THE IMPACT OF TAXATION ON FIRM'S PERFORMANCE: EMPIRICAL EVIDENCE ON THE CASE OF CEE COUNTRIES

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Abstract: *The performance of the firms is affected by many factors, according to the studies realized in this area. But, of all this factors of influence in this paper we want to focus on a major problem mentioned by all the firms: taxation, and to test its impact on business performance. To see if taxation affects the performance of the firms, we used the data collected for seven Central and Eastern European countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland and Romania) for estimating three regression models, according to the size of the firms analyzed. For measuring the performance of the firms we consider the growth of their value added. And for measuring taxation we use a series of indicators: total tax rate, tax payments, time needed to prepare and pay taxes, profit tax, other taxes paid by firms, labor tax, taxes on income, profits, and capital gains and taxes on goods and services. We also consider as a control variable the real economic growth rate. After applying multiple linear regressions on panel data, our results show that real economic growth rate, profit tax and taxes on goods and services are the main determinants of value added growth of the firm from CEE countries, and implicitly of the firm's performance. When we extend the analysis according to the size of the firm, we obtain almost similar results; the only difference came from the fact that profit tax does not significantly influence the performance of the large firms. The combined effect of the variables considered statistically significant had a medium impact on the performance of the firms for all the firms and large firms, as shown by R-squared value. These results show that are also other factors which have a higher impact on the performance of the firms, so in future research we intent to analyse also other variables that define taxation and also to extent the sample, by including more countries.*

Keywords: taxation, performance, value added, regression

JEL classification: H22, H71

1. Introduction

Taxation affects many aspects of daily life, and is an area that suffers continuous changes. Its influence can be felt weaker or stronger by individuals but there is a unanimous opinion that the activity of the firm is really influenced by taxation policy from the country where they operate. The business environment responds to tax changes continuously. Business stability and performance is related to fiscal stability and our research aims to test the power of these connections.

According to Modigliani and Miller (1963) changes in tax law that lowers tax rates

should increase firm value. Consequently, Downs and Hendershott (1987) showed that changes to the tax legislation of 1986 tax reform had increased the value of companies from 10% to 13%. Also, Derashid and Zhang (2003) found a negative relationship between the profit tax and the financial performance of the company, thus when the effective tax rate is higher, the performance of the firm decreases. Schwellnus and Jens (2008) examined the effects of corporate income taxes on the profitability and investment of firms in European OECD member countries over the time period of 1996-2004. Their results show a negative effect of corporate income taxes on the profitability of the firms, so, if there is an increase in the corporate tax rate the profitability of the firm decreases.
Rohaya, et al. (2010) conducted a study on corporate income taxes and showed also an association between income tax and profitability of corporate institutions. Their conclusion was that corporate income tax affects negatively the profitability of corporate institutions but has a positive relationship with the firm size and age of companies. De Mooij et.al, (2001) found the same results, a negative relationship between corporate taxation and financial performance. Duranton et al. (2011) estimate the impact of business property taxation on firm's performance and find a reverse causality between firm decisions and many aspects of the tax system itself. Gatsi et al. (2013) focused their study on exploring the relationship between corporate tax and financial performance. The study has found that, there is a significant negative relation between corporate income tax and financial performance.
So, through this paper we intend to test if the taxation regime from seven CEE countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland and Romania) has a significant impact on the performance of the firms from these countries. In order to achieve the proposed objective we have structures our paper as follows: after a brief review of the specialized literature on the field we realize an empirical analysis of the impact of taxation, measured by a series of indicators, on the performance of the firms. In order to determine this impact we use linear regression model. After discussing the obtained results our study ends with conclusions.

2. Empirical analysis of the impact of taxation on firm's performance

Most of the firms from the European Union consider taxation matters to be the most burdensome policy area that affects them. Large enterprises can usually use some tax experts for advice on how to optimize their net profits, but SMEs have many difficulties regarding tax matters.
The problem of taxation for CEE firms can be observed if we take into account the business environment constraints declared by the entrepreneurs in CEE countries. Thus, after being presented with a list of 15 business environment obstacles, business owners and top managers in the firms from CEE were asked to choose the biggest obstacle to their business. The results for the region were obtained by calculating the average of the responses for each of the seven CEE countries, and are presented in figure 1.

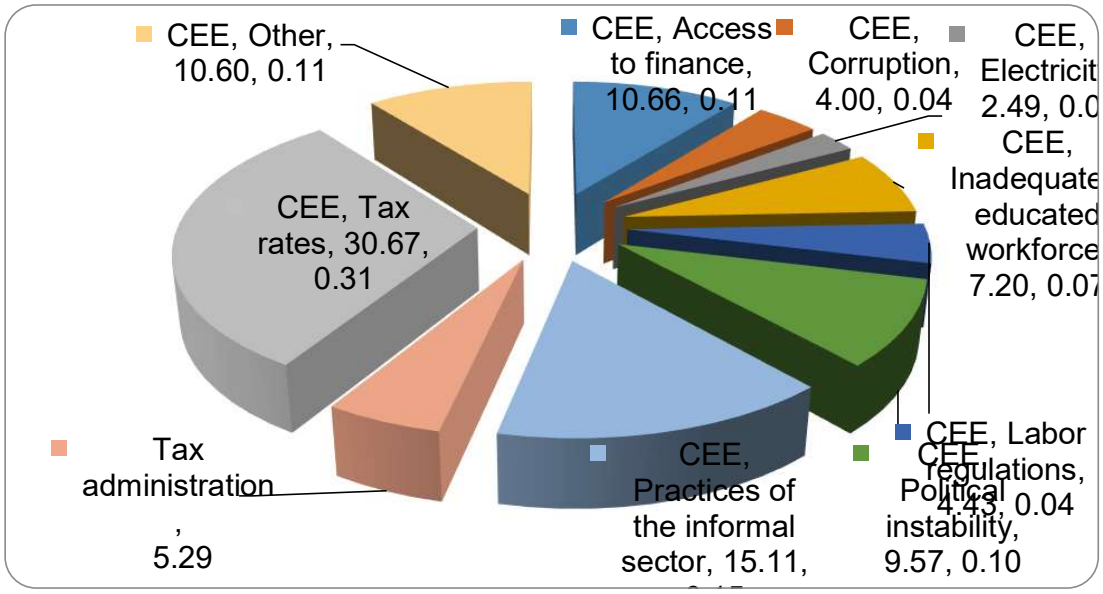

Figure 1 – Top 10 business environment constraints for CEE countries, 2013
Source: data processed by the authors after www.enterprisesurvey.org

From figure 1 we observe that the top 5 business environment constraints in CEE region are: tax rates (31% of the firms mentioned this as a problem), practices of the informal sector (15%), access to finance (12%), practices of informal sector (15%) and access to finance (11%). Other problems mentioned are political instability, inadequately educated workforce and tax administration. So, if we combine the problems regarding taxation we observe that this is the biggest obstacle mentioned by the firms from CEE countries, being mentioned by more than one third of the firms as their biggest environment constraint.

In the analysis realized above we have observed that tax rates and tax administration are considered by the firms as being major obstacles in their activity, so, starting from this, the objective of our analysis is to test if the taxation regimes from the CEE countries considered have an important impact on the performance of the firms.

In order to study if taxation determines the performance of firms in the CEE countries, we have considered as main indicator measuring the SMEs performance the growth of value added obtained by this firms. The data for the growth of value added of the firms are obtained from the SME Performance Review, 2015.

The taxation can be measured by a series of indicators that we have chosen as the explanatory variables of our model. The annual financial data for the explanatory variable are taken from World Bank DataBank, for the period 2009-2014, for 7 CEE countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland and Romania). We present above the explanatory variables and their explanations.

- *Real economic growth* (in %) – calculated as annual growth of Gross Domestic Product.
- *Total tax rate* (as % of commercial profits) – represents the amount of taxes and mandatory contributions payable by the firms after accounting for allowable deductions and exemptions.
- *Tax payments by businesses* (number) – represents the total number of taxes paid by firms, including electronic filing.

- *Time to prepare and pay taxes* (hours/year) – represents the time, in hours per year, needed to prepare, file, and pay three major types of taxes: the corporate income tax, the value added or sales tax, and labor taxes, including payroll taxes and social security contributions.
- *Profit tax* (as % of commercial profits) - is the amount of taxes on profits paid by the firms.
- *Other taxes* (as % of revenue) - include employer payroll or labor taxes, taxes on property, and taxes not allocable to other categories, such as penalties for late payment or non-payment of taxes.
- *Labor tax and contributions* (as % of commercial profits) - represent the amount of taxes and mandatory contributions on labor paid by the firms.
- *Taxes on income, profits, and capital gains* (as % of revenues) - are levied on the actual or presumptive net income of individuals, on the profits of corporations and enterprises, and on capital gains, whether realized or not, on land, securities, and other assets.
- *Taxes on goods and services* (as % of revenue) - include general sales and turnover or value added taxes, selective excises on goods, selective taxes on services, taxes on the use of goods or property, taxes on extraction and production of minerals, and profits of fiscal monopolies.

The hypotheses of our empirical research are:

H_1: *there is a significant relationship between taxation and the performance of the firms from CEE countries.*

H_2: there is e negative relationship between taxation and the performance of the firms.

For testing these hypotheses we realize a statistical analysis. In order to statistically analyze the data we first applied unit-root tests on every variable included in the panel data, to test if data is stationary and control for spurious relationships among variables. The null hypothesis is that all panels contain unit-root. This hypothesis was rejected in all the cases. After that we have analyzed the descriptive statistic of the variables (Table 2 and Table 3), the correlations between variables considered in the analysis and regression analysis (Table 4). **To obtain the estimated coefficients of the regression models, calculations were made using EViews 7 computer package.**

3. Results and discussions

The descriptive statistics of the taxation factors (see Table 2) shows that the biggest standard deviation was observed for the time needed to prepare and pay taxes, fact that shows that this variable register big variations from one country to another, for example in Estonia, in 2014, there were needed only 81 hours to prepare and pay taxes, while in Bulgaria were needed 424 hours for this procedures. Also, the big value of standard deviation shows that there were registered important changes over time, all the analyzed countries registering a reduction of the number of hours needed to pay taxes in 2014 compared to 2009, as a result of the reforms adopted by the policy makers. Big differences are registered also for the number of tax payments, if in Latvia are made only 7 payments, in Poland the number of payments is almost three times higher (19). In some countries are registered also

important changes over time, for example, in Romania there is registered an important decrease of the number of payments from 113 in 2009 to only 14 in 2014, in Poland we also observe a halving of the number of tax payments. The most stable indicator describing taxation was the percent of other taxes payable by business.

Table 2: The descriptive statistics of the influence factors

Variable	Min.	Max.	Mean	Std. deviation
gdp	**1.26**	**3.54**	**2.5525**	**1.1623**
tax	**40.10**	**49.30**	**43.8750**	**3.8767**
paym	**11.00**	**39.00**	**20.25**	**12.9967**
time	**175**	**288**	**235.0000**	**55.9702**
profittax	**6.10**	**13.10**	**10.4250**	**3.0456**
othertax	**0.03**	**2.41**	**1.0523**	**1.0247**
incometax	**14.19**	**25.14**	**19.9057**	**4.4820**
goodstax	**49.28**	**58.46**	**53.5707**	**3.9287**

Source: processed by the authors after E-views results

On the other hand when we analyse the dependent variable we observe the ascendant trend of the value added obtained by the firms from CEE countries starting with 2010. An important decrease was in 2009 compared to 2008, after the outburst of the recent crisis, and also a slightly decrease in 2012, and 2015, but followed in the next year by a resume of the ascending trend.

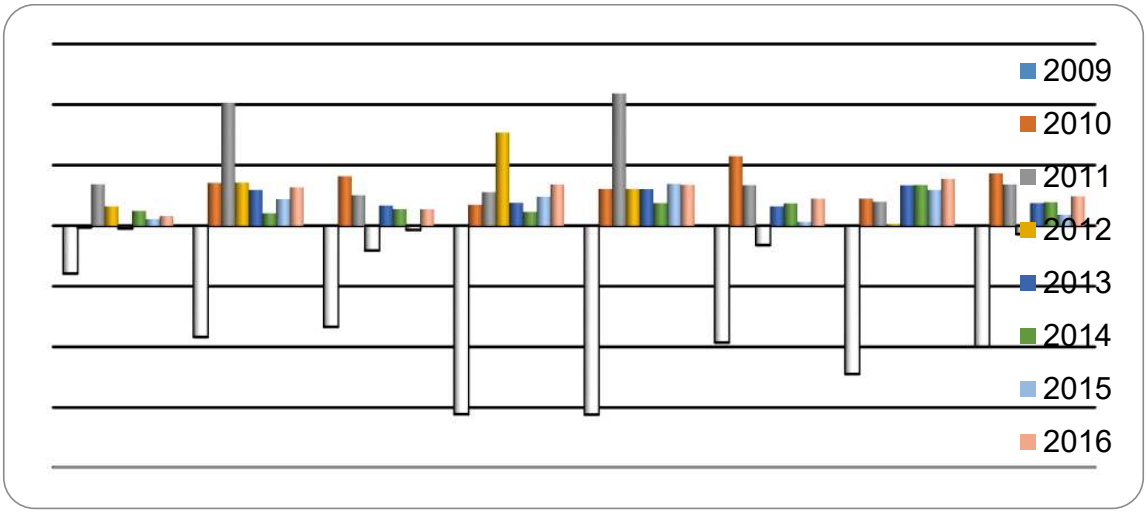

Figure 2: The evolution of value added of the firms (in %), by country and total, for the period 2009-2016
Source: processed by the authors after data from SME Performance Review, 2015.

From figure 2 we also observe the differences that appear between the countries in the region. There are countries were the variations from one year to another are relatively small (Bulgaria, Hungary and Romania), but also countries with big variations (Estonia, Latvia, Lithuania).

Before realizing the regression analysis, we have tested all the variables against autocorrelations. We have also taken into account the problem of multicollinearity. The results of the correlation test applied to our variables shows that does not exist multicollinearity between the independent variables.
Through the regression analysis we want to determine which of the considered indicators representing taxation are between the main determinants of the performance of the firms from the CEE countries. In order to do so, we use the model with the dependent variable the growth of value added. The results of the regression model are presented in Table 3.

Table 3: Estimation results of simple firm's value added growth model

	All firms	**All SMEs**	**Large firms**
Explanatory variable	*Dependent variable: value added growth from 2008 to 2014*		
gdp	1.479***	2.009***	1.437***
tax	0.057	0.076	0.004
paym	-0.070	-0.093	-0.046
time	-0.012	-0.016	-0.006
profittax	-0.453*	-0.640**	-0.145
othertax	2.281	2.313	2.002
incometax	0.056	-0.012	0.101
goodstax	-0.885***	-0.930***	-0.753***
R-squared	0.3131	0.7351	0.5549

*** and *** denotes** that coefficients are significantly at the 90% and 99% level.
Source: processed by the authors after E-views results

Based on the results of the static regression model applied and the statistically significant coefficients, we can conclude that real economic growth, profit tax and taxes on goods and services are the main determinants of value added growth of the firm, and implicitly of the firm's performance from the CEE countries.
The real economic growth has a stimulating effect on the performance of the firms, an increase of 10% of the economy would induce an increase of 14% of the value added obtained by the firms. The coefficient is statistically significant at 1% level.
The profit tax calculated as a percent of the commercial profits of the firm affects negatively the performance of the firms, determining a decrease of the value added obtained. The relationship is statistically significant at 10% level. Although, the effect is small, an increase of 1% in the level of profit taxes induces a decrease of only 0.45% of the value added of the firms. This result is in accordance with our expectations.
The level of taxes on goods and services calculated as a percent of the revenues of the firms has a negative effect on the value added of the firms, the relationship being statistically significant at 1% level. Although, the effect is also small, an increase of 1% of the taxes on goods and services would induce a decrease of only 0.88% of the value added of the firms.
According to our results, the other factors expressing taxation considered in the analysis do not have a statistically significant impact on the value added of the firms.
When analyzing the impact of taxation on the value added of the firms according to

the firm's size, we obtain similar results. The real economic growth has a stimulating effect on both the performance of the large firms and of SMEs. The coefficients are statistically significant at 1% level.
The level of taxes on goods and services, calculated as a percent of the revenues of the firms, has a negative effect on both the value added of the large firms and SMEs. The value of the coefficients shows that an increase of 1% of the taxes on goods and services would induce a decrease of 0.93% of the value added of the SMEs, and a decrease of 0.75% of the value added of the large firms. The profit tax affects negatively the performance of both SMEs and large firms, but the coefficient is statistically significant only for SMEs.
So, our hypothesis is confirmed, and we can say that there is a significant relationship between taxation and firm's performance.
When analyzing the results we have to take into account that the analysis was realized only on 7 countries from CEE, maybe if we would made an analysis on a bigger number of countries, for example all the European Union member countries (this would be the topic for our future research) we would have obtained different results.
The combined effect of the variables considered statistically significant had a small impact on the performance of all the firms, as shown by R-squared value of 31%. The obtained results show that we have to consider also other factors which have an impact on the performance of the firms, then taxation. For the SMEs the model has a bigger value of R-squared, but for large firms there is just a medium value.
Our results are in accordance with the results obtained by other studies from the specialized literature.

4. Conclusions

In our paper we analyse the impact of taxation on the performance of the firms from the Central and Eastern European countries. The purpose of our study was to test the hypotheses and to offer evidence with respect to the impact of the considered indicators expressing taxation on the growth of the value added of the firms. We considered as determining factors the GDP, total tax rate, tax payments, time needed to prepare and pay taxes, profit tax, other taxes paid by firms, labor tax, taxes on income, profits, and capital gains and taxes on goods and services.
The empirical results of this research show that a part of the considered indicators are significantly affecting the value added of the firms from CEE countries, according to their firm's size. More precisely, the value added growth for all the firms is influenced by real economic growth rate, profit tax and taxes on goods and services. The factors affecting the value added of the firms according to their size register some differences, so, the value added of SMEs is influenced by real economic growth rate, profit tax and taxes on goods and services, while the value added of large firms is influenced only by the real economic growth rate and taxes on goods and services.
Starting from this results, we can conclude that taxation, expressed especially by the value of profit tax and also by the value of taxes on goods and services has a statistically significant impact on the value added of the firms; an increase of taxation determining a decrease of the value added of the firms, and implicitly of their performance.
In future research we aim at including in the analysis other determining factors expressing taxation and also at extending the sample on all the European Union

member countries. The need for this procedure is observed when analyzing the values obtained for R-squared.

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