# The Correlation Between Profitability and Tax Breaks in the Area of Special National Status

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## THE CORRELATION BETWEEN PROFITABILITY AND TAX BREAKS IN THE AREA OF SPECIAL NATIONAL STATUS

## **ABSTRACT**

In the period of 1996–2002, Croatian state authorities have already administratively designated certain areas of the country, declaring them as areas of special national status. Components of the above areas examined by this paper are Group I, II and III areas of special state care, the City of Vukovar and the highland area. Use of tax breaks in these areas, through a system of income taxation of entrepreneurs, represent various forms of incentives and breaks allowing taxpayers to reduce the basis for tax calculation and/or the amount of tax liability. This paper observed the correlation between the given variables; net profit margin representing entrepreneurs' profitability, tax breaks reducing the basis for the income tax (net reduction of tax liability and tax credit carried forward), tax breaks reducing tax liability, actual tax burden, population density, costs of gross salary, enterprise growth and productivity of work. The paper also observed correlation between profitability and efficiency of the tax breaks to individual components in the total tax breaks in areas of special state concern. The research includes the period of 2005–2013. The observation also takes into account the effect of a period of recession through a binary, the so-called dummy variable for the period of 2009–2013. Spearman's and point biserial correlation coefficients were used to test correlation of given variables. The observed correlation of the tax breaks and profitability considering the components of areas of special state concern is clear in the Group I and Group III areas of special state concern and in the City of Vukovar. Considering the observed correlation of profitability and efficiency of the tax breaks to individual components in the total tax breaks in the special national status area, it is clear that there is significant unpredictability of correlation between the observed variables.

Key words: tax breaks, profitability, areas of special national status, correlation

#### 1. Introduction

With the legal regulative, Croatian authorities have, in the period 1996-2002, singled out specific local self-government units (cities and municipalities) in the area of special national status according to the following criteria: war circumstances caused by aggression on Croatia, economic (under) development, structural and demographic difficulties, and natural and geographical characteristics that constitute hindered living conditions (Act on Areas of Special State Concern, Act on Reconstruction and Development of the City of Vukovar, Act on Highland Areas). The main short-term goal of singling out areas was to remove the consequences of war and the long-term development of the mentioned area (Office for Development Strategy of the Republic of Croatia, 2001). The development of such an area included, inter alia, the promotion of entrepreneurial activity in the area.

Profitable entrepreneurial activity of taxpayers has been encouraged by the government through the system of tax expenditures, i.e. tax breaks (relief, exemptions, incentives, etc.). Thus, income tax payers could have used the possibility of *reducing tax base*, as well as *reducing tax liability* by performing activities in these areas, with fulfilment of the conditions prescribed by the government (Act on Income Tax). Croatia strived to efficiently and in detail improve, on the one hand, socio-economic status of the population of the area in question, and on the other hand, the success of business entities.

Bajo (2011, 142) in his paper emphasizes that non-transparent stimulation of local units through the state budget funds is not effective if there is no correlation between goals and indicators of development. Miljenović (2013, 167) considers that an area of a special state concern is primarily defined as a developmentally endangered area, i.e. the area with difficulties, not as a development resource. Furthermore, the author states that the constituents of areas of special state concern had different rights of participation in some of the measures aimed at improvement and development. Thus, different participation assumed a certain level of development, but when classifying local self-government units into a particular constituents of an area of special state concern, it did not take into consideration the criteria of development.

According to authors, Bratić (2011, 40) and the European Commission (2014, 3) by introducing tax expenditures (breaks), the state waives its tax revenues for the purpose of: obtaining preferential treatment for a particular group of people or activities, financing public spending outside the budget framework as well as achieving economic and political goals. Shick (2007, 10) emphasizes that tax breaks represent a loss of tax revenue on the one hand, i.e. reduction of tax liability on the other hand. Many Croatian researchers in their papers have often referred to the need for redefining certain rules in the tax break system, due to reduced income tax revenues in the state budget, (Bratić and Urban 2006, Bratić, 2012., Marković et al., 2013, Dražić, Lutulsky and Bernat 2016). Authors Klemm and Van Perys (2012), Monungo (2016) and Fahmi (2012) in their papers point to the fact that the application of appropriate tax breaks does not yield equal effects in all observed areas. Furthermore, the aforementioned authors also state that breaks cannot serve as a substitute for inadequate entrepreneurial infrastructure, economic or political instability, etc.

Tax breaks should create positive effects on profitability, as they reduce the base and liability of income tax. Taking into account the constituents of areas of special national status, the remainder of this paper examines the correlation of tax breaks and other selected variables with the profitability of business entities performing their activity in the mentioned area.

## 2. Data and Methodology

As stated above, all data on business entities performing activities in the area of special national status were observed for the 2005-2013 period. The data were collected based on Verified Income Tax Applications (Tax Administration, 2016), and other relevant and available sources (Financial Agencies, Central Bureau of Statistics, State Geodetic Office, etc.). The dependent variable in the paper is determined through profitability indicator, i.e. *net profit margin* (net income/total revenue). Observed independent variables<sup>2</sup> and a certain direction of correlation of the same with the net profit margin (*nmp*) are the following:

- *decrease of the income tax base* (*sopd\_neto*) net value of the breaks (difference between the amount of tax undiscounted expenses and items that reduce the accounting profit in the income tax form); predicted *positive* direction of connection,
- tax credit carried forward (ppg) value of tax carried forward that the taxpayers can use during the five year period, predicted positive direction of connection,
- reduction of tax liability (spo\_olak) value of the breaks that income taxpayers can use after the established tax liability, given the territorial affiliation of taxpayers, predicted positive direction of connection,
- *actual tax burden (spt)* when taxing profit the ratio of actual tax liability and gross profit (profit before tax or accounting profit), predicted *negative* direction of connection,
- costs of gross salary (tbp) the total cost of the employer for employee salaries, predicted negative direction of connection,
- productivity of work (pr\_rad) productivity per employee denotes the way in which efficient use of inputs ensures maximizing profits, i.e. achieving success; predicted positive direction of connection,
- enterprise growth (rt\_pod) total realized income; predicted positive direction of connection and
- *efficiency of tax breaks (pot\_ukpot)* share of the amount of breaks (sopd\_neto, ppg and spo\_olak) in total breaks for the area of special national status; predicted *positive* direction of connection

The paper also lists the *dummy*<sup>3</sup> variable that marks the period of impact of recession on economic trends (2009-2013). Therefore, regarding the defined dependent and independent variables, it was observed whether there is:

- correlation of dependent and independent variables<sup>4</sup> for each individual constituent of the area of special national status and
- correlation between the dependent variable and the efficiency of tax breaks<sup>5</sup> for a particular constituent of the area of special national status.

Validity of correlation between dependent on independent variables in the paper was tested using the correlation analysis. The measure used to describe the correlation between dependent and independent variables is Spearman's correlation coefficient. According to Horvat and Mioč

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<sup>&</sup>lt;sup>1</sup> Data collected as part of the research for the purpose of the doctoral dissertation.

<sup>&</sup>lt;sup>2</sup> In addition to independent variables related to tax subsidies (sopd\_neto, ppg and spo\_olak), other selected variables that could have an impact on the profitability of business entities were also observed.

<sup>&</sup>lt;sup>3</sup> *Dummy* variable represents a variable that cannot be numerically expressed and assumes values 0 or 1. Dummy variable takes the value of 0 for a period of events' non-existence, and the value of 1 during the existence of an event (Vojković, 2015, 27).

<sup>&</sup>lt;sup>4</sup> All independent variables are taken into account, except the variable relating to efficiency of tax breaks (pot\_ukpot).

<sup>&</sup>lt;sup>5</sup> Only an independent variable related to the efficiency of tax breaks is taken into account (pot ukpot)

(2014, 488), the coefficient does not assume the condition of linearity, symmetry and size of the sample, making it acceptable in this analysis. Since the data analysis contains a dichotomous, i.e. binary, variable (dummy\_recession), point biserial correlation was used to establish the correlation between the said dichotomous (binary) variables and profitability. Point biserial correlation represents a special case of Pearson's correlation and measures the correlation between a continuous variable and other dichotomic (binary) variable (Sheskin, 2003, 808).

## 3. Research Results and Discussion

## 3.1. Relationship between Tax Breaks and Entrepreneur Profitability

Tax breaks, which result from the reduction of the tax base (*sopd\_neto and ppg*), can be used all by taxpayers under the same conditions regardless of the classification of the area. However, grants that reduce income tax liability (*spo\_olak*) are differently defined for each of the listed constituent in the area of special national status. That means that there is a possibility of different impacts on profitability measured by the net profit margin.

**Table 1:** Correlation coefficient between net profit margin and independent variables on constituents in areas of special national status

		Area of special state	e care	The City of	
Area	Group I	Group II	Group III	Vukovar	Highland area
Variable	птр	птр	птр	птр	птр
птр	1.00	1.00	1.00	1.00	1.00
dummy_rec	0.6076	0.5676	0.6238	-0.9215 *	0.4239
sopd_neto	0.7333 *	0.6500	0.8500 *	-0.1667	0.3667
ppg	0.7667 *	0.1833	-0.2333	-0.0667	-0.1339
spo_olak	-0.4000	-0.3500	-0.7167 *	0.8333 *	-0.3833
spt	-0.6167	-0.7000 *	-0.6833 *	-0.9167 *	-0.3833
tbp	0.0833	0.1333	-0.1500	-0.6833 *	-0.2333
pr_rad	-0.6000	-0.0667	0.4500	-0.5167	0.2833
rt pod	-0.5500	-0.2167	-0.5000	-0.4833	-0.3500

Stars denote significance at significance level of 5%\*

Source: Author's research

According to the results listed in Table 1, it is evident that there is a significant 5% significance link between the dependent variables in area of special state care Group I, i.e. the *net profit margin* and the independent variables related to breaks that decrease of the income tax base (sopd\_neto) and tax credit carried forward (ppg). Profitability in area of special state care Group II, i.e. net profit margin (nmp), is only linked to the actual tax burden (spt) at significance level of 5%. Net profit margin (nmp) in area of special state care Group III demonstrates a link at significance level of 5% with tax breaks that decrease income tax base (sopd\_neto), tax breaks that reduce tax liability (spo\_olak) and actual tax burden (spt). Net profit margin (nmp) in the area of the City of Vukovar has a strong linkage of 5% significance with the recession period (dummy\_rec), tax breaks that reduce the tax liability (spo\_olak), actual tax burden (spt) and costs of gross salary (tbp). In highland areas, the net profit margin does not have a significant correlation with either of the observed independent variables.

It is also important to emphasize that the result of the link between net profit margin (nmp) and the variable related to reduction of tax liability (spo\_olak) for area of special state care Group

III requires additional explanations. Negative linkage of breaks that reduce tax liability (spo\_olak) and net profit margin (nmp) may be affected by the low level of realized breaks in area of special state care Group III. Namely, in area of special state care Group III the said break in the observed period represents only 21% of the same break in the area of the City of Vukovar (Tax Administration, 2016), where a strong link between the said independent variables and profitability was noted.

The results obtained by correlation analysis, looking at them in a wider context, are in line with the results obtained in the works of other authors. Namely, Klemm and Van Perys (2012, 419) conducted a study on tax breaks in the period 1985-2004 for the area of Latin America, the Caribbean and some African countries, indicating that the use of lower rates of taxation and the prolongation of tax holidays (breaks) affects attracting foreign investment in Latin America and the Caribbean, but not in Africa. It also emphasized that the effect of tax rates and tax holidays does not exist when taking into account total investment and growth of observed areas. In his research, Munongo (2016, 241) in his research, through the presented four categories of tax breaks (tax holiday, reduced tax liability, tax credit carried forward and tax liability reduction with regard to certain sectors), points to the situation that tax breaks cannot produce the same development effects on each of the observed areas of the South African Development Community. The research was conducted for the period 2004-2013. The results point to the conclusion that a tax mix, which provides for efficient use of tax breaks, can affect the inflow of direct foreign investment.

Absence as well as inequality in achieving the link between observed tax breaks and dependent variables in the observed area can be justified by the fact that tax holidays, i.e. breaks can never compensate for inadequate infrastructure, economic and political instability and poor government policy (Fahmi, 2012, 91).

## 3.2. Relationship between Efficiency of Tax Breaks and Entrepreneur Profitability

The total value of breaks for an area constitutes the sum of breaks that reduce income tax base (sopd\_neto and ppg) and tax breaks that reduce the tax liability (spo\_olak).

In this paper, it is assumed that there is a significant positive correlation between the efficiency indicators of tax breaks of individual areas in total breaks of areas of special national status (pot\_ukpot) and net profit margin (nmp). The assumption of the stated linkage would have two meanings for each constituent of areas of special national status. Tax breaks used by business entities operating in the observed areas should contribute to increased profitability. On the other hand, the state would justify the resulting budget loses due to reduced income tax in a certain area that is a part of incentive system.

**Table 2:** Spearman's correlation coefficient between the net profit margin and efficiency of tax breaks per constituents of areas of special national status

Area of special state care			The City of	Highland area	
Variables	Group I	Group II	Group III	Vukovar	
птр	1.00	1.00	1.00	1.00	1.00
pot ukpot	0.2167	0.4333	0.9167 *	0.0833	-0.3833

Stars denote significance at significance level of 5%\* Source: Author's research

Examining Spearman's coefficient results shown in Table 2, it is observable that the correlation coefficient ( $r_s = 0.9167$ , Prob > | t | = 0.0005) shows a strong correlation between the observed variables at a statistical significance of 5% only for area of special state care Group III. Thus, despite the extremely low level of break share in total breaks that is evident for area of special state care Group III, the intensity of their linkage to profitability in the said area is statistically significant and the direction is expected. In all other areas, despite a considerably larger share of total breaks, there is no statistically significant correlation with profitability. Namely, area of special state care Groups I and II during the observed period participate with their share of 37.5%, i.e. 42.02% in total breaks (Tax Administration, 2016),

Therefore, these results, as highlighted in the works of other Croatian authors, confirm the fact that it is necessary to deal more rationally with tax breaks within income tax system. Bratić and Urban (2006, 162) in their research indicate that the share of lost income from income tax in total state budget revenues is significantly increasing from year to year in the observed period. The aforementioned situation, as well as the share of lost income, are not insignificant in the opinion of the aforementioned authors. Taking into account the deficit problem that exists in the state budget, but also in the budgets of a large part of the local self-government units, the situation becomes even more worrying (Ministry of Finance, 2005-2013, 2007-2015).

With an aim of estimating the benefits of introducing certain tax expenditures (breaks) into the tax system, Bratić (2011, 128) states that the tax authority should implement a more significant reform of the tax system related to tax breaks within income tax system. Furthermore, Bratić (2012, 86) emphasizes that there are considerable structural difficulties and lagging in economic development in the specially treated areas (area of special state care Group I, II and III, highland area and the City of Vukovar). The same author states that tax authorities should carry out a more significant tax reform of existing tax breaks, examine their efficiency, or completely abolish them and replace them with subsidies. The survey conducted by Bogovac (2012) points to the fact that tax system security is more important to taxpayers than the possibility of using tax breaks (Rogić Lugarić, Bogovac, 2014, 1163). In addition, when observing tax breaks for the period 2007-2010, in areas of special national status, authors Marković et al. (2013, 118) state that the purpose of performing entrepreneurial activity should not be directed towards the use, i.e. utilization of tax breaks. The entrepreneur's activity, according to the aforementioned authors, should be based on a developed business strategy and have economic justification.

Observing the tax and legislative aspect of tax expenditures Rogić Lugarić and Bogovac (2014, 1166) point out that there is a lack of "official" attention paid to tax breaks in the Croatian tax system. Dražić Lutilsky and Bernat (2016, 9;7;18) emphasize in their work emphasize that surveyed entrepreneurs consider the realization of existing tax breaks very difficult due to complicated and insufficiently clarified procedures and often ambiguous legal regulations. The same authors state that entrepreneurs do not see the use of tax breaks as an area for increasing competitiveness. Furthermore, entrepreneurs consider tax breaks to have little impact on investment, employment and the economy as a whole. The aforementioned paper confirmed that the largest number of entrepreneurs (in the period 2013-2014) used state support for education and training, followed by reinvested earnings and tax credit carried forward. Usage of, to a large extent, tax credit carried forward speaks enough about the situation that entrepreneurs are in for a long time regarding their successfulness.

## 4. Conclusion

The expected results in the paper assumed a statistically significant intensity of correlation with a positive direction between tax breaks ( $sopd\_neto$ , ppg and  $spo\_olak$ ) and profitability measured by the net profit margin (nmp). Taking into account the observed constituents of areas of special national status, the assumed direction and intensity of linkage between the mentioned tax breaks and profitability and other selected independent variables and profitability is evident in all of the above-mentioned constituents except in the Highland area. Negative, i.e. unexpected linkage direction of a break that reduces the tax liability ( $spo\_olak$ ) to profitability, i.e. the net profit margin (nmp) achieved in area of special state care Group III may be a consequence of low levels of received breaks in the observed period.

Given the observed relationship between the profitability of entrepreneur activity (nmp) and the efficiency of realized breaks (pot\_ukpot), there is a strong statistical linkage of positive direction only to PPDS Group III. Thus, the obtained result represents information for managers and business owners that regardless of efficiency level of the support, it is not possible to predict the movement of profitability of the mentioned area.

The results obtained in this paper can serve the managers and owners of business entities in creating business policy. However, they need to take into account some other sources of profitability (technological achievements, cheaper sources of financing, innovation, etc.), alongside tax breaks, in order to increase profitability.

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