

## EFFICIENCY OF TAX INCENTIVES IN CROATIA

**Hrvoje Šimović<sup>1</sup>**

E-mail: hsimovic@efzg.hr

**Vjekoslav Bratić<sup>2</sup>**

E-mail: vjeko@ijf.hr

**Abstract:** *Croatia, as many other transition and paper is to investigate the efficiency of such corporate income tax instruments in Croatia of stimulating economic growth and economic activity. For that purpose in this paper, the corporate income tax rate and numerous tax holidays as well as other investment incentives will be observed as one of the major tax incentives in the Croatia. Further, the econometric analysis will determine the relation and the impact of the corporate income tax on economic growth, and in that context the efficiency of the corporate income tax incentives in Croatia will be analyzed. The paper methodology includes multiple regression in which economic growth will be observed as a developing countries, implements a large number of corporate income tax (CIT) incentives in order for example to attract foreign investments and to stimulate economic activity and new employment. The main goal of this dependent variable and corporate income tax revenues as an independent variable. As a conclusion the regression analysis confirms a small but positive and significant relationship between corporate income tax and economic growth in Croatia. Because the tax incentives are included in the corporate income tax system, induction of gained results confirms the hypothesis that tax incentives have limited efficiency in stimulating the economic activity in Croatia.*

**KEY WORDS:** TAX INCENTIVES, CORPORATE INCOME TAX, CROATIA.

### 1. INTRODUCTION

Tax systems in the world in general, and especially those in European transition countries, have undergone significant reforms over the last two decades. These reforms were partly a result of internal changes, but were on the other hand also significantly influenced by the globalisation process and the increased international mobility of capital. The mentioned reforms also affected the corporate income taxation system, through which in such circumstances attempts are made, by means of various tax incentives, to stimulate economic activity and attract direct foreign investment. As a typical transition country, Croatia used its own corporate taxation system to this effect. Over the last fifteen years, the CIT (abbr. Corporate Income Tax) itself has suffered numerous changes, especially in 2001 when the protective interest<sup>3</sup> was abolished and the concept of a consumption-based CIT system partly abandoned. However, through the implementation of various tax incentives the practice of a relatively low corporate tax burden was nevertheless retained until today, along with the practice of using CIT to stimulate economic activity.

The basic aim of this paper is to investigate the efficiency of tax incentives within the scope of CIT in Croatia. To this effect, the paper is divided into five parts. Following the introduction, the second part of the paper gives a short review of relevant literature concerning the efficiency of tax incentives. The third part of the paper includes an overview of CIT incentives used in Croatia and their significance over the last few years. In the fourth part of the paper, a regression analysis is given in order to determine the efficiency level of tax incentives in Croatia and finally, in the fifth part is the conclusion.

### 2. EFFICIENCY OF TAX INCENTIVES: SHORT LITERATURE REVIEW

A large number of different tax incentives are implemented within various tax forms in the world today. However, when speaking of tax incentives in general, one usually refers to incentives in the scope of CIT. The various purposes of their implementation may include the stimulation of

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<sup>1</sup> Faculty of Economics & Business, University of Zagreb, Croatia

<sup>2</sup> Institute of Public Finance, Zagreb, Croatia

<sup>3</sup> "Protective interest" is a CIT incentive that was calculated on equity capital and deducted from the CIT base. As a form of equity allowance it served as an attempt to approximate the normal return to capital. For more on the consumption-based concept of CIT in Croatia see: Rose & Wiswesser (1998).

economic growth, the development of underdeveloped areas and providing of incentives to certain categories of the population. The fact that CIT incentives are the most important form of tax incentives in general is also demonstrated by Table 1, which shows the various forms of tax incentives employed in the world today. The fact is that the majority of the more than hundred existing types of tax incentives are actually CIT incentives, which are equally used both in developing and developed countries.

*Table 1. Types of tax incentives employed*

<b>Tax incentives</b>	<b>Developing countries (52)</b>	<b>Developed countries (51)</b>	<b>Total (103)</b>
Reduced CIT rate	43	40	83
Tax holidays	37	30	67
Accelerated depreciation	26	21	47
Investment allowance	18	8	26
Social security reductions	5	7	12
Import duty exemptions	39	24	63
Other	32	13	45

Source: Easson (2004: 132).

An important issue for their implementation, especially within the context of this paper, is how effective tax incentives really are in stimulating economic activity (economic growth, investments and export). According to the "mainstream" opinion in economic science, tax incentives play no crucial role in investment decisions, and their role is in fact just slightly more significant with respect to the choice of investment location (country), whereas they hardly have any effect at all on the initial investment decision (see more: Shah (1995), Feldstein et al. (1995)). However, the role of tax systems has changed throughout history and consequently some newer studies suggest an increasingly significant role of the tax system in this respect (see: Easson (2004), Mutti (2003), Mintz (2006) and Alm et al. (2006)). The reason for this lies precisely in the fact that in the globalisation era countries are becoming increasingly similar as investment locations, especially within regional economic integrations such as the EU, where processes of harmonisation and coordination of economic policies are more intensive. The more similar countries are, the more they represent potential substitutes for one another as investment locations, and it is in such circumstances that tax incentives play an increasingly significant role in stimulating competitiveness and economic activity (Morisset, 2003).

Relevant literature most commonly classifies tax incentives in the scope of CIT into the following three basic groups (Zee et al., 2002; Easson, 2004): 1) reduced CIT rates, 2) tax holidays, and various 3) investment incentives in the broader sense, which imply incentives like accelerated depreciation, investment allowances and investment tax credits.

The efficiency of the CIT rate is quite difficult to determine, since in its on right it represents neither a relief nor an incentive. However, relatively low tax rates can positively effect investments to a much greater extent than any other instrument, and it is precisely due to this that the CIT rate is generally seen as the simplest but also the most effective tax incentive instrument (Mintz & Tsiopoulos, 1995). Reduced or preferential tax rates are the simplest but at the same time also the harshest tax instrument, since the level of incentives does not vary with the level of investment. Furthermore, the efficiency of this instrument is minimal in the case of low marginal tax rates. Preferential tax rates are most commonly used for companies which are just starting their business, and there can be a distinction for companies from certain sectors and geographical areas (Goodspeed, 2006: 141).

The efficiency of tax holidays is also difficult to define, since these are closely related to reduced CIT rates. Tax holidays can in fact be seen as a milder form of incentive involving the taxation of corporate income at a reduced rate and for a defined period of time.

Relevant literature most commonly sees tax holidays as a relatively ineffective means of investment incentive, primarily due to its selective character which undermines the principle of neutrality of the tax system. Its deficiencies are additionally seen in the loss of tax revenues, and the preferential treatment of short-term investment as a result of their limited duration. In fact, it was the

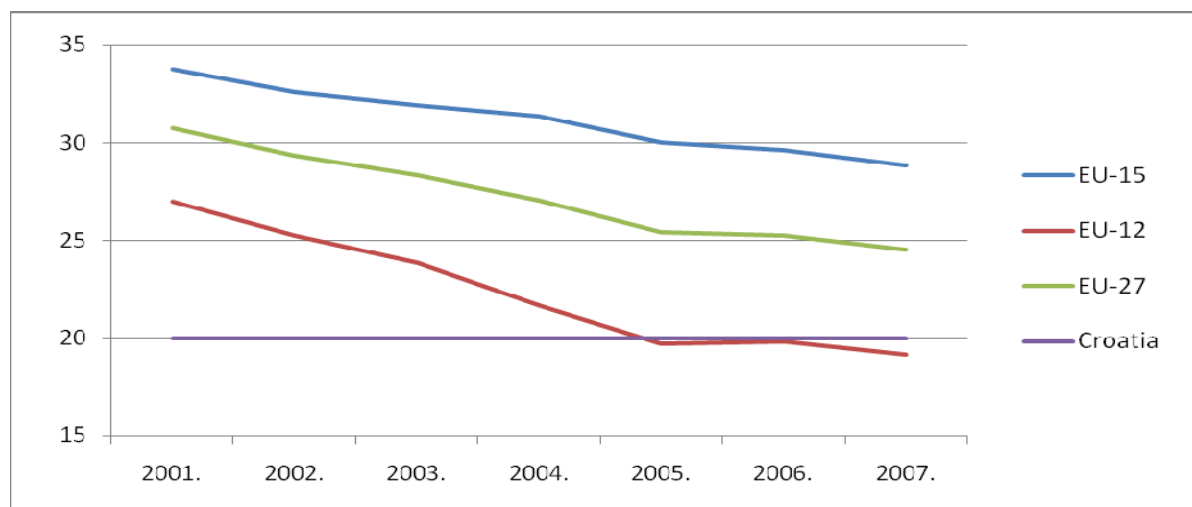
case in many countries of Central and Eastern Europe that numerous investors were not able to fully exploit tax holidays due to the long-term character of their investments (Gray & Jarosz, 1995). On the other hand, tax holidays are considered to be a simple instrument, which is, for all its deficiencies, able to mark a certain country as receptive to foreign investment (Bond & Samuelson, 1986). Due mostly to the above mentioned deficiencies, this type of incentive has been abolished in many developing countries, but has still been retained in combination with other tax incentives (Mintz, 2006: 156-160; Zee et al., 2002: 1503-1504).

Other investment incentives in the broader sense are given more preference with regards to efficiency, whether it be accelerated depreciation or certain other types of investment allowances. Such types of incentives can namely be much more easily directed towards particular types of investments, and can be connected to the level of investment. On the other hand, such incentives are mostly more complex and require higher administrative costs. This is also the reason why they tend to be used less frequently than reduced tax rates and tax holidays both in developing as well as in developed countries (Easson, 2004).

### 3. CORPORATE INCOME TAX INCENTIVES IN CROATIA

Since 2001 the CIT rate applied in Croatia is 20%, which was at the time one of the lowest CIT rates among transition countries. As shown in Figure 1, Croatia has a relatively low tax rate with respect to the EU-27 average. The difference is, expectedly, even greater when only old EU-15 countries are taken into account. New EU-12 countries, on the other hand, in average apply a lower CIT rate than Croatia. Unlike most EU-12 countries, Croatia has not decreased its CIT rate since 2001, and we can therefore talk about a relatively long period of application of a significantly low CIT rate of 20%.

Figure 1. CIT rate trends in the EU and Croatia 2001-2007 (%)



Source: prepared by the authors according to European Communities (2008).

Apart from implementing the already mentioned relatively low CIT rate, Croatia has also introduced a number of tax holidays. In this context a difference can be made between general tax holidays (so-called capital investment incentives) applicable on the entire territory of Croatia and regional tax holidays which apply only in certain parts of the country.

General tax holidays are allowed for 10-year periods during which a reduced tax rate (10%, 7%, 3%) or a full tax exemption (0%) is applied, depending on the investment amount and the number of new employees. The stipulated conditions must be met within 3 years from the beginning of investment (for details see: Šimović, 2008).

As already mentioned, regional tax holidays are applied similarly, but under even more favourable conditions, for the tax treatment of underdeveloped Croatian regions. Such tax holidays actually include tax reliefs, allowances and incentives applied on the area of the City of Vukovar, in areas of special national concern, hill and mountain areas and in free zones. Due to the necessary

adjustment to the European Union *acquis communautaire*, Croatia has over the last few years made significant reforms and adjustments of the legislation related to tax holidays, in a way that some of the mentioned tax holidays were subject to a number of amendments, whereas a certain number of incentives were completely suspended.<sup>4</sup> The legislation provides for gradual decreasing of the amount of tax incentives, both from the aspect of the level of tax incentive and from the aspect of duration of tax holidays. Complete suspension of tax holidays is mostly connected with Croatia's accession to the EU, but given the unpredictability of the accession process further amendments are to be expected in this area.

Out of the listed standard investment incentives in the broader sense, only accelerated depreciation is used in Croatia, which allows for the depreciation rate to be doubled. In addition to accelerated depreciation, other tax incentives exist which cannot be classified under investment allowances as relevant theory knows them. Such incentives include tax base deductions for certain costs and tax loss relief (Šimović, 2008).

With respect to tax base deductions, additional deductions from the tax base are possible for costs of R&D projects<sup>5</sup>, as well as education and training costs of employees.<sup>6</sup> In case of tax loss relief, on the other hand, tax losses created by the company are carried over and balanced out through a reduction of the tax base over the following 5 years (Šimović, 2008).

Table 2 gives an overview of total CIT incentives in Croatia in the period from 2001 to 2006. To this effect, CIT incentives are viewed as reductions of the CIT base and reductions of the CIT due.

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<sup>4</sup> Since 2007 the following incentives were suspended by the Act on Amendments and Additions to the Corporate Income Tax Law (Official Gazette, No. 57/06): three types of corporate tax base deductions (tax incentives for new employment, in additional education, training and personal professional development, as well as for the research and development); corporate income tax reductions given in the form of investment incentives, allowances for the shipping industry and for all corporate income taxpayers involved exclusively in R&D activity, as well as incentives for the professional rehabilitation and employment of disabled persons. Furthermore, the mentioned amendments include the reduction of the corporate income tax base as of 2008 for State Aids to R&D projects (3 types of aid, depending on the type of research project and the size of enterprise, as of year 2008), and for State Aids to Education and Training (2 types of aid, depending on the size of enterprise, as of year 2008). At the same time, the CIT due can additionally be reduced by allowances and reliefs applied for Areas of special national concern (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> group of ASNCs, as of year 2000), for hill and mountain areas (as of year 2003), for the City of Vukovar (as of year 2000), for free zones (3 types, as of year 2000), as well as by capital investment incentives (4 types, depending on the level and duration of investment, the number of employees and the level of tax rate).

<sup>5</sup> Justifiable costs of research and development allow for additional deductions from the tax base by 100%, 125% or 150% of the cost amount, depending on whether development, applied or basic research is concerned.

<sup>6</sup> The tax base can be additionally decreased by up to 100% of costs of employee education and training. The level of the deduction depends on whether the company concerned is a small or large enterprise, a company involved in maritime transport or other.

Table 2. Amount of CIT incentives in Croatia 2001-2006 (million HRK)

	2001.	2002.	2003.	2004.	2005.	2006.
<b>Reduction of the CIT base for incentives (allowance)</b>						
<i>Total incentives</i>	178,4	298,0	1.255,1	1.643,9	1.469,9	1.403,0
incentives for employment	178,4	298,0	384,7	369,9	369,8	296,4
incentives for research and development	-	-	557,3	619,9	659,0	596,4
incentives for education, training and personal professional development	-	-	313,2	654,1	441,1	510,2
<i>I. Total reduction of the tax due from CIT base on the basis of reductions for incentives (incentives x 20%)</i>	35,7	59,6	251,0	328,8	294,0	280,6
<b>Reductions of the tax due (tax credits)</b>						
<i>Reliefs and exemptions in the ASNC</i>	14,2	18,4	28,0	27,9	87,5	161,5
1 <sup>st</sup> Group	4,3	5,4	7,6	10,2	34,6	71,1
2 <sup>nd</sup> Group	9,9	11,6	15,0	13,7	49,9	82,9
3 <sup>rd</sup> Group	0,1	1,4	5,4	4,0	2,9	7,5
<i>Reliefs and exemptions for the hill and mountain area*</i>	-	-	6,6	6,6	8,5	14,7
<i>Reliefs and exemptions for the city of Vukovar</i>	5,5	6,5	10,0	13,0	19,6	37,3
<i>Reliefs and exemptions for free zone users</i>	30,7	36,8	57,5	63,5	34,9	51,9
free zone users (50% of prescribed rate)	25,1	25,5	42,4	42,9	22,7	24,7
free zone users investing more than a million HRK	5,6	11,3	14,0	20,0	10,6	25,1
free zone users in Vukovar-Srijem County	-	-	1,1	0,6	1,6	2,1
<i>Capital investment incentives **</i>	0,2	1,3	19,8	41,1	207,0	176,6
on corporate income from investment greater than 4 million HRK, 10% tax, 10 years, 10 employees	-	-	-	-	1,5	6,8
on corporate income from investment greater than 10 million HRK, 7% tax, 10 years, 30 employees	0,2	0,4	2,0	7,2	7,8	3,9
on corporate income from investment greater than 20 million HRK, 3% tax, 10 years, 50 employees	0	1,0	0	9,5	21,2	11,2
on corporate income from investment greater than 60 million HRK, 0% tax, 10 years, 75 employees	0	0	17,8	24,4	61,3	73,6
relief amount for shipping industry	-	-	-	-	115,1	80,9
<i>Incentives for the employment of disabled persons</i>	0	0,3	0,9	0,8	0,6	0,3
<i>II. Total reductions of tax due from CIT on the basis of reliefs and incentives</i>	50,6	63,3	122,9	152,9	358,0	442,5
<b>TOTAL (I+II)</b>	<b>86,3</b>	<b>122,6</b>	<b>373,9</b>	<b>481,3</b>	<b>652,0</b>	<b>723,1</b>

Note: \* - As of year 2005 the data regarding the amounts of incentives given for hill and mountain areas are recorded separately from the data for ASNCs; \*\*- Since the beginning of year 2007 incentives are deleted from the Corporate Income Tax Act, and are regulated by a special Investment Incentives Act (Official Gazette, No. 138/06) in millions of EUR (divided into classes of up to 1.5 million EUR, from 1.5 do 4 million EUR, from 4 to 8 million EUR, and over 8 million EUR, whereas the conditions regarding the preferential rates and the number of new employees remain the same).

Source: Central Office of Tax Administration of the Republic of Croatia; adapted and calculated by the authors.

*Reductions of the CIT base.* Incentives for research and development as well as for education, training and personal professional development were applied from year 2003 until year 2007. In 2003 more than half a billion HRK were allocated in incentives for research and development, whereas the amount rises up 596 million in year 2006. The highest amount of incentives to be allocated for this purpose was reached in 2005, when the this type of incentives amounted to 659 million HRK. In 2003 a total of 313 million HRK was allocated in incentives for education, training and personal professional development, and the amount rose up to 510 million HRK in year 2006. The highest amount of this incentives was given in 2004, when they totalled 654 million HRK. Incentives for employment (salaries of new employees) were introduced in 2001. The nominal amount of incentives for employment rose from 178 million HRK in 2001 to 296 million HRK in the course of year 2006. The highest tax incentives for employment were given in the course of 2003, when they totalled 385 million HRK.

After applying a CIT rate of 20 % to the amounts of CIT base reductions given above, we get the total amount of reductions of CIT due given in incentives (allowances). Table 2 shows that the calculated reductions of the tax due arising from incentives rose significantly, i.e. from about 36 million HRK in 2001 to as much as 281 million HRK in 2006.

*Reductions of the CIT due.* The corporate income tax in Croatia can be reduced in Areas of special national concern (ASNCs), in mountain and hill areas, in the City of Vukovar and in free zones, as well as by capital investment incentives (4 types), incentives for the shipping industry (from the year 2005 until 2007) and incentives for the employment of disabled persons. As compared to tax incentives until the year 2004, there was a change in taxation i.e. in tax rates applied to taxpayers in 1<sup>st</sup> and 2<sup>nd</sup> groups of ASNCs, whereas the taxpayers in 3<sup>rd</sup> group of ASNCs paid 75% of the statutory CIT rate over the whole period analysed. Furthermore, as of 2005 new types of incentives were introduced (for investments exceeding 4 million HRK with at least 10 new employees and for the shipping industry).

All incentives through which CIT is reduced show an upward trend in the period from 2001 until 2006. Thus, for example, incentives in ASNCs increased from 14 million HRK in 2001 to 162 million HRK in 2006. The highest amounts of incentives were allocated for 2<sup>st</sup> group of ASNCs. The amounts of incentives in 1<sup>st</sup> group of ASNCs alone rose from 4 million HRK in 2001 to more than 71 million HRK in year 2006 (i.e. by 1775%). Incentives in the City of Vukovar grew from almost 6 million HRK in 2001 to 37 million HRK in 2006, whereas the incentives for users of free zones increased from 31 million HRK in 2001 to 52 million HRK in 2006.

Total capital investment incentives also rose, namely from barely 200 thousand HRK in year 2001, to the notable 177 million HRK in 2006. Interestingly enough, the highest amounts of incentives were allowed for investments exceeding 60 million HRK, which were introduced in 2003<sup>7</sup>. In the scope of such incentives alone, more than 74 million HRK were given in year 2006. The incentives for employment of disabled persons are low both in quantity (the number of users) and in quality (the amount of incentives), whereas the amount of shipping industry incentives, which were introduced in 2005, exceeded all other types of investment incentives.

Table 3 shows certain economic indicators of the incentives given in the scope of CIT (their share in GDP, in total state budget revenues, in total state budget tax revenues, and in total state budget CIT revenues).

Table 3 clearly indicates the growth of all analysed indicators and shares related to incentives in the period from 2001 until 2006. The greatest growth was, however, recorded with respect to the share of the total amount of incentives in total state budget CIT revenues. The mentioned share namely rose from 4.4 per cent in 2001 to as much as 14.3 per cent in year 2006. In other words, out of a total of 100 HRK levied by the government in corporate income taxes, as much as 14.3 HRK were allocated in year 2006 for different kinds of CIT incentives, which is by no means an insignificant amount. In the following part of the paper we will analyse the efficiency of the CIT incentives given.

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<sup>7</sup> Under this type of incentive, the CIT rate of 0% is applied over 10 years following the beginning of investment, with a condition of employment of at least 75 employees.

Table 3. Economic indicators of CIT incentives

	2001.	2002.	2003.	2004.	2005.	2006.
A- Total state budget revenues (in million HRK)	53.504	69.651	74.677	80.464	85.653	95.236
B - Total state budget tax revenues (in million HRK)	40.493	42.810	45.281	47.150	50.688	58.469
C – Total state budget CIT revenues (in million HRK)	1.987	2.659	3.074	3.131	3.951	5.056
D - GDP (in million HRK)	165.639	181.231	198.422	214.983	231.349	250.590
E – Total amount of CIT incentives (in million HRK)	86,3	122,6	373,9	481,3	652,0	723,1
E/A- Share of incentives in total state budget revenues, in %	0.2	0.2	0.5	0.6	0.8	0.8
E/B - Share of incentives in total state budget tax revenues, in %	0.2	0.3	0.8	1.0	1.3	1.2
E/C - Share of incentives in total state budget CIT revenues, in %	4.3	4.6	12.2	15.4	16.5	14.3
E/D – Share of incentives in GDP, in %	0.1	0.1	0.2	0.2	0.3	0.3

Source: adapted and calculated by the authors according to the Ministry of Finance (2008: 300; 2006: 14; 2005:18).

#### 4. EFFICIENCY OF TAX INCENTIVES

##### 4.1. Methodology and data

In the scope of the econometric analysis the multiple regression model is applied in order to determine whether a significant relationship can be established between CIT and economic growth in Croatia. For the purposes of the research, the computer program "E-views" was used as a statistical software support for both models.

Given the fact that the tax incentives observed in this paper were incorporated within the CIT, the data on total CIT revenues will be used as the independent variable. For the purpose of simplicity and with the aim of accurate and precise recording of the material for analysis, the independent variable consisted of the data on monthly CIT revenues from July 2004 until June 2008.

The model observes economic growth as the dependent variable. Research normally uses data on the GDP or the GDP growth rate for this purpose. However, GDP data are not available on a monthly level in Croatia, since GDP statistics are compiled annually or quarterly. Therefore, as a substitute or so called "proxy" variable the Industrial Production Index is used, the statistics of which are collected monthly by the Croatian Central Bureau for Statistics (Državni zavod za statistiku - DZS).<sup>8</sup>

The data limitation is surely reflected in the relatively short period of time observed; however, this problem was partly resolved through the use of monthly data. Furthermore, the period observed was a time of relatively stable economic activity and low inflation, so the data can be accepted as relevant, keeping in mind that the obtained results should be taken with caution since they refer to a period of only four years.

<sup>8</sup> It is necessary to note certain limitations regarding the gathered data. The first limitation refers to the time dimension of the data. On an annual level it would be practically impossible to gather a long enough series of data for Croatia. The only period to be observed are 17 years from Croatia's declaration of independence. Given the inability of gathering an adequate time series in years, the data are here presented on a monthly level. There was also a possibility of using quarterly level data; however, in 2004 a change in public finance accounting methodology occurred through the implementation of the IMF's new GFS 2001 system (IMF, 2001).

The analysis of multiple regression results first included a descriptive statistical analysis of the observed data series, and then a testing of the observed time series for stationarity. It was established that the observed time series were non-stationary when data were observed in their original form. However, by taking the logarithms of the data gathered, the variables were transformed into a stationary process (variables LCIT and LINDUSTRY). Only in the second step was the analysis of the multiple regression model conducted.

In implementing the model of multiple linear regression, only the most important statistical and analytical elements will be given below: the regression equation with estimated parameters, the empirical significance level of parameter estimation, the coefficient of determination and the adjusted coefficient of determination.

#### 4.2. Results

As already noted, within the scope of the regression analysis we will observe the effect of CIT on economic growth, i.e. on the industrial production index as a "proxy" variable. In this context, the change of the industrial production index can be described by the following equation (1.1.), the results of which are presented in equation 1.2. and in Table 4:

$$\text{LINDUSTRY} = C(1) + C(2) \times \text{LCIT} + C(3) \times \text{MA} \quad (1.1.)$$

$$\text{LINDUSTRY} = 4.200 + 0.052 \times \text{LCIT} + 0.361 \times \text{MA} \quad (1.2.)$$

(16.62) (2.72)\*\*\* (2.55)\*\*

Table 4. Regression analysis results

Variables	Coefficient	t-Statistics	p-value
C	4.200502	16.62911	0.0000
LCIT	0.052892	2.722912	0.0092
MA(1)	0.361841	2.552041	0.0142
Coefficient of Determination ( $R^2$ )	0.371931		
Adjusted Coefficient of Determination ( $\bar{R}^2$ )	0.344017		
Durbin-Watson stat.	1.903167		
F-statistics	13.32410		
Prob.(F-statistics)	0.000029		

For the purpose of achieving better statistical properties and better comparability, series of natural logarithms of the observed variables LINDUSTRY and LCIT were analysed. The obtained results show that an average growth of industrial production by 0,052% may be expected with an increase of CIT by 1%. In other words, the results obtained indicate a small but nevertheless positive and statistically significant effect of CIT on economic growth.

The empirical significance level (p-value), which is presented in the analysis results for this parameter and equals 0,0092 indicates that with a significance level of 1% (\*\*\*) the null hypothesis may be rejected, meaning that the variable LCIT is statistically significant within the analysed regression model.

In the scope of the above mentioned analysis, an analysis was also conducted of the distribution of residual deviations within the observed regression model and the correspondent data. Based on the obtained value of the Jarque-Bera normality test as well as the associated empirical significance level (p-value), it is not possible to reject the null hypothesis ( $H_0$ : the observed series are distributed normally). In other words, it can be assumed that residual deviations from the regression model are distributed normally, which makes the estimated parameter values of the presented regression equation the best estimators possible<sup>9</sup>.

<sup>9</sup> The estimated values are in this case equally acceptable as estimators obtained by the ML (Max Likelihood) method.



Within the conducted regression analysis, along with the variable LCIT another independent variable was also introduced – namely the MA (Moving Average) indicator with a time movement of one period, since without this element the model demonstrated a statistically significant autocorrelation of residual deviations with a time movement of one period.

Finally, it is necessary to analyse the variance i.e. the quality of the model. For this purpose the coefficient of determination and the adjusted coefficient of determination are observed. The coefficient of determination ( $R^2$ ) equals 0.371931, meaning that 37.2% of all deviations are accounted for by this regression model.

The adjusted coefficient of determination ( $\bar{R}^2$ ) mostly equals or is lower than the coefficient of determination since in calculating it we take into account the number of degrees of freedom. Given the fact that  $\bar{R}^2$  equals 0.344017, it also points to the fact that more 34.4% of all deviations are accounted for by this regression model.

According to the above presented results, conclusion can be drawn that in the Croatian case the tax incentives have influence on the economic growth and the economic activity, but because of the rather small beta coefficient, their efficiency is rather limited.

## 5. CONCLUSION

Croatia, as a typical transition country, implements a relatively large number of CIT incentives with the purpose of stimulating economic activity. In accordance with the worldwide practice both in developed and in developing countries, the predominant form of CIT incentives in Croatia are tax holidays, but other types of CIT incentives also play a significant role. Based on the above stated, it can be concluded that the amount and structure of tax incentives in Croatia is typical of a transition country at the EU's doorstep.

With respect to the efficiency of tax incentives, the regression analysis indicated the existence of a small but nevertheless positive and statistically significant effect of CIT on economic growth in Croatia. The positive correlation between CIT and economic growth is by all means expected, given the fact that in the scope of CIT Croatia implements various tax incentives as instruments of stimulating economic activity. Based on the results obtained, we can conclude by induction (and prove the initial hypothesis) that a positive but nevertheless limited efficiency of tax incentives in stimulating economic activity can be established in Croatia.

Regardless of the mentioned advantages and disadvantages of CIT incentives, most empirical researches indicate a relative inefficiency of CIT incentives in stimulating economic activity. Limited proof for this is provided mostly by researches concerning developing countries and European transition countries, which was partly substantiated by this research also. The conclusion of this paper is that although tax incentives may have a positive effect on economic activity, they are however not crucial in accomplishing this goal. A much more significant role for the success and/or survival of a particular industry, especially in the conditions of a crisis, is played by overall economic characteristics of a country, than by tax incentives on which high hopes are often placed, especially due to their political attractiveness. Even if tax incentives do prove themselves as efficient in stimulating economic activity, subsequently they are most commonly perceived as cost-ineffective, which is confirmed by both worldwide practice and relevant research.

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