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PREGLEDNI ZNANSTVENI ČLANEK – REVIEW PAPER

ANALYSIS OF THE FISCAL BURDEN IN BOSNIA AND HERZEGOVINA AND THE EUROPEAN UNION

Analiza fiskalnega bremena v Bosni in Hercegovini in Evropski uniji

Abstract

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This paper analyses the importance of the fiscal burden for the national economy and the relationship between taxes and gross domestic product. This paper examines tax participation – the most important part of state treasury – in the gross domestic product (GDP) as well as the fiscal burden in B&H and the European Union (EU) countries from the aspect of direct and indirect taxes. Finally, the significance of relationship between the GDP and Value Added Tax (VAT) is analysed. The example of EU 27 and B&H demonstrates the intensity of the impact and relationship of stated values in a certain time period in addition to mutual comparisons.

Key words: Fiscal burden, tax burden, value added tax, gross domestic product, simple regression analysis.

Povzetek

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Članek analizira pomen fiskalnega bremena za nacionalno gospodarstvo ter odnos med davki in bruto domačim proizvodom. Na začetku članek obravnava prispevek davkov, kot enih izmed najpomembnejših delov državne blagajne, v bruto domači proizvod (BDP). Nadalje se članek osredotoča na fiskalno breme v BiH in v državah Evropske unije (EU) z vidika tako neposrednih kot tudi posrednih davkov. Na koncu je predstavljena analiza pomena odnosa med BDP in davkom na dodano vrednost (DDV). Primer 27 držav članic EU in BiH kaže na intenzivnost učinka in na razmerje med navedenimi vrednostmi v določenem obdobju kot tudi medsebojne primerjave.

Ključne besede: fiskalno breme, davčno breme, davek na dodano vrednost, bruto domači proizvod, enostavna regresijska analiza.

JEL: H21 - Efficiency; Optimal Taxation

Introduction

Fiscal burden as a measure of tax share within GDP tends to increase in nearly all national economies. Despite several requests by theoreticians, politicians, businessmen, and other interest groups to decrease the tax burden, its growth tendency has been noted especially in the case of indirect taxes (i.e., consumption taxation). In addition to developed countries, wherein the share of public revenues on domestic product occurs at a rather high level, an increase in fiscal burden has also occurred in other countries (especially newly associated EU members), with a noticeable rate of economic growth.

Significance and Types of Fiscal Burden

Taxes are the foundation for the system of public revenues. The largest amount of public revenues is collected by applying tax and similar forms of collection for the needs of public consumption. The greatest part of national income of any one country is collected via taxation. It has long been considered that taxes should not affect economic trends. However, tax burdens have increased to such an extent that one cannot talk about the neutrality of tax; indeed, tax measures along with taxation policy instruments are causing certain changes not only in factors of economic system, but also in economic trends. Such changes can contradict economic, political, and social goals, which depend on the existing economic climate and political situation. The very tax influence on economic trends underscores the need to calculate and measure its burden on domestic product and national income.

Fiscal burden is considered to be the level of burden on the national income (or GDP) by general and joint expenses for meeting public needs financed by fiscal and non-fiscal revenues. Financial books as well as research studies explore the notion of fiscal burden. Yet fiscal burden is associated not only with total national economy, but also with some fields or branches of economy as well as taxpayers. Further division is realised through observation of fiscal burden on the basis of various fiscal revenues. Since taxes are the greatest part of fiscal revenues, fiscal burden can be equalised with the term of tax burden as this notion includes tax revenues, but not non-tax ones. The basis for this statement is found in the fact that parafiscal revenues do not represent a burden on domestic product. Non-tax public revenues such as public loans, donations, company revenues (of the public and states), income earnings due to privatisation, and similar revenues have as their source the domestic product of some other country or they are the result of redistributing an already realised domestic product.

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Fiscal burden points to participation of one economic value in the other. Therefore, it can be mathematically presented by the following formula:

$$F_0 = \frac{S_d}{D_d} 100$$

where:

F_0 – calculated fiscal burden,

S_d – the sum of all public revenues collected by taxes,

D_d – the annual GDP calculated by market prices for a specific year.

Although this formula shows objective values, one should still be careful about the values, especially those in the numerator. As previously mentioned, public revenues refer to those of fiscal character and, as such, represent compulsory payments. In such a context, the inclusion of non-fiscal revenues such as donations, public loans, and income due to privatisation and from public bodies, institutions, and enterprises would highlight the subjective image of the burden on GDP. Therefore, taking tax payments into account for calculation, the real value of the burden of a domestic product on the national economy for a specific year can be determined.

Importance of measuring the fiscal burden

Studying the international comparisons of any values, we can see that they have their meaning in the conditions in which it is possible to compare equal or at least nearly equal categories. In other words, the systems are mutually comparable. In terms of comparison of tax burdens for individual tax forms (profit tax, VAT, property tax, etc.), this makes sense if the comparison of fiscal burden is observed in a certain size, such as revenue or turnover income from operations before any relief or exemptions. On the other hand, the comparison of the burden arising from the contributions is largely connected to the social policy of each country, which can vary greatly within countries. Hence, it is more difficult to compare contribution-related burdens; results obtained this way have no significance when it comes to mutual comparison. Moreover, the international comparison of burdens is additionally damaged by the fact that the financing of healthcare is organised in a very different way from country to country, where certain countries to a large extent rely on private funding sources while others are more government-financing oriented.

Fiscal burden can also be observed through the proportion of public expenditures within GDP. However, in regard to the effects of fiscal policy, which implicitly includes giving part of public revenues back to economy and population through various transfers, its total burden is decreased. Furthermore, public expenditures are to a certain degree financed by other public revenues as well, which in themselves do not represent a burden. This primarily refers to public loans and various donations that, as such, do not reduce GDP at all. Naturally, public loans can also be associated with GDP of a specific year due to their effect on redistribution of a part of the public consumption to future generations.

Measuring the fiscal burden provides important data on the state of the national economy. The importance further increases when the fiscal burden is observed by certain segments (economic subjects, industries, regions, types of income, etc.). Therefore, partial fiscal burdens will show the state authorities which areas shoulder too much or too little of the burden of certain taxes. However, it is important to emphasise the rational usage of the public expenditures. Namely, if public income is spent to increase the economic welfare and improve the economy, then – pragmatically speaking – the tax burden can be increased without disturbing the balance in economic relations between economic subjects and other holders of economic policy. A full assessment of the fiscal burden and its specific amount within the countries depends on the different degrees of economic development as well as the social meeting of general needs of both the community and individual.

Fiscal burden in the European Union

As previously stated, fiscal burden is a broader category than tax burden as it includes all public revenues present in one country. However, by observing a certain form of tax revenue, we can get the burden per income. Since taxes comprise the largest share in the total weight of public revenues, it is understandable that the burden is considered in the context of taxes. Tax burden is the most important segment of fiscal burden[1]. It represents the share of taxes in GDP, which can be presented structurally in regard to the form of taxes representing that specific burden.

Considerable differences exist regarding the total tax burden among the member countries. The EU is a region of high tax. Tax burden has various specific weights depending on the specific EU country. The increase in fiscal burden in EU countries can be viewed in the context of increasing public revenues, especially indirect taxations, which highlights the growth of total consumption. Naturally, the permanent growth of GDP in the EU member countries shows the growth of the very ratio, particularly in new member countries. Eurostat found that the rate of economic growth in the EU was 5.61% in 2006, 5.8% in 2007, but only 1.13% in 2008. The global financial crisis determined the fall of GDP in 2008 as well as decrease in total taxes compared to 2007. Eurostat further implied that increasing numbers of indicators point to the intensification of tax competition among EU member countries, which

[1] Fiscal burden in its complete form is separate from taxes consisting of other duties as well – namely, contributions, fees, stamp duties, indemnities, penalties, and other liabilities of public duties collected at all levels of socio-political system of a country.

results in a reduction of tax rates.

The ratio of tax revenues in relation to GDP has differed year by year for many reasons. A detailed analysis determined that changes in economic activities (e.g., employment rate, total trade in goods and services) and tax legislation (e.g., tax rates, tax exemptions) are influenced by the global price movement of oil, dollar rate, and the situation in world financial markets.

Table 1. *Total Tax Revenues per Country expressed in Percentages from GDP, 2004 to 2008*

	2004	2005	2006	2007	2008
EU-27	39,0	39,3	27,0	27,1	26,5
EA-15	39,5	39,8	25,9	26,2	25,4
BE	45,0	44,9	30,3	29,7	29,8
BG	33,9	34,1	25,3	25,7	25,1
CZ	37,4	37,1	20,1	20,6	19,6
DK	49,0	50,7	48,5	47,6	47,2
DE	38,8	38,7	23,0	23,9	23,9
EE	30,9	30,6	20,5	21,2	20,1
IE	30,4	30,8	27,2	26,2	23,7
EL	31,3	31,3	20,3	20,3	20,1
ES	34,5	35,6	24,5	25,1	21,1
FR	43,2	43,8	27,4	27,0	26,6
IT	40,6	40,6	29,2	29,8	29,1
CY	33,4	35,5	28,4	33,1	31,3
LV	28,5	29,0	21,3	28,3	20,4
LT	28,3	28,8	20,7	20,8	20,9
LU	37,3	37,8	25,5	25,7	25,4
HU	37,6	37,4	24,4	25,9	26,3
MT	33,1	33,7	27,1	28,3	27,9
NL	37,5	37,9	24,5	24,8	24,1
AT	42,8	42,0	27,2	27,6	28,2
PL	31,5	32,8	21,8	22,7	22,8
PT	35,4	36,3	24,2	24,8	24,5
RO	27,4	27,9	18,8	19,1	18,8
SI	28,9	39,3	18,5	23,7	23,0
SK	31,6	31,5	17,2	17,2	16,8
FI	43,4	44,0	31,1	30,8	30,8
SE	48,7	19,5	36,6	35,9	35,6
UK	35,7	36,6	29,7	29,5	30,2
IC			38,1	37,7	33,9
NO	43,3	43,5	35,2	34,6	33,2

Source: Eurostat statistical books, government finance statistics, Summary tables – 2/2009

The EU's significant tax share in GDP is not a novelty. The growth of tax share in GDP in EU was recorded in the 1970s, with less intensity in the 1980s and the early 1990s. This trend was closely connected to the public sector's increased participation in national economies of the time. Of course, in the late 1990s, the first Maastricht agreement, which set the convergence criteria, followed by the pact on stability and growth resulted in the adoption and implementation of a number of measures of fiscal consolidation. In some of the member countries, such processes were particularly directed to reducing or decreasing public expenditures whereas in other member countries the emphasis was on tax growth. These measures were in some cases temporarily used.

Fiscal policy is responsible for ensuring supplies of public goods and equitable redistribution of the tax burden. By following financing and budgeting rules, the risks of negative effects of fiscal policy on the economy are minimised. Therefore, fiscal policy can be viewed as a significant instrument of macro policy. Tax revenue items in budgets can contribute to economic growth and lower economic burdens, providing they focus on a developmental budget and the forming of a favourable investment climate.

Fiscal and Monetary Basis of Bosnia and Herzegovina (B&H)

In general, public finances (i.e., the fiscal system) have always been on the verge of political and economic aspects of any state and/or integration. It is essential that less developed countries devote their attention to further developing their financial systems. This includes B&H as well. The entry of foreign investors increases the standards and efficiency of such countries' economic and financial systems. However, it is necessary to regulate both monetary and fiscal areas. Since its declaration of independence (i.e., the end of the war), B&H has had continuous economic growth. Its monetary policy was regulated by

Table 2. *Basic Economic Classes in Key Economic Sectors*

Prediction of IMF for 2008	GDP, real annual growth rate	Inflation, annual rate	General balance of a country	Balance on current account, % GDP
World	4.8	3.6		
Biggest developed countries	1.9	1.9	-2.6	-1.9
EU	2.5	2.3	-1.2	-1.2
EMU	2.1	2.0	-2.6	-0.4
Emerging markets	7.4	5.3		3.7
Middle and East Europe	5.2	4.1		-7.5

Source: IMF, World Economic Outlook Database, November 2007.

Figure 1. *Nominal GDP and real GDP growth rates for B&H*

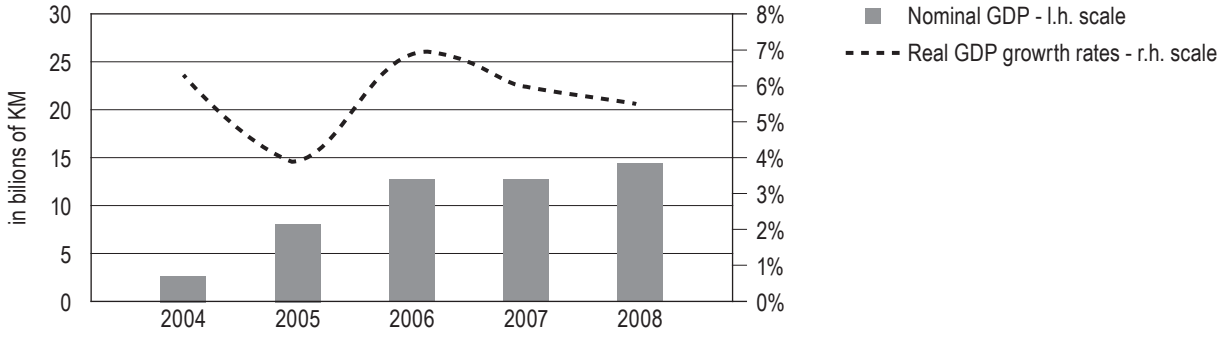


Table 3. *Macro-economic Projections for B&H, 2009 to 2011.*

Indicator	Estimation		Prognosis			
	2006	2007	2008	2009	2010	2011
Nominal GDP (in millions of BAM)*	21.151	22.808	25.170	27.291	29.436	31.728
Nominal growth rate (%)	16.36%	7,83%	10,36%	8,42%	7,86%	7,79%
Real GDP (in millions of BAM)	19.877	22.414	24.323	26.763	28.857	31.114
Real growth rate (%)	9,35%	5,97%	6,64%	6,33%	5,74%	5,70%
Inflation (measured by cost-of-living index) %	6,10%	1,50%	3,00%	2,10%	2,00%	2,00%
Current account balance (in millions of BAM)	1.597	2.739	3.533	4.034	4.399	4.688
Current account balance in % GDP	-7,50%	-12,00%	-14,00%	-14,80%	-14,90%	-14,80%

* GDP indicator according to expenditure approach.

Source: Statistic Agency of B&H, 2007 to 2011.

the Dayton Peace Agreement and has remained stable ever since. However, fiscal policy is subject to constant modifications and evident improvements. Macroeconomic projections (see Table 3) illustrate B&H's economic activity. Interestingly, the estimated GDP value for 2008 was 25.1 billion BAM, while the Agency for Statistics of B&H (BHAS) announced the revised value of 21.6 billion BAM for 2007. The level of deflation for 2007 was 7.24%, which was much higher than inflation measured by the consumer price index (1.5%). Deflation for 2008 was much higher considering that the inflation rate was 7.4%; it was further estimated that the growth rate of real GDP was approximately 5.5%. Such growth was in accordance with trends in the region[2] (Croatia 2.2%, Macedonia 4.6%, Serbia 5.6%, Albania 6.1%, Montenegro 8.1%). From this, we see that the economy of B&H fell behind the economies of neighbouring countries. Figure 1 shows a reduction in the movement of nominal and real GDP from 2004 to 2008.

B&H's monetary policy is based on the principles of currency board, which means that the national currency (BAM) is linked to the euro. Hence, full convertibility of national currency for the euro and vice versa is achieved and guaranteed. The required reserve is the only available monetary policy instrument of the Central Bank in B&H. Namely, the amount of money in circulation directly correlates to the purchase and sale transactions of BAM from the Central Bank of B&H. Since the Central Bank has no option to monetise public debt (i.e., fiscal deficit), the greater part of promoting economic growth is achieved by the instruments of fiscal policy. Considering the state of the world economy and the reduction of the real GDP growth rate in B&H with a given monetary policy, it undoubtedly implies that fiscal policy should be directed to reduce or limit public expenditures as well as to strengthen tax authorities' control to stop tax evasion, making their work more efficient.

In addition to the establishment of indirect taxes at the state level, it is necessary to proceed with harmonisation in the area of direct taxes at the entity level. Notably, the reduction of fiscal bounty caused by the decline in economic activity should alarm authorities, propelling them to take measures to reduce public expenditures to the real scope while optimising their structure to support sustainable development and necessary growth of the economy. Of course, doing so will open up the possibility of reducing tax rates (both direct and indirect taxes), which can ultimately affect the overall reduction of fiscal burden.

Fiscal Burden in Bosnia and Herzegovina

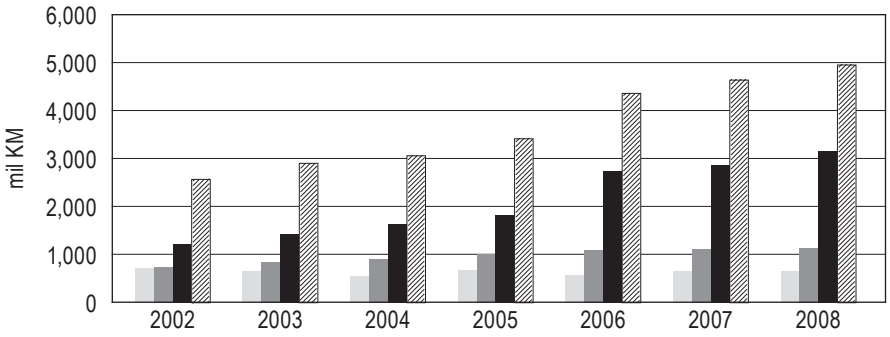
B&H has successfully implemented the VAT system and renewed the system of indirect taxes, which represent the biggest item of revenues in B&H's budget. In planned activities, B&H's government intended to spend a part of its extra VAT revenues to reduce the tax burden in the field of direct taxation. Thus, it can be expected that labour force taxes will

[2] Annual report CBB&H, 2008, p. 15.

be harmonised or reduced in order to initiate the appearance of new workplaces in the private sector. Of course, fiscal policy is only a part of the total macro-economic policy. Therefore, some fundamental values of indicators indicating the economic situation in B&H are presented here so that a projection for the future period can subsequently be made.

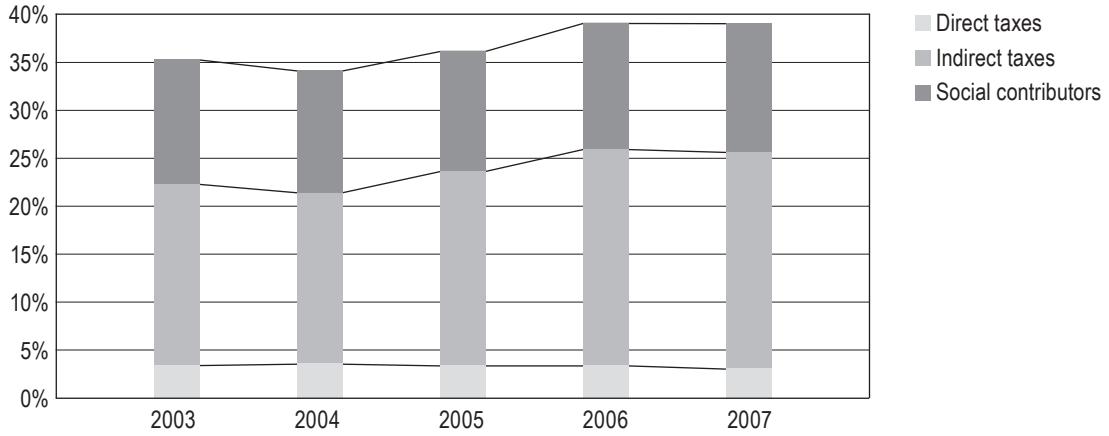
One of the primary causes of GDP's growth in 2006 was the decreased trade deficit, which led to a decrease in the current account deficit. Economic trends in the medium term will have a positive trend. The estimated real growth in 2007 was 6%, while in 2008 it was 6.6%; the expected growth in 2010 as well as 2011 is 5.7%. GDP growth in B&H

Figure 2. *Trends in collection of indirect taxes (2002 – 2008) for B&H*



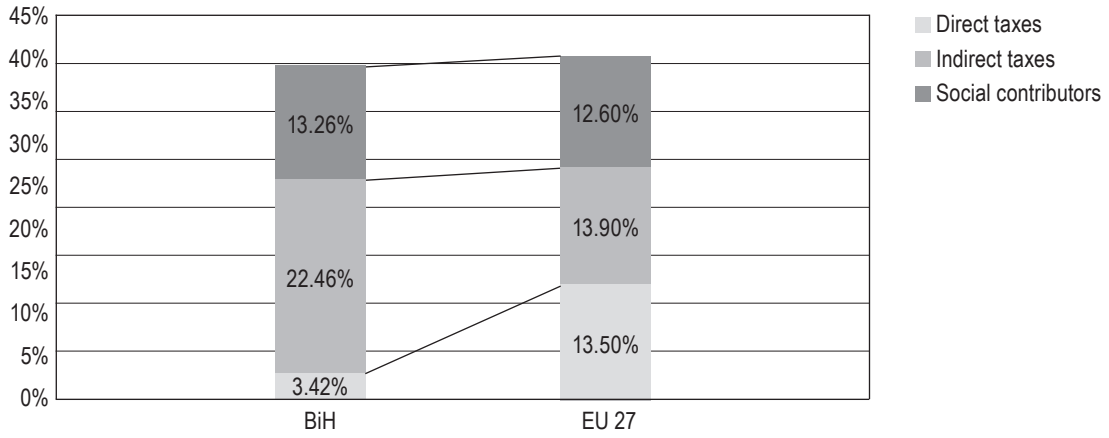
Source: Macroeconomic Unit of the Governing Board of the Indirect Tax Authority (2009)

Figure 3. *Fiscal burden in B&H*



Source: Macroeconomic Unit of the Governing Board of the Indirect Tax Authority B&H (2008)

Figure 4. *Fiscal burden in B&H and EU*



Source: Eurostat, BiH Statistics Agencz and CBBiH (2006 g.)

has been stimulated by private consumption and foreign investments. As a result of recent financial fluctuations throughout the world, the situation in B&H shows a noticeable reduced revenue growth from taxes, especially indirect ones (see Figure 2). After an enormous growth of revenues in 2006 and 2007, a significant slowdown occurred in 2008, which was partially expected. This slowdown was strengthened by external effects and decreased revenues as a result of implementation of the agreement with the EU.

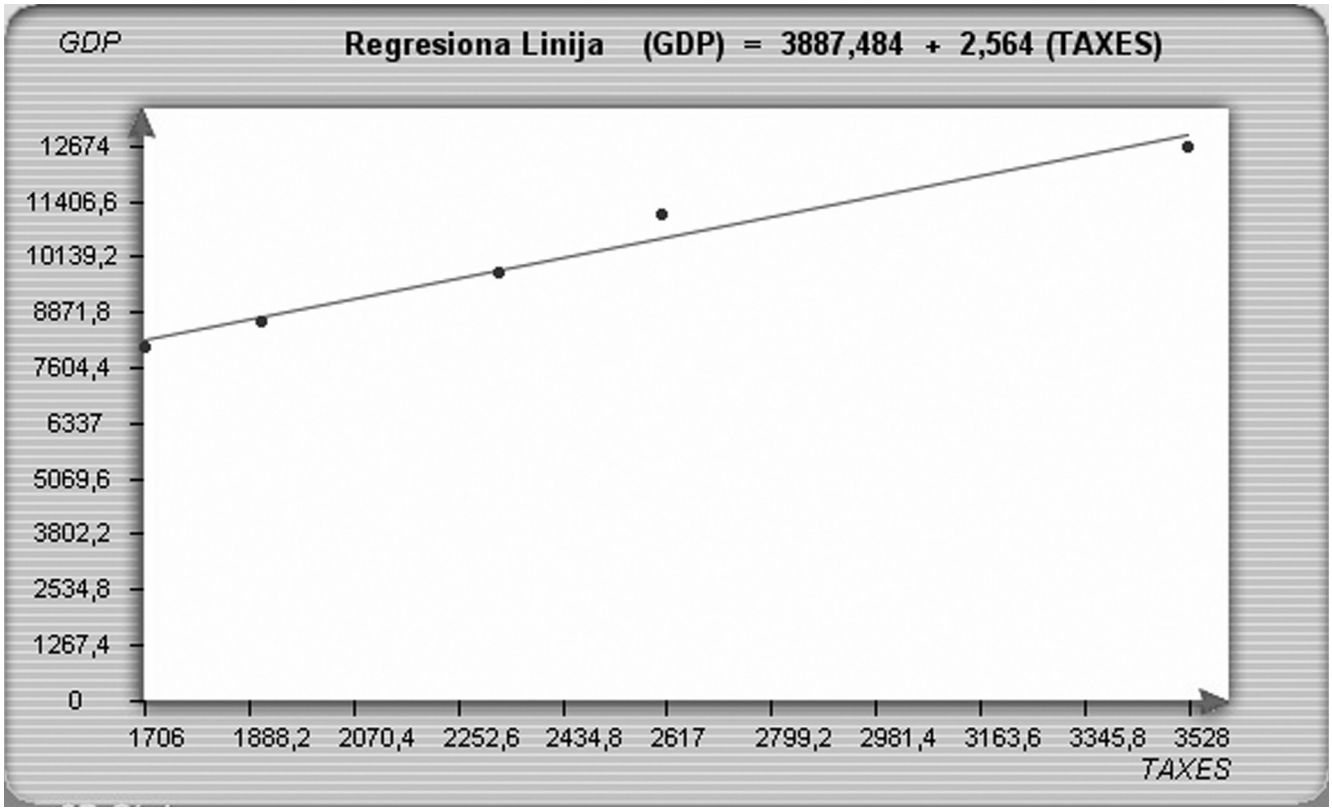
Meanwhile, B&H's fiscal burden in 2003 to 2004 manifested itself as a greater influence of indirect taxes in relation to direct taxes and social contributions, as evident in Figure 3.

Naturally, due to the structure of tax revenues, differences in the burden of B&H and EU countries have been expressed as the EU has a relatively larger share of direct taxes in the total public revenues compared to B&H, where the larger share goes to indirect taxes. Of course, this is a consequence of lower rates of direct taxes in B&H in relation to the average value of EU countries as well as of the economic power of economic subjects (i.e., individuals). Yet B&H has a greater burden of indirect taxes in relation to the weighted average of the EU countries (see Figure 4).

Relationship Between GDP and VAT

This paper uses the relationship between taxes – both direct and indirect – and GDP to analyse tax burden. The type and degree of dependence of GDP was determined using a simple regression analysis to come up with the best possible marks of GDP and taxes parameters based on a sample. Using the results, the course of regression can be established in a sample.

Figure 5. *Regression line between TAXES and GDP B&H*

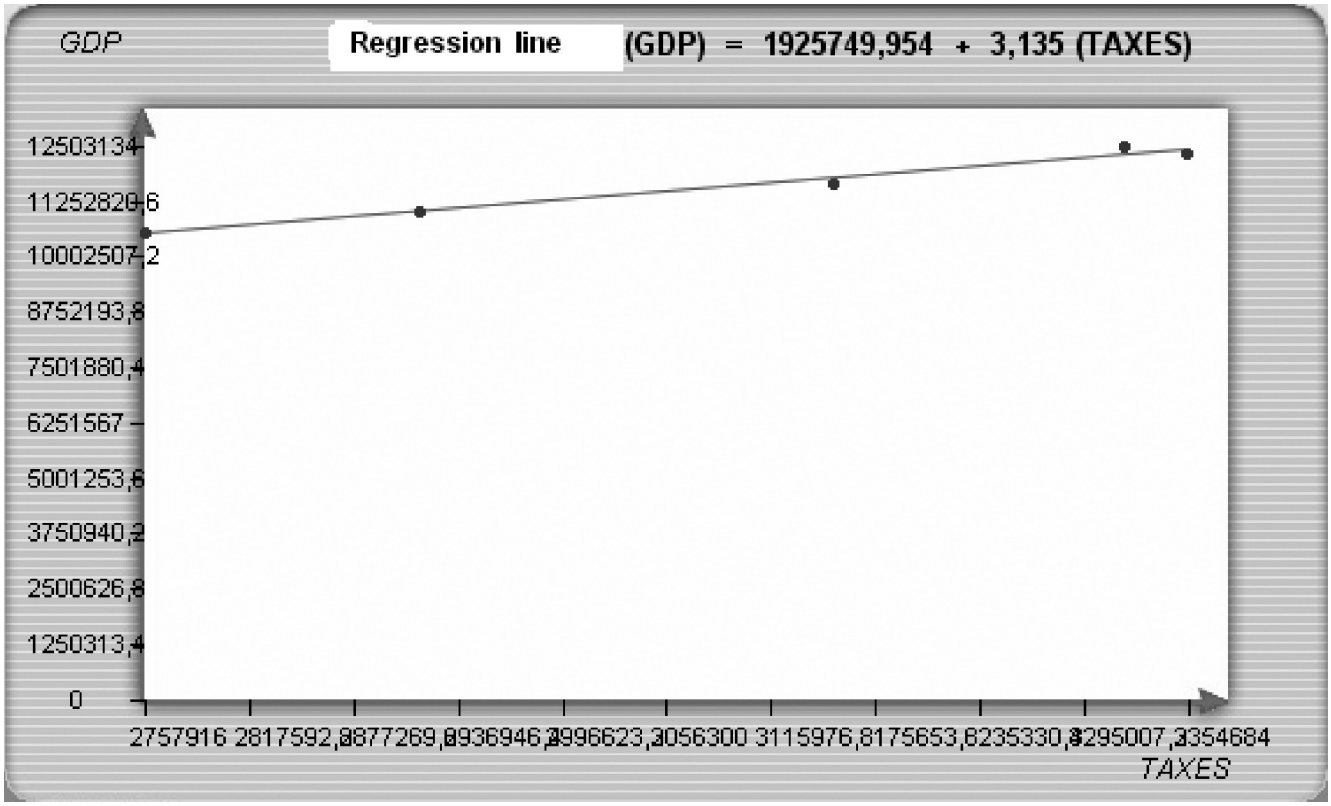


Regression analysis B&H 2004 -2008				
Simple regression analysis				
Independent variable X = TAXES		Dependent variable Y = GDP		
GDP = 3887,4845 + 2,564 * TAXES				
Parameter	Estimation	Standard error	t-value	p-value
Intercept	3887,4845	669,73390	5,8045	0,0102
Slope	2,564	0,2681	9,5682	0,0024
R Square r2 = 0,9683 (96,8271 %)				
Standard error s = (382,9234)				
Comment:				
Estimation of intercept – IS significant for 0,05 value.				
Estimation of slope – IS significant for 0,05 value. (Tax influences GDP)				

Using the simple regression analysis of the influence of taxes on GDP for B&H (Figure 5), the regression parameter b_o (fraction) shows significant values. Parameter (here, 2.564) points to the estimation that, if the amount of taxes increases by 1 million EUR, it will lead to an average growth of GDP by 2.520.800,00 EUR. The coefficient of determination (here, 0.9683) presents the scope of the interrelation between the two observed variables. In other words, 96.83% of the total variability of GDP is determined by the amount of taxes. Based on the general regression model, a graph has developed showing the regression line between taxes and GDP for B&H. The dependence of the mentioned values was measured from 2004 to 2008. The stochastic factor in this case can be attributed to the non-system factors. The simple regression model was used to determine the relationship between taxes and GDP. The value of parameter (2,564) is significant at the 0.01 level (t = 9,568). Thus, the hypothesis about the relationship between taxes and GDP is supported.

The slope of the regression line (Figure 6) is somewhat lower than in the case of B&H, but it still points to the fact that taxes in their total amount determine the amount of GDP. In this case, the slope of b_1 is 3,1351 million EUR, which means that each increase in taxes for 1 million EUR causes a growth of GDP for 3.1351 million EUR. The coefficient of determination (here, 0.9799) implies that the given regression presents the interrelation of the two variables. In other words, 97.99% of the total variability of GDP is determined by the amount of taxes. The measurement period is the same as in the previous case (i.e., 2004-2008). As noted in the table of regression analysis for the

Figure 6. *Regression line between TAXES and GDP of EU 27*



Regression analysis EU 2004 - 2008				
Simple regression analysis				
Independent variable X = TAXES		Dependent variable Y = GDP		
GDP = 1925749,9543 + 3,1351 * TAXES				
Parameter	Estimation	Standard error	t-value	p-value
Intercept	1925749,9543	804259,7220	2,3944	0,0964
Slope	3,1351	0,25871	12,1164	0,0012
R Square r2 = 0,98 (97,9974 %)				
Standard error s = (133513,8285)				
Comment:				
Estimation of intercept – is NOT significant for 0,05 value.				
Estimation of slope – IS significant for 0,05 value (Tax influence GDP)				

EU, the value of *t* is 12.11. Therefore, the relationship is significant at the 0.05 level. Based on these findings, we can conclude that tax influences GDP.

Conclusion

Fiscal policy is one of the basic instruments of total economic policy. In many developed countries, fiscal burden accounts for approximately half of the GDP and demonstrates the tendency to increase. The explanation for this must be sought in certain circumstances where the market mechanism cannot always accomplish all of its functions. Namely, certain situations can occur in which the market is not able to provide required or optimal results. This case raises the question of how the state can intervene in a way to achieve an efficient redistribution of resources. What instruments should a government use? How can a fiscal burden be increased without violating the economic stability or achieve the justifiable overrunning of the capital into the spheres where this is necessary? The answers depend on the current state of the national economy.

Rising GDPs in measuring the efficiency of national economy are becoming increasingly significant if we determine tax share in that amount as well. The empirical analysis shows that an increase in GDP directly impacts the increase in VAT. In most national economies, increases in GDP are followed by increases in indirect taxes, primarily VAT, with the exception of those influenced by both exogenous and endogenous factors**.** In such cases, imports, exports, tax exemptions, tax evasion, changes of tax policy, social transfers, and similar activities will lessen VAT's dependence on GDP. In other words, the intensity of the connection between these two values will be decreased. Considering the components mentioned herein, which represent the stochastic parameter, the consequence would be more or less aberration of correlation intensity between the two researched categories. The scope of aberration depends on the country's economic policy. In that regard, consideration of these factors would demand additional analysis, which might be the subject of future research.

As demonstrated, tax burden – in our case, VAT in relation to GDP – is not only a significant indicator of a country's fiscal organisation, but also indicates economic trends considered through creation of new value.

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