

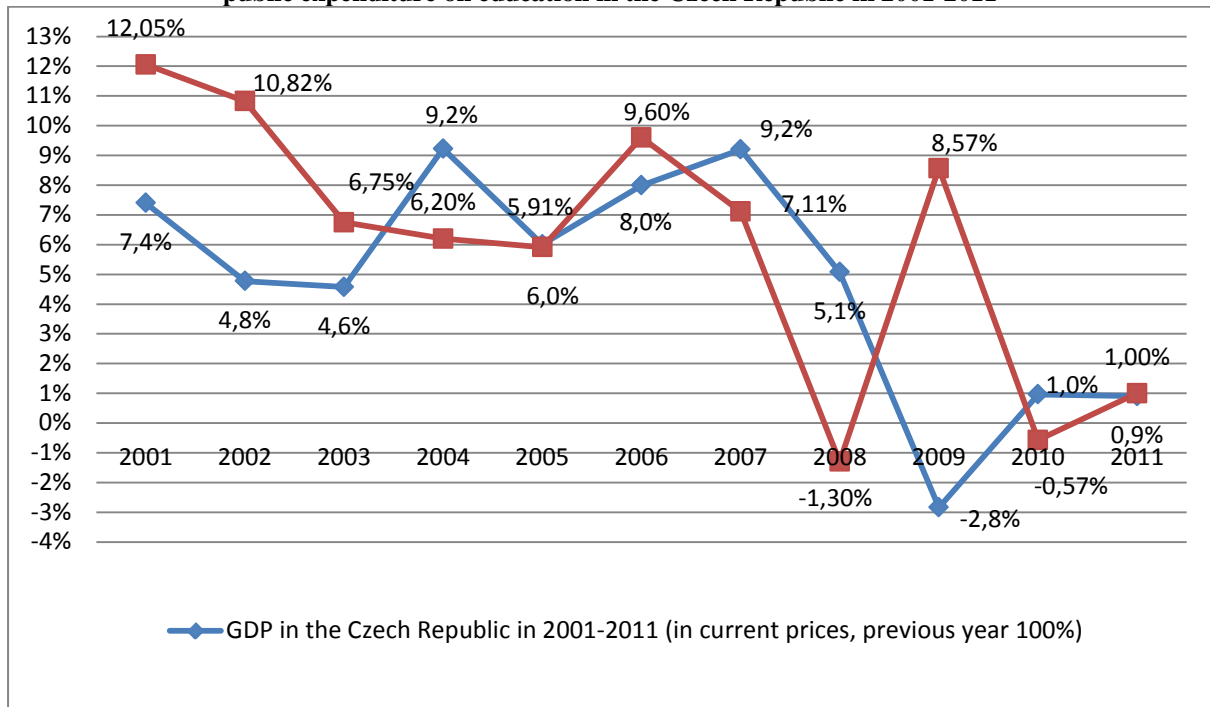


Source: (Ministry of Education, 2013)

As can be seen from Figure 1, the number of university students in the reported period has a slightly rising trend. At public universities, there is the reduction in increase visible, however, at private universities was a slight decline since 2010.

Table 2 in the Annex shows comparison of the number of population with tertiary education absolved in the European Union. For all monitored countries an increase in the number of university graduates in the population can be traced. The aim is to follow-up the Lisbon Treaty and achieve at least 40% of graduates aged 30-34 years by 2020. Currently, the European Union average is at 24,5 %, and increases in the reporting period by an average of 1 % within 2 years.

Figure 2: Comparison of the development of changes in GDP of the Czech Republic and changes in total public expenditure on education in the Czech Republic in 2001-2011



To determine if there is a correlation between changes in total public expenditure on education in the Czech Republic and changes in GDP in the selected period in each year, the proportion of total public expenditure on education to GDP in the Czech Republic in the period of 11 years (2001-2011) is reported, see the source data in table 3. In figure 2, there is a comparison of the development of GDP changes in the Czech Republic and the changes in total public expenditure on education in the Czech Republic in 2001-2011.

Figure 2 compares the development of changes in total public expenditure on education in the Czech Republic in the observed period (years 2001-2011) and the development of country's GDP in current prices is shown in the same graph in the same period. The source data are listed in table 3. Development of total public expenditure on education in the CR in 2001-2003, has similar shape as scores of GDP development of the Czech Republic in this period (both observed variables show reduction in the rate of growth). Reduction in the rate of growth of total public expenditure on education in the Czech Republic continues until 2005. CR GDP recorded an increase in the rate of growth in 2004, with its consequent reduction in the following year (2005). Worldwide, the influence of emerging global economic crisis were noticeable, starting in 2008. Development of total public expenditure on education in the Czech Republic in 2007 already shows a loss in the rate of growth from 9,6 % to 7,1 % and continues by decrease of the growth rate and ultimate decline of GDP in 2008 (-1,3 %, see Figure 2).

Budgeting of the total public expenses on education in the Czech Republic for the year 2009, based on the GDP development in 2008 is surprisingly optimistic and budgeted change in development is almost 9% (8,57 %). This increase in the rate of growth of total public expenditure on education in the Republic was due to the influence of increase in salaries for the staff of RGS and increasing expenditures in the area of operational programs.⁷ Reduction in the rate of growth of GDP of the CR occurs in 2009 (2,8 % at current prices)⁸, but total public expenditure on education in the CR this year, as already commented above, increased their growth rate. This positive blip in the development of the growth rate of total public expenditure on education in the CR in 2009 was replaced by a reduction in growth rate (-0,57 %) in 2010. Subsequent positive CZ GDP development in 2010 offers an optimistic outlook for the budgeting of total public expenditure on education in the Czech Republic for the year 2011. A positive influence have the news about the unwinding of the global economic crisis.

Because of the potential time lag between the observed variables a regression was performed. It is expected that public expenditure on tertiary education will rise with increasing GDP, but will have some delay because the state does not respond and does not increase expenditure immediately in response to changes in the state budget. Furthermore, the volume of expenditure should most likely grow with higher number of students, but as mentioned in this paper above, it is indicated that this dependence does not apply and the normative per student decreases.

When calculating the regression coefficient reached a value of 0,481, which indicates compliance with the requirement. The increase in GDP leads to a very minor increase in total public expenditure. The increase is not high, however, confirms the theoretical assumption and is fully consistent with rational distribution of budget.

It can be assumed, according to commented connectors of traces of the development total public expenditure on education in the Czech Republic and the connectors of CZ GDP development, that the prediction of GDP of the CR was more difficult by the onset of the global economic crisis thus the quality of the basis for budgeting has decreased for next year. In this paper, there is not monitored the development of budgeting of the total expenditure of chapter 333 of the Ministry of Education, Youth and Sports, but if there is any budgeting, it may be assumed that this budget will usually be exceeded. The negative impact of the global economic crisis still join other negatively acting factors such as the ongoing reform of the public finance of the Czech Republic, the demographic development in the country and also the ongoing discussion on tuition.

To determine the dependence between changes in GDP of CR and changes in development of total public expenditure on education in the Czech Republic in the years 2001-2011 the source data in Table 3 are used. It contains data source of the development of Czech republic GDP (in current prices, previous year is 100 %) in the observed years 2001-2011.

Table 3: The values for calculating the correlation between the Czech Republic GDP development and the development of the total public expenditure on education in the Czech Republic in the years 2001-2011

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GDP development	7,4	4,8	4,6	9,2	6,0	8,0	9,7	4,3	-1,7	1,1	0,9
The development of the public expenses on education	12,05	10,82	6,75	6,20	5,91	9,60	7,11	-1,30	8,57	-0,57	1,00

Source: Ministry of Education, Final Accounts for the years 2001-2011: Chapter 333

Dependencies between the observed variables were tested using SPSS programme. To determine the possible dependence was used Pearson and Spearman correlation coefficient. Expected result was improved by Spearman coefficient, due to the nature of the variables that are of an ordinal nature.

Table 4: Correlation between GDP development and expenditure on education in the Czech Republic from the data in Table 3 (in the period 2001-2011)

	Value of dependence	Standard error	p-value	Dependence
Pearson's correlation coefficient	0,371	0,236	0,261	Medium; inconclusive
Spearman's rank correlation coefficient	0,340	0,264	0,306	Medium; inconclusive

Source: own processing of data from the Ministry of Education (2012)

As shown in Table 4, the dependence between the observed variables was found, but the value cannot be considered conclusive, because the level of significance is too low. The reason for this may be too short time series, changes in external parameters and not included explanatory variables.

Just as the relationship between GDP growth and the number of students, resp. developments in the Czech Republic, was investigated, data from the EU and 27 other selected countries (Germany, France, Great Britain) were subjected to the same analysis. The results are conclusive, as shown in Table 5 below. Just those dependencies that make sense are shown (the individual countries in their characteristics and comparison with the EU average). Likewise, the table shows only the values below the diagonal, which are expected to repeat. Correlation on and above the diagonal is equal to 1.

Table 5: Correlation between GDP development and expenses on education in selected EU countries (period 2000-2011)

	PS EU	HDP EU	% EU	PS CZ	HDP CZ	% CZ	PS GE	HDP GE	% GE	PS FR	HDP FR	% FR	PS UK	HDP UK	% UK
PS EU															
HDP EU	,940 **														
% EU	,639*	,403													
PS CZ	,956 **	,922 **	,710 *												
HDP CZ	,939 **	,922 **	,560	,968 **											
% CZ	,543	,527	,080	,422	,386										
PS GE	,876 **	,742 **	,842 **												
HDP GE	,926 **	,970 **	,501				,826 **								
% GE	,524	,281	,971 **				,764 **	,391							
PS FR	,953 **	,888 **	,491												
HDP FR	,964 **	,991 **	,514							,899 **					
% FR	-,611 *	-,749 **	,184							-,664 *	-,668 *				
PS UK	,968 **	,885 **	,707 *												
HDP UK	,352	,530	-,394 *										,304		
% UK	,913 **	,782 **	,783 *										,954 **	,216	

Source: own processing of data from Eurostat (2013b)

Note: Abbreviations: PS = number of students; % = percentage of GDP on education, EU = European Union, CZ = Czech Republic; GE = Germany, FR = France, UK = United Kingdom; ** = evidence for $\alpha = 0,01$; * = evidence for $\alpha = 0,05$

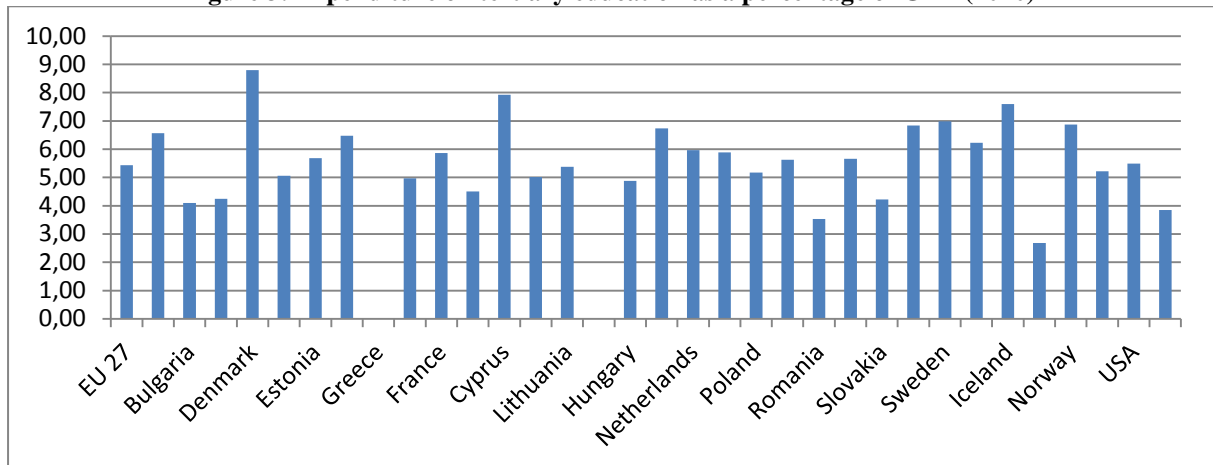
As shown in Table 5, most of the selected countries strongly correlate in the observed characteristics with the European Union average. This is not surprising, partly because it is an average and partly due to the fact that all observed countries have adopted the Lisbon Strategy, which sets out the criteria and size of the monitored variables. The only exception is France, where the coefficients are sometimes quite opposite. That's because, unlike the other countries, the monitored variables don't grow (as is the trend in other countries), but rather stagnate.

A third variable, namely the number of students, was tested in Table 5 in addition to Table 4. This variable very strongly correlates with GDP growth in the Czech Republic. The same is true for Germany and France. In Germany and the UK in addition the number of students correlates with expenditure on education. This is a significant difference from the Czech Republic, where the normative declines. In France, however, the correlation is even negative. Likewise, in France a strong and significant negative correlation between the percentage of GDP spent on education and GDP growth was shown. As resulting from the data source, this is due to the fact that although the GDP in France grows quite significantly, the percentage of expenditure on education lightly drops. The trend in France is therefore similar to the Czech Republic. This relationship is inconsistent in the EU, and therefore there was no evidence of dependency.

The funding of higher education in an international comparison

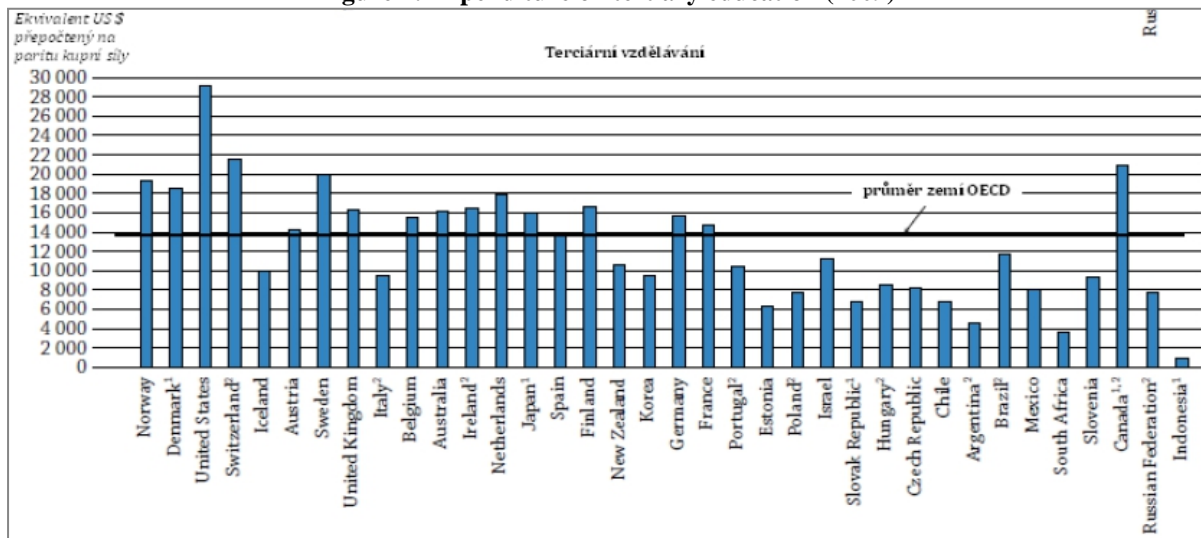
In the next chapter a comparison of higher education funding with EU countries will be preceded. Due to the large number of countries some tables and graphs contain only the selected countries. Figure 3 below shows expenditure on education as a percentage of GDP. Data are for the year 2010, as for other years the data from Eurostat are not available in the monitored indicators and countries. It may be noted that Greece and Luxembourg have no data for 2010. Summary table of expenditure on education in each country is given in the table I in Annex. Expenditure per student studies in the countries surveyed are also listed in Annex in the graph I (in 2010) and in the graph II (for 2009, because 2010 does not include data from all countries).

Figure 3: Expenditure on tertiary education as a percentage of GDP (2010)



Source: own elaboration of data from Eurostat (2013b)

The average annual expenditure per student at the tertiary level, without spending on research and development, is in the EU, USA and Japan 5,61 % of GDP. Figure 3 below provides a more complete portfolio of values for 2009 from the OECD.

Figure 4: Expenditure on tertiary education (2009)

Source: OECD, tab. B1.1a, Annex 3 (www.oecd.org/edu/eag2012)

Figure 4 reflects the state of tertiary education funding in 2009, the OECD didn't supply newer complex numbers yet. The average annual expenditure per student at the tertiary level, without spending on research and development, is 8 944 U.S. \$, in OECD countries and the data in individual countries range from 5 000 USD or less in Estonia and the Slovak Republic, to more than U.S. \$ 10 000 in Brazil, Canada, Finland, Ireland, Netherlands, Norway, and more than U.S. \$ 23 000 in the United States. The Czech Republic has a yearly average of U.S. \$ 6 827. Public finance issued for the higher education represented less than one percent (0,94 %) of GDP of the Czech Republic in 2008, private funds represented about 0,24 % and in total the Czech Republic spent 1,2 % of its GDP on tertiary education, and thus remained below OECD average, which reaches 1,5 %.

Conclusion

The essay highlights the current trends and their possible effects on higher education funding. The aim of the paper was to determine if there is a correlation between changes in total public expenditure on education in the Czech Republic and changes of GDP in 2001-2011.

Based on the empirical analysis the dependence between changes in GDP of the Czech Republic and the development of changes in total public expenditure on education in the Czech Republic in 2001-2011 was not proved.

It can be therefore assumed, according to the results of correlation analysis between changes in GDP and changes in development of total public expenditure on education in the Czech Republic in the period 2001-2011, that due to the global economic crisis and the crisis of public finance sources in the years 2008-2010, the predictions of the Czech Republic GDP development in the coming years was erroneous. Thus the quality of the basis for budgeting of the total public expenditure on education in the Czech Republic in the coming years was reduced. The value of calculated correlation coefficient is 0,371, by calculating the Spearman correlation coefficient (0,340) the value was more accurate, due to the critical values both coefficients of correlation.

These coefficients are not conclusive. Therefore, further analysis between the evolution of variables (1) the number of students, (2) GDP and (3) the percentage of public expenditure on education was performed. The dependencies were here found. The EU average (27 countries), Czech Republic, Germany, France and Great Britain were tested. Most of the selected countries as expected and in line with the Lisbon strategy strongly

correlate in the observed characteristics with the European Union average. The exception is France, where the coefficients are sometimes completely opposite due to stagnating trend of the variables entering the analysis. By testing the number of students conflicting trends in the EU were found. While with the growing GDP and growing number of students the expenditure in Germany and the UK increase, in the Czech Republic and France it is opposite. This inconsistency is traceable also in other countries.

Expenditure on education is an important part of public budgets in most countries. At the same time education is also an essential investment in the development of long-term economic potential of the countries. Public investment in education are compensated by subsequent higher financial revenues from taxes, especially from people with higher education. Benefit of achieved education becomes a necessity given the demographic and structural changes in the labor market. High-quality education is the main factor that increases the chance of an individual to get a job and allows him to be able to remain longer in the labor market.

It is essential that lawmakers note, that the developed countries in EU but also worldwide spend out much higher percentage of GDP on education than the Czech Republic. The current crisis of public budgets at the expense of public education funding in the form of cut education funding, while introducing tuition fees (in the case of tertiary education) causes basically a denial of access to higher education for people from the staff. Repeal of social grants for students causes that people with low incomes do not have access to education. The introduction or increase of tuition fees will bring minimal state budget savings and in the long term the decline of population education could have an adverse impact on creation of GDP.

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Annex

Tab. 2: Development of % of the population with tertiary education absolved

Country/Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU 27	17,1	17,1	17,4	18,1	19,1	19,6	20,0	20,6	21,2	22,0	22,7	23,7	24,5
Belgium	23,8	24,4	24,9	25,6	26,8	27,2	27,9	28,1	28,4	29,4	30,7	30,4	31,3
Bulgaria	15,1	17,7	17,5	17,7	17,9	17,8	18,2	18,5	18,9	19,2	19,4	20,1	20,7
Czech Rep.	9,5	9,7	9,9	10,0	10,4	11,0	11,4	11,6	12,4	13,4	14,5	15,9	17,0
Denmark	22,0	24,1	25,1	27,2	27,9	28,5	29,3	26,0	26,3	26,9	27,5	27,9	28,6
Germany	21,4	20,0	18,9	20,3	21,1	20,6	20,1	20,4	21,4	22,3	22,6	24,2	24,1
Estonia	24,1	25,0	25,0	25,2	25,7	27,4	27,2	27,3	28,1	29,8	29,7	31,0	31,8
Ireland	19,2	20,9	22,0	23,5	24,9	26,1	27,7	28,9	30,4	31,6	32,7	33,3	34,7
Greece	14,1	14,4	15,2	15,7	17,6	17,7	18,7	19,2	19,8	20,0	21,0	22,3	23,0
Spain	21,2	22,0	22,6	23,2	24,1	25,8	26,1	26,5	26,8	27,1	28,1	29,0	29,6
France	19,8	20,7	21,5	22,2	22,7	23,4	24,0	24,4	24,9	26,0	26,3	26,8	27,9
Italy	8,1	8,3	8,6	9,1	10,0	10,7	11,4	12,0	12,7	12,8	13,0	13,1	13,8
Cyprus	22,1	23,6	25,7	26,1	25,7	25,7	27,6	29,7	31,0	30,5	32,1	33,7	35,0
Latvia	15,1	15,2	16,2	15,1	16,7	17,1	17,6	18,8	21,0	21,7	22,5	23,6	25,1
Lithuania	35,3	19,2	19,0	19,8	21,2	22,0	22,4	24,1	25,4	25,5	27,0	27,9	28,8
Lux.	16,7	16,0	16,2	12,6	20,8	23,0	20,5	22,7	23,7	30,2	30,3	31,7	33,4
Hungary	11,7	11,7	12,1	13,1	14,2	14,5	15,0	15,4	16,4	16,9	17,2	18,1	19,0
Malta	4,9	8,5	8,2	8,5	10,2	10,2	11,1	11,7	11,8	12	13,4	14,3	14,8
NL	20,6	20,8	21,6	23,8	25,7	26,2	26,2	26,7	27,8	28,4	27,7	27,9	28,7
Austria	:	:	:	:	15,7	15,1	14,8	14,8	15,2	16,1	16,4	16,5	17,0
Poland	9,2	9,6	10,2	11,6	12,8	13,9	14,9	15,7	16,5	18,1	19,8	20,7	21,5
Portugal	7,5	7,9	8,2	9,5	10,9	11,1	11,7	12,0	12,7	13,1	13,8	15,6	16,8
Romania	7,5	7,9	8,0	7,9	8,7	9,1	9,6	9,9	10,7	11,2	11,9	13,0	13,6
Slovenia	12,9	11,6	12,3	14,4	15,7	16,7	17,8	18,5	19,0	19,6	20,2	21,6	23,0
Slovakia	8,2	8,6	8,8	9,6	10,4	11,4	11,9	11,9	12,3	13,4	15,1	16,5	17,0
Finland	27,1	27,0	26,9	27,5	28,3	28,6	29,0	30,0	30,2	30,9	31,6	32,5	32,8
Sweden	26,8	22,5	23,2	23,9	24,7	25,9	25,9	26,4	26,9	27,6	28,2	29,1	30,1
United Kingdom	25,7	25,9	26,7	25,5	26,3	26,7	27,6	28,6	28,7	30,0	31,5	33,3	34,7
Iceland	19,0	19,1	20,6	23,4	23,9	24,9	24,0	24,8	25,5	26,5	26,3	27,4	28,5
Norway	28,6	30,7	30,2	27,5	28,2	28,4	28,2	29,2	30,2	30,7	31,4	32,1	33,0

Source: Eurostat (2013a)

Table I: Expenditure on education as% of GDP

Country/Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU 27	4,99	5,10	5,15	5,06	5,04	5,03	4,95	5,07	5,41	5,43
Belgium	5,99	6,09	6,02	5,95	5,92	5,98	6,00	6,43	6,57	6,57
Bulgaria	3,70	3,94	4,09	4,40	4,25	4,04	3,88	4,44	4,58	4,10
Czech Rep.	3,93	4,15	4,32	4,20	4,08	4,42	4,05	3,92	4,36	4,24
Denmark	8,44	8,44	8,33	8,43	8,30	7,97	7,81	7,68	8,74	8,80
Germany	4,51	4,72	4,74	4,62	4,57	4,43	4,49	4,57	5,06	5,06
Estonia	5,24	5,47	5,29	4,92	4,88	4,70	4,72	5,59	6,09	5,68
Ireland	4,24	4,27	4,35	4,66	4,72	4,73	4,92	5,71	6,47	6,47
Greece	3,50	3,57	3,56	3,83	4,09	:	:	:	:	:
Spain	4,24	4,25	4,28	4,25	4,23	4,26	4,34	4,62	5,01	4,97
France	5,95	5,90	5,92	5,80	5,67	5,61	5,62	5,62	5,90	5,86
Italy	4,83	4,60	4,72	4,56	4,41	4,67	4,27	4,56	4,70	4,50
Cyprus	5,98	6,60	7,37	6,77	6,95	7,02	6,95	7,45	7,98	7,92
Latvia	5,71	5,77	5,34	5,08	5,09	5,09	5,02	5,75	5,64	5,01
Lithuania	5,86	5,81	5,14	5,17	4,88	4,82	4,64	4,87	5,64	5,38
Luxembourg	3,75	3,79	3,77	3,87	3,78	3,41	3,15	:	:	:
Hungary	5,06	5,39	5,91	5,44	5,46	5,44	5,29	5,10	5,12	4,88
Malta	4,27	4,22	4,48	4,66	6,58	6,45	6,18	5,72	5,32	6,74
Netherlands	5,06	5,15	5,42	5,46	5,53	5,50	5,32	5,50	5,95	5,96
Austria	5,74	5,68	5,53	5,48	5,44	5,40	5,33	5,47	5,98	5,89
Poland	5,42	5,41	5,35	5,41	5,47	5,25	4,91	5,08	5,09	5,17
Portugal	5,39	5,33	5,38	5,10	5,21	5,07	5,10	4,89	5,79	5,62
Romania	3,25	3,51	3,45	3,28	3,48	:	4,25	:	4,24	3,53
Slovenia	5,86	5,76	5,80	5,74	5,73	5,72	5,15	5,20	5,66	5,66
Slovakia	3,99	4,31	4,30	4,19	3,85	3,80	3,62	3,61	4,09	4,22
Finland	6,06	6,22	6,43	6,42	6,30	6,18	5,90	6,10	6,81	6,84
Sweden	7,06	7,36	7,21	7,09	6,89	6,75	6,61	6,76	7,26	6,98
UK	4,58	5,12	5,27	5,17	5,36	5,44	5,36	5,34	5,64	6,22
Iceland	6,24	6,79	7,70	7,47	7,59	7,55	7,36	7,56	7,81	7,60
Liechtenstein	:	2,96	2,46	2,43	2,29	2,05	1,92	2,05	2,90	2,68
Norway	7,18	7,58	7,55	7,42	6,97	6,49	6,66	6,40	7,24	6,87
Switzerland	5,25	5,57	5,72	5,55	5,52	5,28	4,88	4,95	5,36	5,22
USA	5,55	5,49	5,61	5,32	5,09	5,43	5,31	5,42	5,47	5,49
Japan	3,58	3,60	3,64	3,59	3,48	3,46	3,45	3,46	3,61	3,85

Source: Eurostat (2013b)

Tab. II: Development of the number of students in the EU, USA and Japan (in thousands)

Země/Rok	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EU 27	15 920,8	16 517,3	17 139,3	17 761,8	18 232,9	18 530,2	18 782,5	18 884,2	19 037,2	19 470,4	19 846,6	20 130,0
Belgie	355,7	359,3	367,0	374,7	386,1	389,5	394,4	393,7	401,7	425,2	445,3	462,4
Bulharsko	261,3	247,0	228,4	230,5	228,5	237,9	243,5	258,7	264,5	274,2	287,1	285,3
Česká Republika	253,7	260,0	284,5	287,0	318,9	336,3	337,4	362,6	392,5	416,8	437,4	446,2
Dánsko	189,2	190,8	195,3	201,7	217,1	232,3	228,9	232,2	230,7	234,6	240,5	258,9
Německo	2 054,8	2 083,9	2 159,7	2 242,4	2 330,5	2 268,7	2 289,5	2 278,9	2 245,1	2 438,6	2 555,6	2 763,1
Estonsko	53,6	57,8	60,6	63,6	65,7	67,8	68,3	68,8	68,2	68,4	69,0	69,1
Irsko	160,6	166,6	176,3	181,6	188,3	186,6	186,0	190,3	178,5	182,6	194,0	196,3
Řecko	422,3	478,2	529,2	561,5	597,0	646,6	653,0	602,9	637,6	:	641,8	660,7
Španělsko	1 829,0	1 833,5	1 832,8	1 840,6	1 839,9	1 809,4	1 789,3	1 777,5	1 781,0	1 800,8	1 879,0	1 950,5
Francie	2 015,3	2 031,7	2 029,2	2 119,1	2 160,3	2 187,4	2 201,2	2 179,5	2 164,5	2 172,9	2 245,1	2 259,4
Itálie	1 770,0	1 812,3	1 854,2	1 913,4	1 986,5	2 015,0	2 029,0	2 033,6	2 013,9	2 011,7	1 980,4	1 967,6
Kypr	10,4	11,9	13,9	18,3	20,8	20,1	20,6	22,2	25,7	31,0	32,2	32,1
Lotyšsko	91,2	102,8	110,5	118,9	127,7	130,7	131,1	129,5	127,8	125,4	112,6	103,9
Litva	121,9	135,9	148,8	167,6	182,7	195,4	198,9	199,9	204,8	210,7	201,4	187,1
Lucembursko	2,4	2,5	3,0	3,1	:	:	2,7	:	:	:	5,4	6,1
Maďarsko	307,1	330,5	354,4	390,5	422,2	436,0	438,7	431,6	413,7	397,7	389,0	381,9
Malta	6,3	7,4	7,3	8,9	7,9	9,4	8,9	9,8	9,5	10,4	10,8	11,4
Nizozemsko	487,6	504,0	516,8	526,8	543,4	565,0	579,6	590,1	602,3	618,5	650,9	780,0
Rakousko	261,2	264,7	223,7	229,8	238,5	244,4	253,1	261,0	284,8	308,2	350,2	361,8
Polsko	1 579,6	1 775,0	1 906,3	1 983,4	2 044,3	2 118,1	2 145,7	2 146,9	2 166,0	2 150,0	2 148,7	2 080,3
Portugalsko	373,7	387,7	396,6	400,8	395,1	380,9	367,3	366,7	376,9	373,0	383,6	396,3
Rumunsko	452,6	533,2	582,2	643,9	685,7	738,8	835,0	928,2	1 056,6	1 098,2	999,5	871,8
Slovinsko	83,8	91,5	99,2	101,5	104,4	112,2	114,8	115,9	115,4	114,4	114,9	107,1
Slovensko	135,9	143,9	152,2	158,1	164,7	181,4	197,9	218,0	229,5	235,0	234,5	226,3
Finsko	270,2	279,6	283,8	291,7	299,9	306,0	309,0	309,2	309,6	296,7	303,6	308,3
Švédsko	346,9	358,0	382,9	414,7	429,6	426,7	422,6	413,7	406,9	422,6	455,0	463,5
Spojené království	2 024,1	2 067,3	2 240,7	2 287,8	2 247,4	2 287,5	2 336,1	2 362,8	2 329,5	2 415,2	2 479,2	2 492,3
Island	9,7	10,2	11,6	13,3	14,7	15,2	15,7	15,8	16,6	16,9	18,1	18,8
Lichtenštejnsko	0,5	:	:	0,4	0,5	0,5	0,6	0,7	0,8	0,8	0,8	1,0
Norsko	190,9	190,1	197,1	212,4	213,8	213,9	214,7	215,2	212,7	219,3	224,7	229,7
Švýcarsko	:	:	170,1	186,0	195,9	199,7	205,0	213,1	224,5	233,5	248,6	257,7
USA	13 202,9	13 595,6	15 928,0	16 611,7	16 900,5	17 272,0	17 487,5	17 758,9	18 248,1	19 102,8	20 427,7	21 016,1
Japonsko	3 982,1	3 972,5	3 966,7	3 984,4	4 031,6	4 038,3	4 084,9	4 032,6	3 938,6	3 874,2	3 836,3	3 880,5

Source: Eurostat (2013b)

Tab. III: Students at public universities and private universities according to the form and type of study

	2001			2002			2003			2004		
	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ
total	203 461	198 783	4 784	220 189	211 875	8 433	243 723	230 986	12 945	264 792	246 980	18 043
total full-time	168 124	165 282	2 891	179 372	174 753	4 683	195 589	189 208	6 479	207 998	200 185	7 919
bachelor full-time	29 030	26 285	2 758	41 823	37 431	4 417	64 468	58 444	6 054	89 855	82 526	7 375
mastermaster full-time	124 611	124 480	138	122 483	122 292	196	114 589	114 372	221	99 092	98 862	234
following master full-time	9 955	9 955	–	10 178	10 107	74	10 583	10 378	207	11 801	11 466	335
doctoral full-time	6 722	6 722	–	7 666	7 666	–	9 101	9 101	–	10 016	10 016	–
total combined	36 654	34 768	1 896	42 358	38 616	3 757	49 930	43 487	6 475	58 854	48 749	10 151
bachelor combined	14 089	12 222	1 875	19 171	15 469	3 708	25 983	19 657	6 342	33 875	24 574	9 323
master combined	10 814	10 814	–	10 177	10 177	–	9 513	9 513	–	8 356	8 356	–
following master combined	2 115	2 093	22	2 712	2 651	63	3 678	3 475	207	5 482	4 516	973
doktorské kombinované	9 806	9 806	–	10 491	10 491	–	11 020	11 020	–	11 476	11 476	–
	2005			2006			2007			2008		
	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ
total	289 455	265 358	24 362	316 177	285 146	31 379	343 941	303 129	41 304	368 048	319 148	49 531
total full-time	223 137	213 725	9 517	238 171	226 691	11 592	251 908	237 182	14 908	263 899	246 930	17 203
bachelor full-time	112 826	104 215	8 662	132 776	122 466	10 368	149 151	136 031	13 234	161 173	146 301	15 036
master full-time	86 456	86 219	241	73 490	73 309	183	60 169	60 041	129	49 289	49 195	94
following master full-time	16 435	15 814	627	24 628	23 591	1 047	35 352	33 811	1 554	45 940	43 865	2 096
doctoral full-time	10 101	10 101	–	9 973	9 973	–	9 962	9 959	3	10 506	10 500	6
total combined	68 688	53 867	14 872	80 780	61 021	19 828	95 347	68 983	26 439	107 981	75 711	32 382
bachelor combined	41 942	29 297	12 676	50 131	34 187	15 986	60 121	39 692	20 469	69 421	44 569	24 919
master combined	7 092	7 092	–	6 041	6 041	–	5 052	5 052	–	4 095	4 095	–
following master combined	7 632	5 365	2 273	11 469	7 618	3 856	16 382	10 412	5 985	20 732	13 286	7 467
docárál combined	12 281	12 281	–	13 387	13 387	–	14 064	14 060	4	14 047	14 033	15
	2009			2010			2011			2012		
	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ	VŠ	VVŠ	SVŠ
total	389 044	333 148	56 589	396 047	339 361	57 387	392 176	339 054	53 788	381 272	333 501	48 392
total full-time	277 104	256 912	20 436	283 607	262 564	21 291	284 356	263 379	21 215	282 082	261 195	21 158
bachelor full-time	170 940	153 510	17 590	176 394	158 602	17 972	176 540	159 032	17 668	175 193	158 136	17 228
master full-time	42 940	42 889	52	38 097	38 077	20	35 271	35 263	8	32 483	32 482	1
following master full-time	54 648	51 862	2 811	59 441	56 175	3 286	62 457	58 940	3 533	64 015	60 114	3 939
doctoral full-time	11 595	11 585	10	12 512	12 495	17	12 832	12 804	28	12 733	12 705	28
total combined	116 287	80 171	36 208	116 728	80 683	36 151	111 947	79 409	32 636	102 788	75 538	27 319
bachelor combined	74 363	47 336	27 075	73 514	47 609	25 955	69 286	46 444	22 896	61 907	43 366	18 575
master combined	3 154	3 154	–	2 651	2 651	–	2 221	2 221	–	2 047	2 047	–
following master combined	25 166	16 075	9 108	27 414	17 290	10 145	27 828	18 173	9 678	26 890	18 222	8 682
docárál combined	13 951	13 904	47	13 455	13 397	59	12 884	12 812	72	12 194	12 119	75

Source: Ministry of Education (2013)