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**THE EFFECT OF CORPORATE INCOME TAX OF AGRICULTURAL COMPANIES
ON NATIONAL BUDGET – THE CASE OF THE SLOVAK REPUBLIC****Juraj Chebeň^{1*}, Renáta Krajčírová², Alexandra Ferenczi Vaňová³
and Michal Munk⁴**¹⁾ University College of Business in Prague, Czech Republic^{2,3)} Slovak University of Agriculture in Nitra, Slovak Republic⁴⁾ University of Constantine the Philosopher in Nitra, Slovak Republic**Please cite this article as:**

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Abstract

Corporate income tax significantly affects the overall amount of government tax revenue. In spite of the attention being paid to many macroeconomic indicators (e.g. GDP, inflation, unemployment rate, etc.) influencing the total amount of tax revenues influence, we can hardly find empirical research focused on the microeconomic view where the data is based on of the individual financial statements and tax returns of companies. Although the study is very practical, it assesses the extent of the mutual co-dependence between the corporate income tax and assorted variables via non-parametric correlation. Moreover, it presents the impact of the corporate income tax on the national tax revenue of the Slovak Republic within the sample of evaluated taxpayers operating in agriculture, forestry and fishing in 2011-2015 from SK NACE Rev. 2 section "A" category of companies as legal entities – Agriculture, forestry and fishing in 2011-2015. The study theoretically contributes to microeconomic-based view grounded on the adequate data of the legal entities, which were obtained from the corporate income tax returns provided by the Slovak Republic's Financial Directorate.

The authors found out a significant rate of dependency between selected evaluated variables in all groups in the reviewed period. This dependency, especially between total income and tax base, as well as between total income and corporate income tax, is an essential part of the accounting result determined in the double-entry bookkeeping. The reliance is also the basis for the income tax base calculation from which the adjusted tax base is declared, and subsequently the corporate income tax is calculated. Research results tell the corporate income tax revenue of our sample makes up for, largely, 1.6% of the total tax revenue flowing to the Slovak national budget. Therefore, a set of recommendations was put forth in order to strive for a maximization of these tax revenues within the agricultural sector.

Keywords: tax revenues, corporate income tax, corporate income tax rate, accounting result, income tax base

JEL Classification: H25, H61, H71, K34

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Introduction

Taxation is one of the most important ways of increasing government earnings of tax revenues in which developing countries can mobilise own resources for sustainable development (OECD, 2008). Taxes as a flow of national revenues fulfils the basic state functions for the implementation of the budgetary policy and the primary interest of government is to maximise tax revenues as such (Brennan and Buchanan, 1980). The corporate taxes are collected by the government as primary source of direct income taxes. Direct taxes are articulated anywhere in the tax on personal income and in the tax on corporate income (Taxation in European Union, 2017). The Slovak Republic as a member state of the Organisation for Economic Co-operation and Development (OECD) follows OECD guidelines and principles.

Many research studies focus on macroeconomic indicators and concluded that the amount of tax revenues is influenced by many macroeconomic indicators (Jones et al., 1997; Stejskal, 2008; Sobotovičová and Blechová, 2017; Andrejovská and Puliková, 2018), but surprisingly, these studies that would explore the variables affecting the determination of corporate income tax in the companies are missing. This research study is the first in that assesses the relationship between the corporate income tax, variables that play a significant part in the determination and calculation of corporate income tax of the Slovak companies and input to the transformation of accounting result into the income tax base.

Furthermore, the article presents the amount of corporate income tax as a part of tax revenues on the national budget of the Slovak Republic within the sample of legal entities operating in the agriculture, forestry and fishing. In respect of this value, the article pointed out also the necessity to introduce the tax reliefs for agricultural companies in the Slovak Republic. It should be noted that the amount of corporate income tax on the total tax revenues in the companies interested in agriculture sector has not been yet examined.

The tax imposed on companies is usually known as corporate income tax and obviously is levied at a flat rate. The corporate income tax in the Slovak Republic is imposed on a company's accounting result (profit/loss) determined according to the accounting rules in the Slovak accounting system and generated from the business activities within the one taxation period. The accounting result is adjusted out of the Slovak accounting system to the income tax base. The tax base is generally the total income of the company deducted by eligible expenses modified by a number of adjusting items increasing or decreasing the tax base before calculation of corporate income tax. The company with the seat or the place of effective management is located in the territory of the Slovak Republic are considered as Slovak resident and is taxed on their worldwide income. Non resident is liable to pay corporate income tax only on income derived from Slovak sources (Income Tax Act, 2019). The corporate income tax rate in the Slovak Republic has been changing significantly over two decades. The standard corporate income tax rates in 1995 amounted 40%, the current general corporate income tax rate is 21% of the tax base. The Slovak government initiated a number of tax reforms, including a radical reform of tax system in 2004. The goal of the tax reform was to eliminate the complications and ambiguities of the previous taxation system. The average top rate of tax on corporate income in the EU was 21.7% at the beginning of 2019 (Taxation trends in the European Union, 2019). Regarding corporate income tax, the attention of authors observes on items reducing a tax base and items decreasing company's final tax liability (Lisztwanova and Ratmanova, 2017). The income tax of legal entities is generally a stable source of tax revenue of the European governments. However, in the development of corporate income tax revenues over the last 25 years, it has been observed

their increasing, more precisely a stagnating trend with decreasing statutory tax rates and with increasing amount of actions to expand the tax base (Tahlová and Banociová, 2019).

The paper is structured as follows: first, a literature review on factors influencing the total amount of tax revenues, then a conceptual framework in the methodological part including the sample, and analytical methods. Finally, results, discussion, and conclusions are presented.

1. Review of the scientific literature

Taxes are dominant revenues of public budget and represent significant economic tool of each state. A tax policy realized through the tax system is an important part of a fiscal policy of each state (Lisztwanova and Ratmanova, 2017). In its implementation, the state applies certain rules and steps to create its own tax framework. This framework varies in the structure of tax systems, the extent of income and property taxation, tax base legislation, the direct and indirect tax burden and the system of tax revenue redistribution (Schultzová et al., 2009). According to Baštinová (2016) the success rate of using taxes as an economic tool depends on an appropriate tax system development as well as being linked to other economic tools of a state policy. It is concluded that tax system reflects existing economic relations of a society and it is one of the means for the implementation of financial goals and aims of a state.

A number of authors in their publications and studies presents a wide range of opinions on the impact of taxation on economic objectives (Jones, Manuelli and Rossi, 1997; Stejskal, 2008; Margan, 2012; Vitek, 2012). State tax policy affects also business entity choice decision (Luna and Murray, 2010). The objective of fiscal function is to generate enough revenues to cover public spending. Income taxes are part of each contemporary tax system and represent substantial revenues of public budget (Sobotovičová and Blechová, 2017). Corporate income tax revenues include tax determinants which have a direct link to the corporate tax structure itself and effect the size and profitability of the corporate sector (Tahlová and Banociová, 2019).

The corporate income tax is relatively volatile, given it is assessed on the basis of its extent further specified by variables such as tax rates, the way of defining tax base and aspects of following tax regulations. The corporate income tax is also influenced by entrepreneurship on a single market and therefore we can say that there exist rather large differences in overall taxation within the EU (Thematic information overview: Tax system, 2017). The corporate tax is a fundamental tool of the fiscal system due to its collection capacity. Its sensitivity to the economic cycle and the influence that it can have on the economic decisions enterprises (Delgado, Fernandez-Rodriguez and Martinez-Arias, 2014).

It is obvious that the differences of the tax systems of the EU member countries are being gradually unified even at the corporate income tax level (Działo, 2015). There exist various concepts talking about the relation of the corporate income tax base and the accounting results are concerned. A lot of experts point at tax base unification (Baštinová, 2016; Skalicka, 2017; Nerudová and Solilová, 2018). Statutory corporate income tax rates differ substantially across countries within the EU countries, ranging from 9% in Hungary to 34.4% in France. The average combined (central and sub-central government) statutory tax rates for all OECD jurisdictions was 21.4% in 2018, compared to 21.7% in 2017 and 28.6% in 2000 (OECD, 2019). The corporate income tax has been characterized in recent years by a gradual decrease of the statutory tax rate and the countries of the EU are no exception. It can be observed that the lower corporate tax rates are manifested in EU newcomers while the former members reflect higher corporate tax rates.

Recently, many countries, including France, Italy, Spain and the UK have announced cuts in the corporate statutory tax rate (Collier, 2017). Freebairn (2017) argues that a lower corporate tax rate results in a larger reduction in the effective tax burden facing businesses. According to Clausing (2007) a reduction of corporate tax rates can produce an incentive effect that increases the level of the economic activity, reduces tax evasion and attracts foreign investment. The same author pointed out the growing importance of non-tax factors supported by the period of increasing internationalization and globalization (Clausing, 2016). Recent research studies that compare and identify important factors influencing the corporate tax rate are focused on macroeconomic variables: Gesko (2014); Nemeč and Dulak (2017); Zabinski (2017); Vintila, Gherghina and Paunescu (2018); Kim and Im (2017); Graham et al. (2017); Tahlová and Banociová (2019). According to Delgado et al. (2019) the corporate income tax is permanently under debate in recent decades with respect to coordination and competition. The taxation of legal entities is known to be incorporating various tax rates since there are some differences in the transformation of the accounting results into tax base in the EU countries. The economic result found in bookkeeping is the cornerstone for a proper tax base identification.

2. Research methodology

The article assesses the extent of the mutual codependence between the corporate income tax and assorted variables via non-parametric correlation. Moreover, it focuses the impact the corporate income tax on the national tax revenue of the Slovak Republic within the sample of evaluated taxpayers doing business in agriculture, forestry and fishing in the period of 2011-2015. The variables represent indicators that significantly affect transformation of accounting result into corporate income tax base in the Slovak Republic, as well as the amount of payable income tax as one of major sources of the national budget revenue.

The data that helped us to accurately describe the problematics was provided by the Financial Directorate of the Slovak Republic as a sample of legal entities that were categorized according to statistical classification of economic activities – SK NACE Rev. 2, section A – Agriculture, forestry and fishing. These were obtained from filed corporate income tax returns of taxpayer for taxation period of 2011-2015. This article assesses mutual dependencies among assorted variables (Figure no. 1), such as:

- *Total income* represents gross taxable income of the legal entity recorded from all economic activities of the legal entity;
- *Accounting result* is from the accounting perspective to be defined as the final result of the entity's activities achieved during the accounting and taxation period. It is calculated as the difference between the total income and total expenses;
- *Tax base* is generally the total income of the entity decreased by related expenses, modified by a number of adjusting items. The adjusting items are to be (i) tax deductible items which increase the tax base and (ii) non-taxable items decrease the tax base. The adjusted tax base is taxed by the standard corporate income tax rate;
- *Corporate income tax (CIT)* is calculated from the adjusted tax base of the legal entity. It can be determined as corporate income tax before applying tax reliefs and corporate income tax after tax reliefs. Tax reliefs represent the amount of reliefs by which the corporate income tax is decreased in accordance with the national tax legislation. Generally, tax reliefs may

have a form of investment grants or subtraction of expenditures for research and development (R&D) as well as the reliefs of a foreign tax credit. Investment grants and subtraction of expenditures for R&D are subject to special rules. A credit for foreign tax paid by a Slovak tax resident on foreign source income taxable in the Slovak Republic is available in case where the bilateral treaties concluded between the Slovak Republic and the foreign country states so. The credit of foreign tax can be applied up to the amount of tax that would be payable on that income in the Slovak Republic.

- *Corporate income tax before reliefs (CIT before reliefs)* is treated as tax liability before applying tax reliefs mentioned above;
- *Corporate income tax after tax reliefs (CIT after reliefs)* is to be calculated as final tax liability of the legal entity for the respective taxation period.

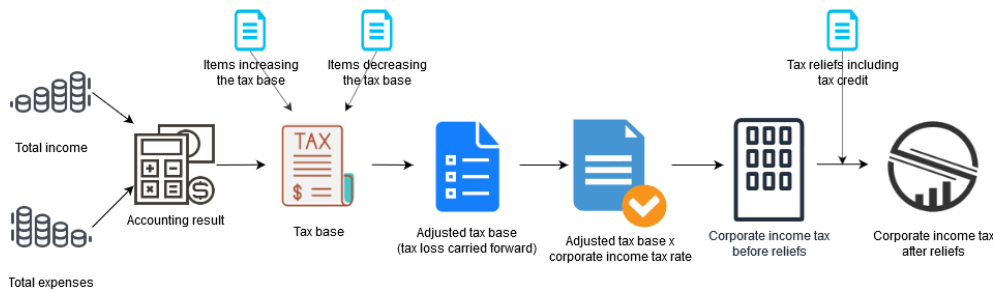


Figure no. 1. Transformation of accounting result into the tax base

Statistical classification of economic activities SK NACE Rev. 2 is a harmonized EU classification NACE Rev. 2 and for the EU member countries it is authorized by the Regulation of the European Parliament no. 1893/2008, from 20 December 2006. This nomenclature of economic activities represents those activities that are carried out by economic operators. The aforementioned activities are further subcategorized into three divisions.

Section A – Agriculture, forestry and fishing includes the use of animal and plant resources. The section is comprised of activities such as cultivation of crops, raising livestock, timber extraction and use of other plants and animals on farms as well as in their natural habitat.

In the field of statistics, the use of this classification and its national version is obligatory for all the EU member states.

For the purposes of the research reviewed complex of legal entities is comprised of taxpayers represented by legal entities in the field of agriculture, forestry and fishing which has to be subcategorized into the following subgroups:

- Crop production (SK NACE 1),
- Animal production (SK NACE 2),
- Mixed farming and services (SK NACE 3),
- Forestry and other activities including fishing (SK NACE 4).

Following the analysis, the research also uses the data provided by the Financial Directorate of the Slovak Republic pertaining to the national budget’s revenue tax compliance in the period 2011-2015. As mentioned above, corporate income tax after reliefs represents final

tax liability of the legal entity calculated in the respective taxation period. This variable is essential from the tax point of view in the process of transformation of accounting result into the tax base and therefore is tested as the source of national tax revenue. By mean of corporate income tax after reliefs is to be assessed statistical significance of corporate income tax as a part of tax revenue of the Slovak Republic. The final corporate income tax is assessed in all four sub categories in the field of agriculture, forestry and fishing.

In order to accurately assess the variables of the research, the null hypothesis is tested which declare that selected evaluated variables are independent. This means that *Total income* is not dependent on *Accounting result*, *Tax base*, *CIT before reliefs* or *CIT after reliefs*. The variables *Accounting result* and *Tax base* are not dependent. The variables, *CIT before reliefs* and *CIT after reliefs* are not dependent (Munk et al., 2017).

The Shapiro-Wilk's W test is used for testing of normality. The value of variables *Accounting result*, *Tax base*, *CIT before reliefs*, *CIT after reliefs* and *Total income* in the selected period of years 2011-2015 do not come from typical distribution (2011: N = 41, W = 0.3706~0.4375, p < 0.001; 2012: N = 41, W = 0.3919~0.4588, p < 0.001; 2013: N = 44, W = 0.4365~0.5676, p < 0.001; 2014: N = 43, W = 0.4457~0.4585, p < 0.001; 2015: N = 43, W = 0.3999~0.4746, p < 0.001), this means, that the null hypothesis at the 0.1% significance level which declare that the value of variables come from assumed distribution.

The correlation coefficient can be influenced in both directions. The only extreme case in large database can significantly decrease strong dependence and create strong dependence where there is not any. As for variations of normality, thus presence of extreme values is not influenced by non-parametric correlation. As measure of relation in case of presence of extreme values between two intensive variables (ordinal or metrical) we can use Spearman correlation coefficient, Kendal Tau coefficient and Gama coefficient.

Due to the identified variances from normality the nonparametric correlation is used, especially Kendall Tau which presents a nonparametric measure of correlation defined as follows:

$$T = (\# \text{ agreements} - \# \text{ disagreements}) / \text{total number of pairs.}$$

Kendall Tau represents a probability; that is, it is the difference between the probability that the two variables are in the same order in the observed data versus the probability that the two variables are in different orders (Hill and Lewicki, 2007).

3. Results and discussion

The tendencies of accounting result development for the assessed sample of legal entities operating within SK NACE Rev. 2, section A – Agriculture, forestry and fishing are contingent on total income and expenses, while both the former and the latter depend on subsidies and the price level of agricultural commodities. This is confirmed also by Serenčėš et al. (2014). Financial situation of agricultural companies was influenced by the system of subsidies and common agricultural policy after the accession of the Slovak Republic to the EU.

Subsidies partially compensated the loss, without them the majority of agricultural companies would report the loss (Report on agriculture and food industry in the Slovak Republic for the year 2015). The biggest increase in operational subsidies occurred in Slovakia in the period 2004-2012 (Svoboda, Lososova and Zdeněk, 2015). Subsidies of

investment and non-investment character belong to the forms of government intervention to the financing of companies. Received subsidies of non-investment character as a part of other income from operation activities underlie the obtained level of profit or loss of the companies.

By means of the specific function and the importance of agriculture within the national economy this sector is the subject of government regulations which deforms a market and market prices as these are the input for accounting systems of agricultural companies and significantly influence the profit or loss of agricultural companies and the assessment of their economic performance (Dvořáková, 2012).

The amount of total income and above all the sales of legal entities operating in the field of agricultural sector in respective accounting and taxation period is influenced by the structure of agricultural production and its seasonal characteristics. Biological nature of primary agricultural production significantly impact on the economic performance of legal entities (Gyurián and Kútna, 2015). According to Tóth, Matveev and Boháčiková (2016) climate and weather related risks have a strong effect on agricultural production.

The measure of success of any company is the accounting result, its volume, structure and foremost its focus on production and performance. The relation between *Total income* and *Accounting result* of taxpayers from all groups (Tables no. 1-5) exhibits a moderate rate of dependency in 2011 and 2014 (Kendall Tau = 0.34-0.43), a low rate of dependency in 2012 and 2015 (Kendall Tau = 0.21-0.22) and trivial dependency in 2013 (Kendall Tau = 0.06).

Table no. 1. All Groups Kendall Tau Correlations for the year 2011

Pair of Variables	Valid N	Kendall Tau	Z	p-value
Total income & Accounting result	41	0.34	3.0907	0.00200
Total income & Tax base	41	0.45	4.1696	0.00003
Total income & CIT before reliefs	41	0.82	7.5537	0.00000
Total income & CIT after reliefs	41	0.82	7.5311	0.00000
Accounting result & Tax base	41	0.74	6.8290	0.00000
CIT before reliefs & CIT after reliefs	41	1.00	9.1874	0.00000

Furthermore, statistically significant level of correlation between selected variables, at which the null hypothesis is rejected at the 5% significance level in 2011 ($p = 0.0020$), 2014 ($p = 0.0000$) and 2015 ($p = 0.0354$). This means that *Total income* and *Accounting result* are dependent. The exception is presented in 2012 and 2013, in which the statistically insignificant correlation is determined between selected variables, at which the null hypothesis is accepted. It means, that *Total income* and *Accounting result* are not dependent. The subgroups of taxpayers whose main business operations are mixed farming and services (SK NACE 3), forestry and other activities including fishing (SK NACE 4) exhibit a high and a very high rate of dependency (Kendall Tau = 0.60-0.73) of assessed variables in 2011 and 2014.

Accounting result found in double-entry bookkeeping is a subtraction of total income and total expenses and as such is regulated by the provisions of the income tax legislation for tax base purposes. The rate of dependency between *Total income* and *Tax base* of taxpayers from all groups (Tables no. 1-5) exhibits a higher rate of dependency compared to the rate of dependency between *Total income* and *Accounting result* in the assessed sample of taxpayers.

In 2014, the dependency between *Total income* and *Tax base* was moderate (Kendall Tau = 0.56), in 2011, 2012 and 2015, it was low (Kendall Tau = 0.36-0.45).

Table no. 2. All Groups Kendall Tau Correlations for the year 2012

Pair of Variables	Valid N	Kendall Tau	Z	p-value
Total income & Accounting result	41	0.21	1.9467	0.05157
Total income & Tax base	41	0.36	3.2745	0.00106
Total income & CIT before reliefs	41	0.80	7.3982	0.00000
Total income & CIT after reliefs	41	0.80	7.3982	0.00000
Accounting result & Tax base	41	0.71	6.5819	0.00000
CIT before reliefs & CIT after reliefs	41	1.00	9.2102	0.00000

Furthermore, the statistically significant correlation between selected variables is determined in the years 2011-2015, i.e. the null hypothesis is rejected at the 5% significance level ($p < 0.05$). This means, that *Total income* and *Tax base* are dependent. In the subgroups of taxpayers whose main business operations are mixed farming and services (SK NACE 3), forestry and other activities including fishing (SK NACE 4) exhibit a high and a very high rate of dependency between *Total income* and *Tax base* (Kendall Tau = 0.60-0.71) in 2011 and (Kendall Tau = 0.78-0.87) in 2015 respectively.

Table no. 3. All Groups Kendall Tau Correlations for the year 2013

Pair of Variables	Valid N	Kendall Tau	Z	p-value
Total income & Accounting result	44	0.06	0.5581	0.57681
Total income & Tax base	44	0.22	2.1003	0.03570
Total income & CIT before reliefs	44	0.82	7.8012	0.00000
Total income & CIT after reliefs	44	0.82	7.8012	0.00000
Accounting result & Tax base	44	0.76	7.2953	0.00000
CIT before reliefs & CIT after reliefs	44	1.00	9.5681	0.00000

A transformation of accounting result into the income tax base, influenced by items increasing and decreasing the tax base, is carried out within the framework of the tax analysis. A relevant transformation of total income and expenses is carried out in order to calculate the corporate income tax accurately and subsequently to calculate the payable income tax. Following the results in the rate of dependency between the assessed variables, it can be argued that the taxpayers operating in the field of agriculture sector carry out minimal changes in the process of transformation of accounting result into tax base. Adjusted tax base is taxed by linear corporate income tax rate serves as a variable to calculate final corporate income tax.

The research results in the assessed sample of taxpayers doing business in the field of agriculture, forestry and fishing in the monitored period of 2011-2015 show almost perfect dependence between *CIT before reliefs* and *CIT after reliefs*.

The corporate income tax before reliefs in the assessed sample of taxpayers operating in the field of agriculture, forestry and fishing does not include according to the national income tax legislation of the Slovak Republic (Figure no. 1) the reliefs of investment beneficiaries,

the reliefs of incentive beneficiaries and subtraction of expenditures for R&D as well as the reliefs of a foreign tax credit. The results show that the assessed variables – *Corporate income tax before* and *after reliefs* are identical.

Table no. 4. All Groups Kendall Tau Correlations for the year 2014

Pair of Variables	Valid N	Kendall Tau	Z	p-value
Total income & Accounting result	43	0.43	4.0920	0.00004
Total income & Tax base	43	0.56	5.2641	0.00000
Total income & CIT before reliefs	43	0.81	7.6859	0.00000
Total income & CIT after reliefs	43	0.81	7.6859	0.00000
Accounting result & Tax base	43	0.77	7.3153	0.00000
CIT before reliefs & CIT after reliefs	43	1.00	9.4503	0.00000

There is a high rate of dependency (Kendall Tau = 0.80-0.82) between *Total income* and *CIT before* and *after reliefs* of taxpayers from all groups in 2011-2015 (Tables no. 1-5). Furthermore, the statistically significant dependency was determined in the analyzed years between selected variables, i.e. the null hypothesis is rejected at the 1% significance level ($p = 0.0000$). This means, that *Total income* and *CIT before* and *after reliefs* are dependent. There was a near perfect dependency (Kendall Tau = 0.96) in 2011 and (Kendall Tau = 0.91) in 2015 in the subgroup of taxpayers whose main business operations are animal production (SK NACE 2). A near perfect dependency was also found in the case of taxpayers whose main business operations are forestry and other activities including fishing (SK NACE 4) in 2011 (Kendall Tau = 0.93), 2014 and 2015 (Kendall Tau = 0.94).

According to the statistical evaluation of the variables, it can be argued that tax reliefs regulating the value of corporate income tax are generally not applied in the field of agriculture, forestry and fishing. The 2017 Report on agriculture and food industry in the Slovak Republic also states that certain particular tax reliefs do not apply in the field of agriculture. From the legal viewpoint, their redistribution and presumptions of their redistribution, DELETE IN RED the reliefs such as tax incentives have significant influence on investments entrepreneurial operations might potentially make. By granting some of the tax incentives, the state is deprived of a part of its budget revenues. On the other hand it can increase the amount of foreign investments as to support particular fields of economy (Vavrová, 2015).

Table no. 5. All Groups Kendall Tau Correlations for the year 2015

Pair of Variables	Valid N	Kendall Tau	Z	p-value
Total income & Accounting result	43	0.22	2.1036	0.03542
Total income & Tax base	43	0.44	4.1966	0.00000
Total income & CIT before reliefs	43	0.81	7.6859	0.00000
Total income & CIT after reliefs	43	0.81	7.6859	0.00000
Accounting result & Tax base	43	0.61	5.8083	0.00000
CIT before reliefs & CIT after reliefs	43	1.00	9.4503	0.00000

Based on the statistical evaluation between *Accounting result* and *Tax base* of taxpayers from all groups (Tables no. 1-5), a high rate of dependency was found in 2011-2015 (Kendall

Tau = 0.61-0.77). Moreover, the statistically significant dependency is presented between selected variables in the analyzed years, i.e. the null hypothesis is rejected at the 1% significance level ($p = 0.0000$). It means, that *Accounting result* and *Tax base* are dependent. In the case of individual subgroups, there was a near perfect rate of dependency between *Accounting result* and *Tax base* in crop production (SK NACE 1) in 2011 (Kendall Tau = 0.96), forestry and other activities including fishing (SK NACE 4) in 2012 (Kendall Tau = 0.93), mixed farming and services (SK NACE 3) in 2013 (Kendall Tau = 1.00), forestry and other activities including fishing (SK NACE 4) in 2014 (Kendall Tau = 0.94) and animal production (SK NACE 2) in 2015 (Kendall Tau = 0.94).

Specific way of calculating tax base depends on a specific way of accounting. As far as double-entry bookkeeping is concerned, which is also obligatory for business operations listed in the Commercial register of the Slovak Republic, the tax base is the accounting result calculated as a subtraction of total income and expenses. Generally, the corporate tax base is the amount of total taxable income subject to tax, achieved in the respective taxation period and reduced by tax-deductible expenses while respecting their material and temporal connection.

The EU member countries' tax systems are gradually being harmonised even at the level of corporate income tax. It entails an application of the same taxes, tax bases and the same tax rates (Baštincová, 2016).

One of the most ambitious projects of the harmonization effort was introduction of the proposal of Directive on common corporate consolidated tax base (Nerudová and Solilová, 2018) and in October 2016 the European Commission introduced proposals for Council Directive on a common consolidated corporate tax base (Skalická, 2017). Another reason on the level of EU Member States is the fact that they need to define how best to raise revenues while providing the right incentives for employment, innovation and long-term investment.

According to the national tax legislation of the Slovak Republic, the transformation of accounting results is carried out outside the double-entry bookkeeping system via corporate income tax return. In general, every legal entity undertaking any business operations is legally bound to file the corporate income tax return. Corporate income tax return pertaining to the previous taxation period must be filed by each taxpayer, whose registered office or an actual centre of management is located in the territory of the Slovak Republic. This obligation also relates to foreign legal entities provided that their income comes from the resources of the Slovak Republic, and the tax thereof is or is not taxed by withholding taxes and the withholding tax may be deemed an advance (Income Tax Act, 2019).

It is also important to note that while filling in a tax return a tax entity provides an DELETE SK NACE code with registration data of economic operators for statistical purposes. The SK NACE entry must be filled in pursuant to Regulation no. 306/2007 of the Slovak statistical authority that serves to issue a statistical classification of economic activities. The taxpayer must declare the most profitable activity in the respective taxation period.

The dependency rate between *CIT before* and *after reliefs* of taxpayers from all groups (Tables no. 1-5) was nearly perfect in the observed period of 2011-2015 (Kendall Tau = 1.00). Furthermore, the statistically significant dependency is presented between selected variables in the analyzed years, i.e. the null hypothesis is rejected at the 1% significance level ($p = 0.0000$). It means that *CIT before reliefs* and *CIT after reliefs* are dependent. A similar phenomenon can be observed in the assessed subgroups of taxpayers,

within the framework of which a nearly perfect dependency rate was found in the same period (Kendall Tau = 1.00). It naturally follows that these variables show identical values.

The amount of corporate income tax is contingent on a valid statutory corporate income tax rate in the respective year as well as the volume of accounting result before tax and its transformation into tax base outside double-entry bookkeeping. In the Slovak Republic in 2019, the valid corporate tax rate is set to 21%.

The corporate income tax rate in the Slovak Republic has undergone significant developments. Since 1993, the corporate income tax rate has been 45%, which, along with the taxation of profit shares in the same period, represented a 60% taxation of businesses. In our opinion, the most favourable model of the tax system can be seen in the period from 2004 to 2010. In general, the 2004 tax reform meant a simplification of tax legislation, the introduction of a flat rate income tax, the elimination of double taxation, and thus meant a positive change in the business environment and attracted foreign investors. Tax reforms affect economic performance by changing incentives for business formation, expansion and operation (Hines, 2017).

A very similar development could be seen in the Czech Republic, since both countries were based on a common legislative concept. However, the Czech Republic is more conservative. It does not make radical changes and plays a waiting game in a carry out the relevant measures later. The income tax system in the Slovak Republic is more effective, less costly and more socially just than the income tax system of the Czech Republic (Lipková, Grešš and Poncarová, 2017). Hungary may be considered the most progressive in its system of corporate income tax rates, where the tax rate of 18% was introduced in 1995. Since 2017, the tax rate has only been 9%, which is the lowest corporate income tax rate within the V4 countries.

From the international perspective, corporate income tax has been characterised in recent years by a gradual decrease of the nominal tax rate and the countries of the EU are no exception (Delgado, Fernandez-Rodriguez and Martinez-Arias, 2014).

The research results achieved in the assessed sample of taxpayers doing business in the field of agriculture, forestry and fishing in the observed period of 2011-2015 show a significant level of dependencies between total income and tax base as well as total income and corporate income tax.

Tax revenues represent the highest portion of the Slovak Republic's budget income, which also includes the corporate income tax. Both of these are significantly affected by the corporate income tax rate as well as the total taxable income, calculation of the tax base, identification of non-taxable expenses and total non-taxable income.

In the assessed time period of 2011-2015 it is possible to observe a constant development of the growth of the national tax revenues as well as a positive development of the corporate income tax classified SK NACE Rev. 2 in Section A – Agriculture, forestry and fishing of the statistical classification of economic activities. Based on an actual collection of revenues of the Slovak national budget, the total tax revenue in 2014 amounted EUR 9,296,027,088. In 2014, the corporate income tax revenue amounted EUR 1,917,032,718 (Overview on collection of tax and non-tax revenue as at 31 December 2014).

Similarly, in 2015 the actual tax revenue collected for the state budget of the Slovak Republic in amounted to EUR 10,614,245,541, specifically the corporate income tax amounted to EUR

2,607,803,894 (Overview on collection of tax and non-tax revenue as at 31 December 2015). To put things in perspective, in 2018 the tax revenue of the state budget of the Slovak Republic amounted to EUR 11,967,565,852 and the value of the corporate income tax recorded a positive increase to the level of EUR 2,801,568,898 (Overview on collection of tax and non-tax revenue as at 31 December 2018 of the Slovak Republic).

The results show that in 2015 the corporate income tax of the assessed sample of legal entities classified in SK NACE Rev. 2 in Section A – Agriculture, forestry and fishing represented less than 1.6% of the total tax revenue in the Slovak Republic (Figure no. 2).

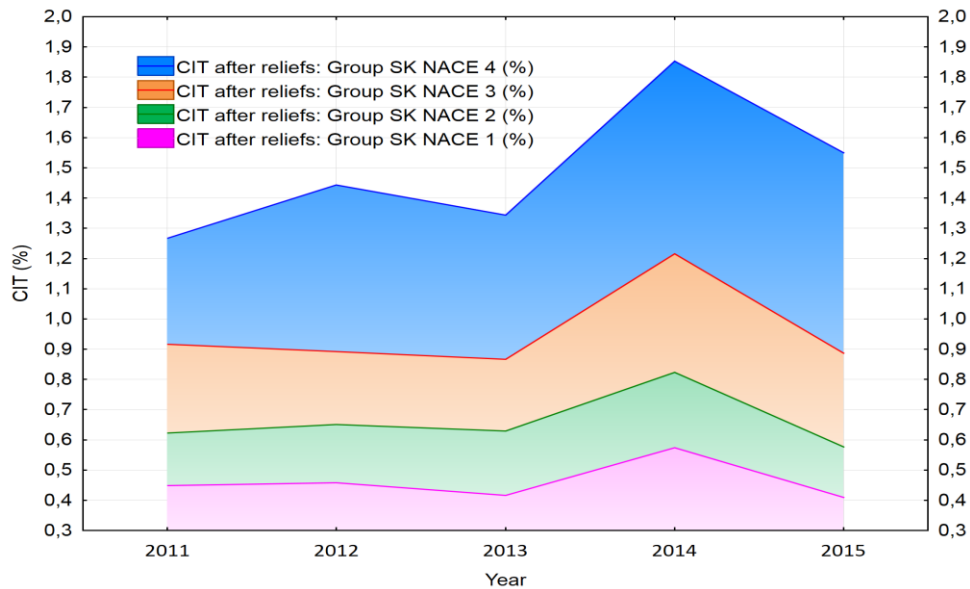


Figure no. 2. Development of corporate income tax revenue

We are of the opinion that the above-mentioned increase in tax revenues, namely corporate income tax in the assessed period, was also due to the introduction of the tax license institute in 2014. The aim of this government precaution was the inflow of financial means to a state budget, namely from entrepreneurs who did not disclose their real tax obligation. Following our previous research nearly 90% of companies from selected sample agricultural legal entities (app. 2,570 entities) paid for the taxation period 2015 in 2016 the tax license. The reason for which the obligation to pay tax license arose in the Slovak Republic is the fact that there has existed the majority of companies which have disclosed a tax loss or very low tax obligation so they would have not had paid income tax or only a small amount (Ölvecká, 2016). From 1 January 2018 the institute of tax license has been cancelled and in our opinion this amendment has negative impact on the national budget of public administration in the Slovak Republic. The corporate income tax is one of the means the government uses to support the business environment.

Conclusion

The accounting result, as a difference between the total income and total expenses calculated in double-entry bookkeeping, provides conclusive data for the determination of the corporate income tax base. The correct determination of the tax base and consequently the calculation of the corporation tax payable depends on several factors set by the national law. The basis for the determination of tax obligations is provided by the Slovak accounting system, which requires application of the provability of tax laws in the subject and content of business accounting. Business management should include a tax analysis to optimize the income tax base and consequently the corporate income tax liability for the respective taxation period.

Based on a statistical assessment, statistically significant rate of dependency is declared between total income and accounting result, total income and tax base, total income and CIT before reliefs, total income and CIT after reliefs, accounting result and tax base and CIT before reliefs and CIT after reliefs in all groups of the assessed sample of taxpayers in the field in agriculture, forestry and fishing within SK NACE Rev. 2, within the reviewed period with exception of dependency between total income and accounting result in 2012 and 2013. It is due to the fact that total income is an essential part of the accounting result determined in the double-entry bookkeeping and the latter is the basis for the income tax base calculation from which the adjusted tax base is declared and subsequently the corporate income tax is calculated.

The range of items adjusting the accounting result as well as the applicable tax rate affect the tax burden on corporate income tax. Departing from the achieved results, we are of the opinion that businesses operating in the field of agriculture, forestry and fishing do not make sufficient use of the conditions and scope of the application of the items affecting the income tax base regulated by the Slovak tax legislation. We believe that the generated and recognized revenues represent primarily total income, i.e. subject to corporate income tax and the subsequently recognized expenses are primarily tax expenses in the assessed sample of agricultural companies.

In general, tax reliefs regulating the amount of corporate income tax do not apply in the field of agriculture, forestry and fishing (Report on agriculture and food industry in the Slovak Republic for the year 2017) and were provided to other sectors of the national economy of the Slovak Republic in the monitored period. For this reason, we propose to consider granting special tax reliefs to taxpayers operating in the sector concerned. In our opinion, the agricultural's taxation should be in any way supported within the national tax system.

Based on the author's research studies and surveys and in terms of our research results concerning the impact of the value of corporate income tax on the national tax revenues, it can be stated that decreasing the corporate income tax rate in the EU countries has a positive impact on the amount of the state budget. In regard to the above-mentioned, it is therefore reasonable to consider introducing a reduced Slovak corporate income tax rate for taxpayers engaged in agriculture, forestry and fishing in the Slovak Republic within Section A of NACE Rev. 2. In addition, it is proposed preferential rules for subtraction of expenditures for R&D in the sector concerned due to unique nature of their activities.

Based on the previous research, it can be also stated that the tax license was a significant source of tax revenues to the state budget of the Slovak Republic in 2014-2018 in the case of corporate income tax. We believe that doing away with it will significantly affect the amount of tax revenues to the state budget. Therefore, we recommend considering a reintroduction of a tax license for taxpayers regardless of the classification within the national economy of

the Slovak Republic. We are of the opinion, that high tax burden, complicated and rapidly changing legislation, as well as the absence of tax reliefs within the agricultural sector have essential impact on the Slovak agribusiness environment.

While this study provides useful findings contributing to mutual relationship of corporate income tax and assorted variables that are a part of the transformation of accounting result into the tax base and its determination it also has limitations for further research. The first restriction of fully applying our research results is a context limitation, i.e. it is suitable for countries where the transformation of accounting result to the tax base and calculation of corporate income tax is determined by similar method. In our opinion, it should be perfect for central and eastern European countries, especially for the countries of Visegrad region. Further limitation research would also be the fact that non tax expenses have not to be taken into consideration in the determination process of the tax base due to the fact that these are presented in the corporate income tax return in aggregate amount and therefore is difficult to identified. It is therefore suggested in further research that tax expenses and non tax expenses might be examined in the respective companies.

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