
A Measure of Tax Burden for the Companies Listed on the AeRo Segment of the Bucharest Stock Exchange

Univ. Prof. Costel ISTRATE, Ph. D.,
"Alexandru Ioan Cuza" University of Iași, Romania,
e-mail: istrate@uaic.ro

Abstract

Tax pressure can be calculated at the macroeconomic level, but also at the microeconomic level, by analysing the data provided by companies in their financial statements, or by authorities giving official statistics. In this study, the authors adapt a formula for the calculation of the effective tax rate, proposing, at the denominator, the taxes reported explicitly by companies in their profits and loss account, to which they added the reconstituted value of social and fiscal contributions of the employees. Also, unlike the literature so far, they divided these tax expenses to the sales (revenues) and not to any other indicators from the profit and loss account. The population analysed is represented by the companies listed on the AeRo market of BSE, in the period 2010-2019, a total of almost 3,000 observations. The results allowed them to notice a systematic increase in the share of the tax burden in sales, over the period taken into account. In verifying the effects of some variables proposed by the literature on the tax burden, the authors found that large firms have a lower tax burden, more profitable firms are more taxed than others, the tax burden is lower for more leveraged firms, and increasing the share of fixed assets in the balance sheet leads to an increase in the tax burden. In addition to the literature, they introduced a new variable - audit opinion - and found out that firms that receive modified audit opinions have a higher tax burden.

Key words: tax burden; sales; Romanian companies listed on AeRo; effective tax rate

JEL Classification: M40, H20

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Introduction

Financing the public expenditures requires the collection of budget revenues, especially in the form of taxes and contributions paid and/or borne by individuals or by companies. The level of taxes in an economy is determined by several variables: the level of public expenditures to be financed, the intentions of the state to intervene in the economy, etc. Taxation, understood as a system of rules on the establishment and collection of taxes and contributions, as well as the verification of the way in which taxpayers fulfil their tax obligations, is perceived differently by the various stakeholders: politicians, civil servants, businessmen, managers, investors, accountants, socially assisted persons of all kinds, civil society, the public, etc.

Approaches on taxation are imbued with political, ideological, economic, social, personal welfare considerations, depending on the position of each observer and the level of analysis retained. Thus, at the macroeconomic level, the formula of the tax rate is well-known, which measures the fiscal pressure by relating the state's fiscal revenues to the gross domestic product. The level of this tax rate is different between countries and regions and evolves over time. Numerous statistical data are available on this indicator. In **Table no. 1**, we took over from Eurostat a situation of the evolution of the percentage of fiscal revenues in GDP for the member countries of the European Union and the other countries of the European Economic Area, in the period 2010-2018. The data reported at European level puts Romania in a very good position, from the perspective of those who support the reduction of the tax pressure: if we order the percentages for 2018, Romania is in the penultimate position, with 27.1%, being followed only by Ireland, with 23.0%. Compared to the EU average of over 40%, we can comment in the sense that Romania is a country with low fiscal pressure or, if we approach things from the perspective of an ideology that strongly promotes state intervention, that Romania has an important potential to increase taxes and contributions to get closer to the European average. We also observed that the evolution of the tax pressure in Romania does not show very large shares of fiscal revenues in GDP: a maximum of 28.3% in 2011 and a minimum of 25.8% in 2017. If we average the 9 years of statistics presented in **Table no. 1** and we order again descending, Romania remains on the penultimate position, also ahead of Ireland, but the difference

between the two countries is much smaller (less than 1 percentage point).

The various taxes that affect taxpayers in a country can be analysed at the macroeconomic level, but also at the level of each taxpayer or group of taxpayers, as well as taking into account one or more specific taxes. Often, when discussing the analysis of the contribution of entities and citizens to cover public spending, there is talk of the effective tax rate, calculated in various ways (Hanappi, 2018). The literature also attaches particular importance to the effects of taxation on investment projects, taking into account the income tax, but also the tax on dividends or interest granted to the creditors of the companies carrying out the respective projects, as well as any other taxes generated the specific conditions under which the investment is made or the particularities of the tax regime in the territories involved in making that investment. We could find average or marginal effective tax rates that serve as a guide for investors in choosing projects (Devereux & Griffith, 2003; Hanappi, 2018).

Our objective is to calculate and interpret indicators of tax pressure at microeconomic level, analysing data reported in the annual financial statements by Romanian companies listed on the alternative market (AeRO) of the Stock Exchange Bucharest (BSE).

The comparison with the macroeconomic situation could be useful, as long as the indicators used are comparable. Often, in the literature, the effective tax rate is analysed only on the basis of expenses or payments regarding the income tax (usually related to gross profit), the calculations being made either annually or cumulatively for many years. This approach is a natural consequence of the fact that the accounting-taxation relationship is analysed mainly in terms of income tax. However, Mintz & Chen (2014) recognize that, in theory, the calculation of an effective tax rate should take into account all taxes that influence accounting earnings; however, in practice, information on some taxes cannot be estimated, especially when setting effective forecast rates, to be taken into account in the analysis of investment projects. Park (2020) finds in the literature several models for measuring the tax burden, models that take into account, in addition to the profit tax, taxes/contributions related to salaries (labour taxes), consumption taxes, but also taxes such as on dividends or on interest. Thus, our intention is to propose an indicator that measures as fully as possible the fiscal pressure on the entities is justified, following the model

of the macroeconomic indicators mentioned above, taking into account as many taxes and fees borne by the entities. To this end, we add to the study of Lazăr & Istrate (2018) which investigates the extent to which the performance of companies listed on the regulated market of BSE are influenced by the taxes and fees borne by these companies. The two authors construct a comprehensive variable to measure the tax burden of firms; they choose to combine the income tax with the labour contributions of employers and other taxes

recognized by companies as expenses; the amount of these taxes divided by an indicator established on the basis of EBITDA. We will divide expenses with taxes - explicitly appearing in the financial statements of companies or reconstituted, by the volume of net sales, as a performance indicator that does not depend on accounting, financing, taxation or other operating options of entities. The analysed data come from companies listed on the AeRo market of the Bucharest Stock Exchange (BSE), for the period 2010-2019.

Table no. 1. Share of the state revenues and social contributions in GDP PIB (%)

TIME/GEO	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union – 28 countries (2013-2020)	38.5	38.9	39.5	39.9	39.8	39.6	39.9	40.2	40.3
Belgium	46.0	46.9	47.8	48.6	48.2	47.4	46.6	47.0	47.2
Bulgaria	26.1	25.4	26.7	28.4	28.4	29.1	29.1	29.4	29.9
Czechia	32.7	33.8	34.3	34.8	33.9	34.1	34.8	35.4	36.2
Denmark	46.3	46.3	46.9	47.3	49.9	47.3	46.6	46.9	45.3
Germany	38.8	39.1	39.7	39.9	39.6	40.0	40.5	41.0	41.5
Estonia	33.1	31.4	31.7	31.7	32.1	33.3	33.8	32.9	33.0
Ireland	28.4	29.0	29.2	29.6	29.6	23.8	24.0	23.1	23.0
Greece	34.2	36.1	38.8	38.6	39.1	39.6	41.5	41.5	41.5
Spain	32.3	32.1	33.3	34.1	34.8	34.7	34.4	34.7	35.4
France	44.2	45.4	46.5	47.5	47.7	47.7	47.6	48.3	48.4
Croatia	36.0	35.2	35.9	36.4	36.7	37.3	37.8	37.8	38.6
Italy	41.5	41.4	43.4	43.5	43.2	43.1	42.4	42.1	42.1
Cyprus	31.7	31.7	31.7	31.8	33.8	33.2	32.4	33.3	33.8
Latvia	28.6	28.5	29.3	29.6	29.9	30.3	31.4	31.6	31.4
Lithuania	28.7	27.6	27.3	27.2	27.8	29.3	30.0	29.8	30.5
Luxembourg	38.9	38.5	39.8	39.6	38.9	38.4	38.3	39.1	41.2
Hungary	37.3	36.7	39.3	38.7	38.7	39.1	39.6	38.4	37.6
Malta	33.2	33.5	33.7	33.8	33.5	31.6	32.1	32.9	32.7
Netherlands	36.1	36.0	36.1	36.6	37.6	37.5	38.9	39.2	39.2
Austria	41.9	42.0	42.6	43.4	43.5	43.9	42.5	42.4	42.8
Poland	32.3	32.7	33.0	32.9	32.9	33.4	34.4	35.0	36.1
Portugal	33.7	35.4	34.4	37.1	37.0	37.0	36.6	36.5	37.2
Romania	27.1	28.3	27.8	27.4	27.5	28.1	26.6	25.8	27.1
Slovenia	38.3	37.8	38.2	37.8	37.7	37.9	38.0	37.6	37.9
Slovakia	28.3	29.2	28.8	31.1	32.0	32.8	33.3	34.3	34.3
Finland	40.7	41.9	42.5	43.5	43.6	43.6	43.9	43.1	42.4
Sweden	43.4	42.6	42.8	43.2	42.9	43.3	44.6	44.7	44.4
United Kingdom	34.8	35.2	34.3	34.2	33.8	34.1	34.7	35.0	35.1
Iceland	32.4	33.3	34.0	34.5	37.3	35.4	50.8	37.6	36.9
Norway	42.1	42.2	41.7	40.1	39.0	38.7	39.2	39.1	40.2
Switzerland	26.7	27.0	27.0	27.1	26.9	27.6	27.7	28.5	28.1

Source: Eurostat data, accessed at 29 July 2020, on the https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gov_10a_taxag&lang=en#

To our knowledge, this is the first time that the tax pressure is analysed, through such an indicator, for companies listed on the alternative market of BSE. Even if the AeRo segment is less visible, the size of companies listed here, as well as the accounting rules applied (Romanian Accounting Standards - RAS) allow us to consider that the results better characterize the Romanian economic environment, than if we had analysed companies listed on the regulated market. Our results show a steady increase in this tax burden, calculated in two ways, even as the authorities have reduced tax rates for some components of the tax burden in recent years. We also note that the main component of the direct and reconstituted fiscal cost of companies is, by far, the labour taxes - somewhere around 80% of the total amounts owed by the company to various budgets. Thus, the average annual salary tax burden per employee has increased systematically in the last 10 years, almost doubling, mainly due to the increase of salaries in the Romanian economy. A similar rhythm, even if less pronounced, has the expenses with the income tax or its equivalents, respectively the expenses with other taxes and assimilated payments. Taking into account the traditional factors that the literature recommends as influencing the tax burden, we found out that large firms have a lower share of taxes in sales, that more profitable firms seem to be more taxed than others, increasing the share of fixed assets in the balance sheet leads to an increase in the tax burden, higher leverage leads to a lower tax burden and the modified audit opinion is associated with a higher tax burden.

In the following, there will be a literature review, a description of the population and of the methodology, the results and conclusions, followed by the references.

1. Literature review

Measuring tax pressure is a constant concern in the literature. The level to which taxes can be set in a state, the reactions of corporate or individual taxpayers, the computation of various indicators of tax pressure or effective tax rates, tax avoidance and the indicators that approximate it, the optimal structure of taxes, etc. are as many topics that directly or indirectly address the tax pressure, its measurement, determinants and consequences.

One such indicator is *the effective tax rate*, which is often limited to corporate income tax. There are several

variants of calculating this indicator (see Armstrong et al., 2012; Istrate, 2016; Aronmwan, 2020; Balios et al., 2020 or Bustos-Contell, 2020 for details in the literature). For example, Aronmwan et al. (2020) find in the literature four ways to calculate the effective tax rate starting from the income tax:

- the effective accounting tax rate, calculated as the ratio between the total expense with the income tax (current tax and deferred tax) and the income before taxes;
- effective current tax rate: current income tax expense (deferred taxes are ignored) divided by the income before taxes;
- effective paid tax rate: the ratio between the tax actually paid (according to the cash flow statement) and the income before taxes;
- effective tax rate based on cash flows: the ratio between the tax paid and the cash flows from the operation (has the advantage of expressing the numerator and denominator in homogeneous units).

Plesko (2003) also identified a number of formulas proposed by various authors, that take into account, at the denominator, indicators which are based on the income before taxes, but with adjustments that try to make the income as relevant as possible. For example, these adjustments could refer to: the elimination of the income of the associates consolidated by the equity method and/or of the minority interests, the elimination of the extraordinary items or of those from interrupted operations, the reintegration of the interests and other taxes.

Given that there are jurisdictions where the contribution of corporate income tax to budget revenues is limited (Delgado et al., 2018), calculations that take only this tax into account may be irrelevant. For example, in Romania, according to data from annual budget executions, the income tax is the fourth tax, in terms of contribution to the state budget, far behind VAT and individuals' income tax, and even slightly after excise duties. Thus, there are researches in the literature that complete the numerator and the denominator so as to calculate an effective tax rate that measures as well as possible the fiscal pressure to which companies are subject; an example can be found in the study of Lazăr & Istrate (2018), quoted above. Borden (2018) in the context of the US economy, after calculating and interpreting the effective tax rate withholding only the

income tax for various forms of legal organization of companies (to which he adds the dividend tax distributed to shareholders), completes the calculations by adding labour taxes and net investment income tax. In turn, Elschner et al. (2005), in estimating the effective tax rate for 33 states, take into account income and capital taxes, to which are added the tax burden borne in connection with some wages as well as some property taxes. Aksoy Hazir (2019) reports current income tax charge to EBIT.

On the other hand, the inclusion in the tax pressure formula of other taxes than the income tax allows the partial avoidance of the difficulties that appear in the interpretation of this indicator: Dyreng et al. (2017), in another context, lists several procedures by which the income tax can be artificially reduced: transfers of profits to other jurisdictions, investments in assets that allow the activation of tax facilities (tax exemptions or reductions, accelerated depreciation, additional tax deductions).

Among the factors that the literature identifies as determinants of the tax burden are: the size, leverage, capital intensity, profitability, liquidity, growth rate, industry, investment opportunities, market value and book value, shareholder structure, including state presence among shareholders, level of earnings management (Stickney & McGee, 1982; Callihan, 1994; Gupta & Newberry, 1997; Richardson & Lanis, 2007; Delgado et al., 2018; Fernandez-Rodriguez et al., 2019; Stamatopoulos, 2019; Balios et al., 2020, Fernandez-Rodriguez et al., 2020). Another association can be made between the tax burden and the accounting director's experience/expertise in accounting (Chen et al., 2020). Dyreng et al. (2017) take into account factors such as: the multinational character of the company, dimensions, research and development expenses, tangible assets, intangible assets, leverage, investments, advertising expenses, extraordinary items (if applicable). At another level, Fonseca-Diaz et al. (2019) propose factors related to OECD membership of the country, economic development and the quality of institutions. The sense of the influence is specific to each population/sample studied, so it is difficult to transfer from one context to another. That is why we will not formulate hypotheses that suggest any sense of the influences of the factors on the tax pressure. On the other hand, in the literature we found studies that test the effect of variables on the tax burden, possibly

measured by the effective tax rate, but also studies by which the tax pressure is an independent variable, seeking to identify its effects on business performance, depending on various other control variables (Lazăr & Istrate, 2018). Ali Abas & Klemm (2013) also explains why investments, financing and tax facilities influence the effective tax rate: depending on the structure of investments, the return generated may be higher than depreciation and other specific costs incurred, and loan financing generates deductible borrowing costs; also, the facilities related to investments or other activities influence the effective tax rate, in such a way that it can even become negative (referring strictly to the profit tax).

2. Data and research methodology

This analysis focuses on the Romanian companies listed at the alternative market of BVB - AeRO, for the period 2010-2019. We started with year 2010, due to the availability of information about most companies listed on AeRo. The analysed population is described in **Table no. 2**. Compared to the 2,971 initial observations to which we had access - by manually collecting the data - we eliminated 74 observations due to the lack of indicators or due to the fact that they had a value of zero, unsuitable for establishing proportions. In **Table no. 2**, in addition to the number of companies for which we could calculate the share of the tax charges in sales, we chose to highlight the number of companies that reported profits in the analysed period, as well as the number of companies with positive equity. These data can give us an image of the average overall performance declared by the companies listed on AeRo. The large number of companies reporting losses (almost 40%) may suggest that, in those cases, we may not have an income tax and that the decision of the authorities to extend the obligation to pay revenues tax or to levy a specific tax may be justified by the state's intention to take something from companies with systematic losses. In these circumstances, if we calculated the effective tax rate only on the basis of corporate income tax, we would have to eliminate many observations and the results would be significantly influenced.

Lazăr & Istrate (2018) calculates an effective tax rate, as a measure of the tax burden, reporting an indicator that takes into account the taxes reported by the company as expenses (the numerator) to a denominator consisting of

EBITDA recalculated before taxes; at the numerator, they put the income tax expense to which are added the expenses with social contributions regarding the salaries borne by the employer, as well as the expenses with other taxes and assimilated payments. The data appear explicitly in the financial statements published by listed Romanian companies, in the format imposed by the Romanian Ministry of Finance and refer to the period 2000 - 2011. It should be noted that during this period, Romanian listed companies on the regulated market of BSE applied, in their individual financial statements, Romanian Accounting Standards (RAS); in fact, the

authors explicitly state that they stopped with the data in 2011, precisely because, starting with 2012, the companies listed on the regulated market of BSE were required to apply IFRS in the individual financial statements, which had significant effects on the reported indicators, including those relating to taxes recorded as charges. On the other hand, the arguments brought by Lazăr and Istrate (2018) regarding the preference for EBITDA are convincing, but we accepted the criticisms brought by Bouwens et al. (2019) to this indicator, warning us that its excessive use can generate negative effects and that it is good to use it with caution.

Table no. 2. The population analysed

Year	Total relevant observations	Profit companies		Positive equity companies	
		N	%	N	%
2019	247	169	68.42	235	95.14
2018	277	175	63.18	265	95.67
2017	286	170	59.44	275	96.15
2016	293	174	59.39	283	96.59
2015	294	186	63.27	286	97.28
2014	303	184	60.73	294	97.03
2013	304	177	58.22	294	96.71
2012	304	193	63.49	296	97.37
2011	298	202	67.79	290	97.32
2010	291	200	68.73	285	97.94
Total	2,897	1,830	63.17	2,803	96.76

Source: Own projection, based on data analysed

In this study, the data we used to calculate a tax pressure indicator (*Tax.press*) are the following:

- **on the numerator**, the tax burden borne by companies, composed of:
 - *Ch.tax.i/r/s* = income / revenues / specific tax charge (it is only about current taxes, the accounting rules applied by the analysed companies not allowing the accounting of deferred taxes), as it appears explicitly in the profit and loss account prepared by the company in the format imposed by the Ministry of Finance: in most observations appears income tax, but in 2017, 2018 and 2019 the increase of the ceiling up to which companies pay revenues tax (at 500,000 euros, respectively at 1,000,000 euros) made some entities listed on AeRo become revenues tax payers (there are 142 such observations); also, in some situations, the activities carried out required

the calculation and reporting, starting with 2017, of the specific tax (in 47 observations we identified the existence of such a tax);

- *Ch.other.tax* = charges with other taxes and similar payments (from the corresponding line in the official profit and loss account), where local taxes are collected, but also some parts of VAT, contributions to special funds and possibly other taxes borne by companies;
- *Employer.contrb* = the expenses regarding the social contributions of the employer; these appear explicitly in a line from the profit and loss account;
- *Individ.contrib* = individual (employee's) labour tax and contributions, as I reconstituted them based on gross salaries and specific tax rates, applicable in the years studied. The rates of social contributions are known, and the calculation basis is the gross salaries, so the values can be established with

some accuracy. With regard to salaries tax, the calculation basis is the gross salary minus individual contributions and personal deduction. This is not possible to know this deduction, so I had to approximate a tax rate. The approximation was made in such a way as to get as close as possible to the annual percentage share published by INSSE (table FOM120A - Structural indicators in the statistics of earnings and labour cost - available at <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>) as a tax burden on labour costs (43.3% in 2010, 43.3% in 2011, 43.5% in 2012, 43.4% in 2013, 43.7% in 2014, 41.8% in 2015, 41.4% in 2016, 41.8% in 2017 and 41.9% in 2018). In the literature on effective tax rates, approximations are a fairly common practice, given that it often seeks to set an effective theoretical,

predictive rate and must take into account variables on which it is difficult for authors to be certain (Ali Abbas & Klemm, 2013): fiscal facilities by sectors of activity and by activities (investments, exports, employment), tax depreciation regimes and fiscal depreciation periods, application of fiscal measures on fractions of fiscal year, inflation rate, economic growth, foreign investment, etc.). Elschner et al. (2005) also uses a simulation to take into account, in establishing an effective tax rate, the tax costs related to salaries;

- **at the denominator**, the sales; I consider that this indicator is the least manipulable (at most, some real earnings management techniques can be applied to it) and, therefore, the least subjective.

$$\text{Tax.press} = \frac{\text{Ch.tax.i/r/s} + \text{Ch.other.tax} + (\text{Employer.contrb} + \text{Individ.contrib.})}{\text{Sales}} \quad (1)$$

In the case of the numerator of the formula 1, it is necessary to justify the presence of the fourth term - the tax and social contributions of the employees (*Individ.contrib.*). The first argument is about comparability: until 2017, social contributions were shared somewhat evenly between employer and employee. The employer bears a cumulative percentage of just over 28%, down to just over 23% since the end of 2014), while the employee had to bear 16.5% social contributions and 16% revenue tax - the calculation basis for the latter however, was different from the basis for calculating contributions. Starting with 2018, with the decrease of the income tax rate to 10%, the social contributions passed almost entirely to the employee, so they are no longer explicitly reported as employer expenses, but included in the gross salary expense (for the employer, it remained a share of 2.25%, to which are added some amounts for the situations in which they were employees working in special conditions). I believe that, in order to ensure the comparability over time of the total tax burden and, in particular, of the tax burden on salaries, the best solution is to cumulate the employer's contributions - taken from the profit and loss account - with the reconstituted employee contributions, calculated depending on the contribution rates and payroll tax valid in the analysed periods. We chose to take into account the salary tax, because, despite the relatively low rate - 16% and 10%, respectively, in 2018 - this is an

important variable to consider when negotiating between employee and employer. On the other hand, the small share of companies with activity in the of buildings sector or in the creation of computer programs means that the tax facilities specific to these types of activities do not significantly affect the data reported by us. This combination of the tax burden of the employer and the employee is also used in official statistical reporting.

Unlike many other studies that calculate, interpret and correlate effective tax rates, the indicator I use does not allow to identify possible tax avoidance (or tax aggressiveness) in which the company would be involved, in the absence of a reference, face from which to verify possible deviations.

The data were collected manually and, as a first step, I calculate the tax pressure rate for each observation (firm-year), relating the tax charges to the sales reported by companies each year. These calculations resulted in extremely diverse percentages, with a minimum of over -3,000% and a maximum of over 13,000%. I winsorized these outliers, bringing them to the level of the 5th percentile and the 95th percentile, respectively.

Referring only to corporate income tax, Dyreng et al. (2008) propose to cumulate both the declared tax and the income before taxes over the entire analysed period or sub-periods, which allows the release of a long-term indicator that avoids

the volatility that may occur from year to year. We also applied this methodology, cumulating, in a second level of our analysis, the data related to the denominator and the numerator, for the period available for each company: generally 10 years, but there are also companies for which the data were available for a shorter period.

In order to highlight the evolution in time of the fiscal burden determined by applying formula no. 1, compared to other indicators, I calculated an index from year to year for both numerator and denominator, but also an average growth index for the analysed period.

Continuing the analysis and taking into account what the literature proposes, I grouped the companies according to size, using, for this, the total assets, to try to highlight any particularities of the companies according to their size, in terms of the fiscal pressure calculated by formula no. 1. I also took into account the profitability of companies (ROA), calculated as the ratio between net income and total assets, in order to identify the extent to which this profitability correlates with fiscal pressure. Balios et al. (2020) find significant influences of company size, capital intensity and ROA on the tax burden limited to corporate income tax. I also add in the analysis the capital intensity (fixed assets / total assets). Even if it is sometimes observed that the degree of leverage does not have a significant influence on the fiscal burden, I analyse the variable, in order to test the specificity of the Romanian situation. Fernandez-Rodriguez et al. (2019) also introduce the audit among the factors that could affect the effective tax rate; I also use the audit variable but, unlike the invoked study - which analyses the audited companies vs. the unaudited ones, I separate the type of audit opinion - modified vs. unmodified - in the analysis of the fiscal pressure.

In the literature, when calculating the effective tax rate on corporate income tax, the numerator is the tax expense, as it is reported in the income statement. However, in order to eliminate some of the consequences of accrual accounting, the tax paid is also used as a numerator – the information is taken from the statement of cash flows and allows to establish, especially in the long run, a more accurate picture of the company's contribution to public budgets. Unfortunately, I can't do the same for several reasons:

- first, I should find the information on all the taxes withheld in formula no. 1 and paid by the company - not only the profit tax, or this information is not, available;

- on the other hand, even if a little over 70% of the observations report a statement of cash flows explicitly, the information on the profit/income tax paid is reported in less than half of them; the less information appears on social contributions and other taxes analysed.

Returning to the macroeconomic situation (fiscal pressure rates in **Table no. 1**), I notice that, under the conditions of the formula I opted for, I do not ensure the comparability of macroeconomic data with those calculated at the level of individual enterprises. There are several explanations. First, for the individual firms analysed, I only partially consider indirect taxes, especially VAT and excise duties, due to the fact that they affect only to a very small extent the firms' expenses and, when they are expensed, they are often found in structures other than those through which taxes are explicitly reported. For example, the value added tax that the company cannot deduct is sometimes recorded in other taxes charge, but it happens to become an element of the cost of the goods and services involved, i.e., to be recorded on the charges related to those goods and services. Secondly, in **Table no. 1** we have the taxes collected both from enterprises and from other categories of taxpayers (individuals, non-profit organizations, public institutions, etc.). Third, the denominator used at the macroeconomic level is GDP, while at the level of individual entities I used sales; however, the microeconomic equivalent of GDP is not sales, but rather added value. All these elements force us to be careful in comparing the rates of fiscal pressure used at the macro and microeconomic level.

3. Results and discussions

In this subchapter, I present the main results that appeared following the application of formula no. 1 in the case of available data. I first averaged the indicators for all the observations, after eliminating the outliers. After that, I cumulated the figures for all the observations from a year and rerun the formula, to see to what extent the trends are confirmed.

3.1. Total tax burden for companies listed on AeRo

Before calculating percentages on the tax burden, I chose to present the cumulative values of its main components (**Table no. 3**).

Table no. 3. Total tax charges, by components

Year	Total charges on taxes and contributions	Income/revenues/specific tax		Other taxes		Total labour taxes and contributions	
		Values	%	Values	%	Values	%
2019	797.592.017	71.547.936	8.97	108.926.416	13.66	617.117.665	77.37
2018	794.394.928	66.509.895	8.37	101.624.599	12.79	626.260.434	78.83
2017	735.880.201	54.302.643	7.38	90.815.553	12.34	590.762.005	80.28
2016	696.583.563	48.592.997	6.98	90.606.273	13.01	557.384.293	80.02
2015	690.725.806	53.954.986	7.81	82.928.229	12.01	553.842.591	80.18
2014	732.480.021	42.596.864	5.82	92.036.268	12.57	597.846.889	81.62
2013	761.630.391	49.502.349	6.50	88.585.019	11.63	623.543.023	81.87
2012	782.251.964	49.673.996	6.35	87.504.036	11.19	645.073.932	82.46
2011	774.279.395	65.758.957	8.49	85.963.982	11.10	622.556.456	80.40
2010	728.383.778	48.944.888	6.72	82.140.021	11.28	597.298.869	82.00

Source: Own projection, based on data analysed

The taxes and contributions related to the salaries - which include, both employer and reconstituted employee contributions (including individual income tax) - are by far the main component of the tax obligations that entities have to pay to various public budgets. The relative decrease in the share of this component in recent years can be explained both by the decrease in contribution rates (the first decrease in 2014, the second in 2018, the latter being accompanied by the reduction from 16% to 10% of individual income tax), but also by the significant decrease of the average number of employees during the analysed period (**Table no. 5**).

The income/revenues/specific tax also has an increasing trend, especially in recent years (after the peak of 2011). We do not aim to identify the determinants of this increase; however, it is certain that the significant increase in the number of companies that have become revenues taxpayers since 2017, but especially in 2018, have influenced this aspect. In the case of the population I analyse, I identified 39 companies that, in the first year of application of revenues tax or specific tax, recognized a tax charge given that, in the previous year, the net accounting income tax had been zero. Other 27 companies found an increase in the tax due after the change of classification as revenues tax or specific tax payers. It is true that in other 36 cases, the tax decreased after the change of classification.

For the other taxes, the increase in the last two years could be explained by the fact that the first three years of application of Law 227/2015 (the new Tax Code), which

stipulates that the tax on non-residential buildings owned by legal entities is calculated at an increased rate if the revaluation is not done. But, in order to avoid this increased rate, some companies have fiscally revalued the buildings and the increase of the fiscal (tax) values may have led to the increase of the buildings tax due.

3.2. Tax pressure in relation to sales, during 2010-2019

In order to emphasize the tax pressure, applying the formula no. 1, I calculated the ratio between the total tax burden and sales for all 2,897 available observations. The results are extremely dispersed, that is many outliers appear, which can seriously affect the interpretation of the results.

3.2.1. Individual calculations on each observation

The percentage averages of the tax pressure by years and by total period are centralized in **Table no. 4**. According to the figures reported in **Table no. 4**, there is a relatively constant increase in the tax burden relative to sales, with a maximum in 2018 and a minimum in 2012. It is interesting to see what factors could explain this increase. Analysing the evolution of the sales for the companies forming the population of the study, I tried to identify a trend, calculating, first, the growth rate from year to year, by reporting the sales from year n to the sales from year n-1, where possible. Next, in a simplistic way, I calculated the average rate for each company, as a simple arithmetic

mean of the annual rates. Thus, I found 307 observations in which I identified average rates of change in sales, of which 124 are below 1, which shows an average decrease in sales for the period 2010-2019 (with a percentage of about 11%), the remaining 183 being above 1 - average increase in sales (by 12%). The average is also slightly above 1,

reflecting a very slight increase in sales. If we keep only the ends of the analysed time interval for each company - in general, 2010 and 2019 - we can calculate an average growth rate for each company, somewhat more rigorous mathematically, but which does not take into account the variations from year to year, which can be important.

Table no. 4. Tax pressure for the companies listed on AeRo

Year	Number of observations	The average Tax. press unwinsorized (%)	The average Tax. press winsorized at 5 th and 95 th percentiles (%)
2019	247	82.52	24.02
2018	277	157.71	24.89
2017	286	54.37	22.89
2016	293	52.79	21.67
2015	294	55.28	20.37
2014	303	21.91	20.07
2013	304	57.08	20.92
2012	304	27.73	19.46
2011	298	36.64	19.69
2010	291	52.08	19.85
Total	2,897	58.62	21.30

Source: Own projection, based on data analysed

Although the results of this approach cannot be considered very robust, I made the calculations by setting the growth rate in another way: I took the most recent sales (usually 2019), I compared it to the oldest sales (of rule, 2010) and I obtained a growth index for the analysed period, from which I extracted the root with an index equal to the duration in years of the period (usually 10 years). This time, the average pace - as far as can be considered credible - is below 1 for 175 companies, reflecting a decrease in sales in 2019 compared to 2010 (the average decrease is just over 12%); 136 companies have indices greater than 1, i.e., they have increases in sales in 2019 compared to 2010 (with an average increase of just over 9%). On average, based on this methodology, I obtained an index of 0.9719, which almost reflects a stagnant to a decline in sales in 2010-2019.

In both ways of calculating the growth rate of sales, the averages are very close to 1, which allows us to appreciate that the denominator of our formula is not the main cause of the increase in tax pressure from somewhere up to 20% in the first part of the interval, just over 24% in the last part of the interval. Thus, we should

conclude that the numerator, i.e. the tax burden borne by the companies listed on AeRo, decisively influences the increase of the tax pressure rate during the analysed period.

Applying the same methodology to the data on the three components of the numerator, I observe, indeed, that:

- the labour related taxes have an average growth rate quite close to that calculated for sales, given that the average number of employees decreases significantly during the period; this situation is explained by the increase of the average wages during the analysed period, stimulated by the strong increase of the minimum wage on the economy, but also by the evolutions on the labour market;
- the significant increase of other charges with taxes, where local taxes are found, but also contributions to special funds, part of the non-deductible value added tax and others;
- the increase, as a whole, of the amounts reported as income/revenues/specific tax.

Following a methodology proposed in the literature for the calculations of the effective tax rates, I cumulated, for each company, the indicators from the denominator and from the numerator. Taking into account these cumulative figures for each company, I found 312 observations (distinct companies for the whole period), and the ratio between the cumulative tax burden and sales reaches (after bringing the extremes to the 5th percentile and the 95th percentile) to 19.85%, very close of the average weight reported in **Table no. 4**.

3.2.2. Cumulating the individual figures by years

The very numerous outliers, even if they were brought to the 5th and 95th percentiles, could influence the results presented in **Table no. 4**. In order to verify whether the increasing trend of the tax pressure found in **Table no. 4** is confirmed, I also opted to cumulate the main indicators by years, after which I calculate the annual average, dividing the total indicator by the number of companies for which I had observations in that year. After applying formula no. 1, I chose to present several indicators, in order to highlight other trends than the total fiscal burden (**Table no. 5**).

The trend remains the same – the increase of the tax burden of companies on AeRo is confirmed: from 9.42% (in 2010), followed by a minimum of 8.43% (in 2011), I found 10.96% in 2019, preceded by a maximum of 12.06% in 2018. The main explanation, given the moderate increase in sales, comes mainly from the significant increase in wages (at an average annual rate of 6.54%, different from that published by the authorities, but explicable by the size of our population) and, consequently, the related social and fiscal contributions, even in the conditions of an almost equally significant decrease in the average number of employees (at an average annual rate of 4.53%). By the way, given the evolution of the number of employees and of the sales, there is a clear increase in productivity during 2010-2019. On the other hand, the decrease in the average number of employees can be an indicator of the fact that the efforts to make companies more efficient are almost always materialized in the reduction on the number of the employees. This increase in average salaries also confirms the results of Robu et al. (2015), for other Romanian companies and for a period that includes six years, of which the last two are the first of those retained by us.

Table no. 5. Annual averages for some indicators

Year	Annual tax burden, in average (lei)	Sales, in annual average (lei)	Tax pressure (%) col.1/ col.2	Evolution of the average gross annual salary* (lei)	Evolution of the average number of employees, as an annual average**	Evolution of the average annual labour tax burden, per employee (lei)***	Evolution of the average of other taxes (lei)	Evolution of average charges with income tax or assimilated (lei)
0	1	2	3	4	5	6	7	8
2019	3,229,117	30,130,108	10.72	56,540	107	23,590	440,998	289,668
2018	2,867,852	24,338,026	11.78	50,834	108	21,283	366,876	240,108
2017	2,573,008	25,700,310	10.01	48,269	111	20,191	317,537	189,869
2016	2,377,418	22,937,512	10.36	43,111	114	18,049	309,236	165,846
2015	2,349,408	25,685,535	9.15	38,568	123	16,213	284,001	183,520
2014	2,417,426	25,697,633	9.41	35,871	130	15,467	307,814	140,584
2013	2,505,067	26,472,281	9.46	33,690	139	14,874	299,274	162,837
2012	2,573,197	28,197,600	9.13	32,999	150	14,569	292,656	163,401
2011	2,598,253	31,589,442	8.23	31,245	157	13,597	292,394	220,668
2010	2,503,037	27,234,582	9.19	30,001	171	13,025	294,409	168,195

* I divided the total salary expense by the average number of employees; I collected the results for all the companies in one year and divided the amount by the number of companies with valid observations in that year. The change in 2018 - the transfer of contributions to employees - does not affect the calculations, because I take into account the total salary costs. Overall, the figures are very close to those reported by official statistics on the Tempo online platform.

** The sum of the average number of employees of all companies in a year was divided by the number of companies with available data in that year.

*** The total tax burden related to the salaries (company contributions plus reconstituted employee contributions) added up for all companies in a year was divided by the average number of employees in that year, after which it was divided by the number of companies in the year.

Source: Own projection, based on data analysed

3.3. Tax pressure depending on the size of the company

In many papers studying the effective tax rate (based mainly on the income tax), one of the determinants of the rate is the size of the company. Depending on the context and the population analysed, conclusions are proposed that state the evolution in the same direction of the two variables, but there are also studies that find opposite evolutions (Richardson & Lanis, 2007), with explanations coming from the theory of political costs (the large companies are more exposed, more visible and therefore, the authorities can try to tax them more) or from the theory of political power (large companies have substantial resources that allow them to even orient the tax regulations in a way that is favourable to them).

As we did not propose an econometric model in which to assign coefficients to various variables, including the size of the firm, the analysed observations were divided into two groups, depending on the dimensions measured by the total assets; all companies report in lei, so there were no difficulties in identifying the median: just over 19 million lei. I considered that the companies with total assets below the median are small companies, while the companies with

assets above the median are large (according to the model proposed, in another context, by Allali & Romero, 2013).

Applying the formula no. 1 for each observation and averaging the two panels of companies, we obtain a tax pressure of 21.26% for small companies and 14.88% for the large ones. The difference seems to be significant, in the sense that small firms have to give up a larger share of sales in favour of public budgets. These results are also confirmed if we apply the second procedure, cumulating the total tax burden and sales by years and by the two categories of companies.

The results, reported in **Table no. 6** also shows us that, for large companies, the ratio between the total tax burden and sales is significantly lower than in the case of small companies. Another interesting result of this analysis is the observation of the pace of evolution of the share of tax burden in sales: while in large companies we see a relatively steady increase from 2010 to 2019 (with a minimum of 7.72% in 2011 and a maximum of 11.31% in 2018), for small companies, the evolution is less linear, with the percentage in 2019 below that of 2010, under the conditions of a minimum of 14.17% in 2015 and a maximum of 17.28% in 2018.

Year	Cumulative average tax burden (lei)		Cumulative average sales (lei)		Average tax burden (%)	
	Small firms	Large firms	Small firms	Large firms	Small firms	Large firms
2019	654,240	5,436,155	4,012,811	52,516,364	16.30	10.35
2018	616,553	5,018,239	3,568,320	44,371,218	17.28	11.31
2017	617,311	4,370,936	3,579,774	46,039,327	17.24	9.49
2016	602,090	4,116,822	3,885,998	41,602,846	15.49	9.90
2015	615,780	4,103,548	4,347,036	47,316,342	14.17	8.67
2014	626,812	4,104,783	4,364,312	45,800,186	14.36	8.96
2013	614,080	4,370,112	4,120,228	48,518,190	14.90	9.01
2012	672,512	4,525,753	4,566,579	52,458,781	14.73	8.63
2011	672,055	4,526,728	4,552,170	58,626,715	14.76	7.72
2010	698,168	4,343,494	4,158,739	50,791,171	16.79	8.55

Source: Own projection, based on data analysed

It seems that large companies manage better their tax burdens related to the sales, even in the conditions in which the average salaries granted by large companies are, each year, on average, at least 12% higher than for small companies (the gap reaches up to over 26% in 2012). These results confirm the results in the literature that propose as a hypothesis a negative link between size and the tax burden (Fernandez-Rodriguez et al.,

2020). The differences between large and small firms are also found in the structure of the total tax burden – for large firms, the share of income/revenues/specific tax exceeds by more than two percentage points the share of the same component in small firms. The latter, on the other hand, have salary contributions and other taxes with slightly higher weights than for companies with above-average assets (**Table no. 7**).

Table no. 7. Weights of the components of the total tax burden, depending on the size of the companies

Year	The structure of the tax burden for firms with assets below the median (%)			The structure of the tax burden for firms with assets above the median (%)		
	Labour taxes	Other taxes	Income/revenues/specific tax	Labour taxes	Other taxes	Income/revenues/specific tax
2019	79.98	14.99	5.03	77.10	13.52	9.38
2018	78.72	14.57	6.71	78.85	12.57	8.58
2017	78.57	14.58	6.85	81.25	11.23	7.52
2016	80.38	12.99	6.63	79.96	13.01	7.02
2015	83.20	11.32	5.49	79.71	12.12	8.17
2014	83.48	12.00	4.52	81.35	12.65	6.00
2013	82.70	12.27	5.03	81.76	11.52	6.71
2012	83.09	12.85	4.06	82.37	10.93	6.70
2011	82.52	12.14	5.34	80.10	10.94	8.96
2010	82.56	11.39	6.05	81.90	11.26	6.83

Source: Own projection, based on data analysed

The fact that the most pronounced differences, at least in recent years, are found in the case of income/revenues/specific tax shows that small companies achieve limited performance compared to large ones or that they better hide their taxable base. We can also comment in the sense that the income tax, even if it has the role of bringing money to the budget, regardless of the profits made by the respective companies, has a lower yield than another equivalent direct tax. Probably, however, the differences would be even bigger if they had not increased from 100,000 euros to 500,000 euros and then to 1,000,000 euros, the ceiling up to which companies are paying revenues tax.

3.4. Tax pressure depending on the profitability of the company

The return on assets, calculated as the ratio between the net income and the total assets (ROA), allowed the calculation of a median of 0.36% for the 2,897 available observations. Many low-profit companies have losses, which makes them not pay income tax; at most they reported revenues or specific tax in the last years of the analysed period. Indeed, out of the 1,448 companies with below-average economic profitability, 1,067 (73.69%) report net losses and, of these, 225 have income tax expense, 67

reporting for revenues tax or specific tax. The tax pressure calculated by applying the formula no. 1 (after winsorizing the outliers) and taking into account all available observations is 26.14% for companies with low profitability and 16.69% for those with high profitability. The cumulation by year of the fiscal burden and its components allow us to observe a trend: for companies with low profitability, the tax pressure is generally increasing for the period 2010-2019, with a minimum of 7.85 %, in 2010 and with a maximum of 12.70% in 2018. On the contrary, for companies with above-average profitability, the evolution is quite irregular, with an insignificant difference in 2019 compared to 2010, but with a maximum of 12.39 % in 2016 and with a minimum of 8.38% in 2011. The fact that high-profit firms report a lower tax pressure than others, despite the higher corporate tax they pay, may result from their ability to manage its activity in such a way as to diminish the fiscal burden. This kind of explanation appears, in the context of profit tax, in studies that find the ability of some companies to report high performance and low (profit) taxes (Hanlon, 2005; Chen et al., 2020).

As we can expect, the structure of the total tax burden shows a much lower share of income/revenues/specific tax for companies with low profitability, compared to those profitable above the median - **Table no. 8.**

Table no. 8. Weights of the components of the total tax burden, depending on the ROA

Year	The structure of the tax burden for firms below median ROA (%)			The structure of the tax burden for firms above median ROA (%)		
	Labour taxes	Other taxes	Income/revenues/specific tax	Labour taxes	Other taxes	Income/revenues/specific tax
2019	83.86	11.23	4.91	72.48	15.49	12.03
2018	85.39	13.90	0.71	75.19	12.17	12.64
2017	83.81	15.49	0.70	78.32	10.59	11.09
2016	83.62	15.23	1.15	76.67	10.94	12.40
2015	83.81	14.28	1.91	77.44	10.45	12.11
2014	86.51	13.20	0.29	77.85	12.08	10.08
2013	84.72	14.64	0.64	79.58	9.22	11.20
2012	86.12	12.52	1.36	78.88	9.88	11.24
2011	86.54	12.72	0.73	76.95	10.18	12.87
2010	83.83	14.28	1.89	80.69	9.14	10.16

Source: Own projection, based on data analysed

3.5. Tax pressure depending on the leverage

The company's financing decisions have an impact on the performance, but also on the total volume of taxes paid by companies. If we consider only the deductibility of the borrowing costs, we find a direct effect of external financing on corporate income tax. On the other hand, if the financing relates to investment projects, then it is possible that fixed assets will increase, as will the number of employees, which could lead to increases in other taxes, as well as increases in labour tax, as sales increase. The reporting system used by Romanian companies listed on AeRo - a system imposed by the Ministry of Finance - is characterized by a financial statement form common to all companies, with some small variations. I chose to calculate the leverage as a ratio between total liabilities and total assets and not by withholding long-term liabilities, as it appears in the literature (Balios et al., 2020).

Basically, from the total assets - calculated by us as the sum between fixed assets, current assets and prepaid expenses - I deducted the

equity - taken from the balance sheet - and I divide the difference by the total assets. The results are between a minimum leverage of 0.04% and a maximum of 975.40%, for an average of 34.56%. The median is 25.58%, so I apply formula no. 1 for companies below the median, separately from the companies above the median.

From the results of the application of formula no. 1 and after winsorizing the outliers, the average tax burden of companies with low leverage is 25.77%, significantly above the average tax burden of companies with high leverage (above average), 17.13% (without winsorizing the outliers the differences are even greater, in the same sense). Higher leverage leads to a lower tax burden, probably due to the borrowing costs which are usually deductible in calculating corporate income tax. This explanation is also confirmed by the significantly higher share of corporate income tax in the total tax burden for low leveraged companies (Table no. 9).

Table no. 9. Weights of the components of the total tax burden, depending on the leverage

Year	The structure of the tax burden for firms with below-median leverage (%)			The structure of the tax burden for firms with above-median leverage (%)		
	Labour taxes	Other taxes	Income/revenues/ specific tax	Labour taxes	Other taxes	Income/revenues/ specific tax
2019	71.35	17.08	11.58	79.90	12.22	7.88
2018	71.93	17.31	10.76	82.24	10.57	7.20
2017	73.25	15.32	11.44	83.92	10.80	5.28
2016	70.71	16.08	13.22	84.78	11.44	3.78
2015	73.46	15.52	11.02	83.71	10.16	6.13
2014	72.78	15.62	11.60	86.13	11.01	2.87
2013	75.52	14.48	10.00	84.13	10.62	5.25
2012	78.67	13.01	8.32	84.53	10.20	5.27
2011	75.95	13.92	10.13	82.13	10.00	7.86
2010	80.30	12.21	7.49	83.05	10.70	6.24

Source: Own projection, based on data analysed

3.6. Tax pressure depending on the capital intensity

In the literature (from what I found, starting with Stickney & McGee, 1982), a variable that is frequently introduced in the analysis of companies' performance, but also of tax pressure and its consequences, is the share of various components of the assets in the total assets: the fixed assets or a component of them (tangible, intangible...), but smaller structures such as capitalized development expenses or even inventories can also be taken into account. I use a variable consisting in the share of total net fixed assets in the total assets. It is useful to say that, in Romania, from the fixed assets, the tangible ones are, by far the most important, rarely finding intangible or financial with significant weights. And here, I separate the companies below the median

from those above the median of that weight. Thus, the median share of net fixed assets in the total assets is 68.35%, in the conditions of an average of 64.13%, a minimum of 0.00% (we have 6 observations with balance sheets in which net fixed assets are zero) and a maximum of 99.67%.

Applying formula no. 1 of each individual observation and averaging the two categories of companies (below the median vs. above the median of the share of fixed assets in assets), we observe a clear difference, in the sense that companies with fixed assets below the median report a significantly lower tax burden (17.51%) than companies with fixed assets above the median (25.12%). The structure of the tax burden also shows significant differences between the two categories of firms (Table no. 10).

Table no. 10. Structure of the total tax burden, depending on the share of fixed assets in total assets

Year	The structure of the tax burden for companies with the share of fixed assets below the median (%)			The structure of the tax burden for companies with the share of fixed assets above the median (%)		
	Labour taxes	Other taxes	Income/revenues/ specific tax	Labour taxes	Other taxes	Income/revenues/ specific tax
2019	79.42	12.52	8.06	73.40	15.86	10.74
2018	83.59	9.66	6.75	71.04	17.93	11.04
2017	85.19	9.33	5.48	73.78	16.33	9.89
2016	83.16	9.84	7.00	76.35	16.70	6.95
2015	83.30	8.92	7.78	74.93	17.21	7.85
2014	85.06	9.03	5.91	75.88	18.46	5.66
2013	85.07	9.82	5.11	78.62	13.47	7.91
2012	85.48	8.55	5.97	76.90	16.06	7.05
2011	82.86	8.35	8.80	75.80	16.27	7.93
2010	84.51	9.42	6.07	77.19	14.85	7.97

Source: Own projection, based on data analysed

If many buildings, land and means of transport are found in fixed assets, their high values - especially following the systematic revaluation of buildings - lead to important local taxes on buildings, which may explain the high percentages of other taxes for companies with more fixed assets; at the same time, large fixed assets also mean high depreciation expenses, so - in the case of their tax deduction - the profit tax may be lower.

3.7. Tax pressure depending on the audit opinion

From the 2,897 observations for which we could calculate the tax pressure indicator applying formula no. 1, I found only 2,440 with the available audit report: this does not necessarily mean that the other companies are not audited (to analyse them as Fernandez-Rodriguez et al., 2019), but that I did not have access to those reports.

Of these 2,440 observations, in 564 cases (23.11%) I find a modified opinion (most such opinions are qualified, but there are also 9 adverse opinions - for 8 different companies - as well as 8 situations of disclaimer of opinion - for 5 different companies). The other 1,876 observations contain audit reports with clean

opinions, even if, in some cases, there is an emphasis of matters paragraph (there are 587 such cases). The modified opinion is justified by the fact that the auditor is not convinced that he had all the data to enable him to assess that the accounting rules were followed exactly.

Overall, applying the formula no. 1 for each individual observation, I reached, after winsorizing the outliers to the 5th and 95th percentiles, a tax pressure of over 28%, in the case of observations with modified opinions, while, for observations with unmodified opinions, the rate is almost 20%. The difference seems to be significant. And after the cumulation by years of the total tax burden, respectively, of the sales, the tax pressure rates are obviously higher for the companies that received modified audit opinions and with a more irregular distribution in time (a minimum of 7.09% in 2011 and a maximum of 20.97% in 2016), compared to companies with clean opinions, where the evolution of percentages is much tighter: a minimum of 7.60% in 2015, and a maximum of 11.50% in 2018. Regarding the share of the components of the tax burden, companies with modified audit opinions report more expenses with other taxes and less income/revenues/specific tax, but with about the same tax burden on salaries (Table no. 11).

Table no. 11. Components of the total tax burden, depending on the type of audit opinion

Year	The structure of the tax burden for observations with modified audit opinion (%)			The structure of the tax burden for observations with unmodified audit opinion (%)		
	Labour taxes	Other taxes	Income/revenues/specific tax	Labour taxes	Other taxes	Income/revenues/specific tax
2019	78.58	15.35	6.08	76.95	13.21	9.84
2018	79.09	15.87	5.04	78.81	12.26	8.93
2017	76.13	18.65	5.22	81.30	11.27	7.43
2016	78.53	18.67	2.80	80.32	11.51	8.17
2015	75.58	12.69	11.73	82.03	11.80	6.17
2014	81.65	11.92	6.44	81.38	12.97	5.65
2013	81.94	10.94	7.12	81.97	11.70	6.33
2012	85.48	9.50	5.02	80.50	11.89	7.62
2011	82.89	11.89	5.22	79.55	10.67	9.78
2010	82.75	12.16	5.09	81.92	10.75	7.32

Source: Own projection, based on data analysed

Conclusions

The literature includes numerous studies that calculate an effective tax rate based on corporate income tax,

especially due to the ease with which this rate can be calculated and compared to the legal tax rate. However, taking into account only the income tax, the analysis and interpretation of the tax burden or the effective tax rate

may lead to results that do not necessarily reflect the company's contribution to public budgets. Thus, many studies complement the variables by which the tax pressure is measured, including other taxes borne, directly or indirectly, by the company and taking them into consideration can provide a better picture of the corporate fiscal effort. In this study, I add to the denominator and numerator of the tax pressure formula some elements that, I believe, better characterize the fiscal effort of enterprises. Thus, at the numerator, I considered three main categories of taxes: income tax or assimilated, other taxes, as well as social and fiscal contributions on salaries, as I found them directly or I could reconstitute them from the information provided in the official financial statements of the companies. I chose the denominator to be the sales made by the company every year. The indicator has the advantage of being more difficult to manipulate, but it also has a major disadvantage - it does not allow comparisons with any indicators established on the basis of legal tax rates. The analysed population consists of companies listed on the AeRo alternative market of the Bucharest Stock Exchange, from where I found 2,897 observations, for a period of 10 years (2010-2019). The large share (almost 40%) of companies with losses - which probably do not have to pay income tax - makes the mix of taxes I analyse to seem even more appropriate in the analysis of the fiscal pressure. Comparing with the Lazăr & Istrate (2018) study, I add to the numerator the fiscal contributions of the employees and replaced the denominator by the sales. This option is also justified by the radical change in the regime of these contributions in Romania, at the beginning of 2018, by transferring them directly to the employee, which makes it no longer appear explicitly in the financial statements.

A first finding is that the share of social and fiscal contributions on salaries is by far the most consistent in the total tax burden of companies listed on AeRo: around 80%, followed, at a great distance, by other taxes (somewhere between 11% and 13%) and, finally, by the income tax or assimilated (between 6% and 9%).

Turning to the calculation of the tax pressure rate, making the calculations for each observation, I found a slightly increasing share of taxes in sales, from almost 20% (in 2010) to just over 24% (in 2019). These values are obtained after winsorizing the 5th and 95th percentiles. After calculating the growth rates of the individual indicators, I notice that the explanation for the

increase in the tax burden is given by the increase in taxes and not by the indicator from the denominator - sales. If we apply the formula based on the absolute data accumulated per year, we reach a result that confirms the systematic increase of fiscal pressure during the analysed period, especially by increasing social and fiscal contributions on wages, generated by very clear average wages growth, more intense than decreasing the average number of employees.

Continuing the analysis, I applied the same methodology to highlight the possible effect of some explanatory factors on the fiscal pressure:

- after dividing the observations in two sub-samples, separated by the median of the total assets, I calculated significantly different percentages of tax pressure for large firms than for small ones: the tax burden for large firms appears to be significantly lower compared to small ones;
- taking into account the profitability of companies (ROA) and separating the observations into two categories (below and above the median) shows us that companies with high profitability have a significantly higher tax burden than those with low profitability;
- leverage (calculated as the ratio between total liabilities and total assets) is an important factor influencing the tax burden and our calculations show a lower fiscal pressure for more leveraged companies than for those with below-median leverage;
- I also calculate the share of fixed assets in total assets, and the results show a significantly lower fiscal pressure for companies with a capital intensity below the median;
- a new variable, which I did not find in the literature, is the audit opinion - modified vs. unmodified; I found that the companies that receive modified opinions have a higher share of taxes in the sales than the companies that receive unmodified opinions.

Among the limitations of this study, I mention the descriptive character of the research, the small population size, which makes it difficult to generalize the results, summary statistical processing (lack of setting correlations between the analysed variables), lack of a reference average or marginal effective rate, according to the models proposed based on the work of Devereux

et Griffith, 2003) with which to compare the calculated fiscal pressure rates. All these can represent as many future research directions, to which we can add the

introduction in the analysis of some companies from other emerging states, possibly from Central and Eastern Europe.

REFERENCES

1. Aksoy Hazir, C. (2019), Determinants of effective tax rates in Turkey, *Journal of Research in Business*, vol. 4, no. 1, pp. 35-45
2. Alali, F. A., Romero, S. (2013), Benford's Law: Analyzing a Decade of Financial Data. *Journal of Emerging Technologies in Accounting*, vol. 10, no. 1, pp. 1-39
3. Ali Abbas, S. M., Klemm, A. (2013), A partial race to the bottom: corporate tax developments in emerging and developing economies, *International Tax and Public Finance*, vol. 20, pp. 596-617
4. Armstrong, C.S., Blouin, L, Larcker, D. F. (2012), The incentives for tax planning, *Journal of Accounting and Economics*, vol. 53, no. 1-2, pp. 391-411
5. Aronmwan, E. J., Okaiwele, I. M. (2020), Measuring tax avoidance using effective tax rate: concept and implications, *Journal of Accounting and Management*, vol. 10, no. 1
6. Balios, D. Tantos, S., Eriotis, N., Vasiliou, D. (2020), Effective corporate income tax rates to the economies of the European Union in the light of the impact of the economic crisis in the Eurozone, *International Journal of Economics and Business Administration*, vol. 6, no. 1, pp. 1-11
7. Borden, B. T. (2018), Income-Based Effective Tax Rates and Choice-of-Entity Considerations under the 2017 Tax Act, *National Tax Journal*, vol. 71, no. 4, pp. 613-634
8. Bouwens, J., De Kok, T., Verriest, A. (2019), The prevalence and validity of EBITDA as a performance measure, *Comptabilité, contrôle, audit*, tome 25, vol. 1, pp. 55-105
9. Bustos-Contell, E. Climent-Serrano, S., Labatut-Serer, G. (2020), Tax Incentives: An Effective Mechanism to Achieve EU Harmonization?, *Journal of Business Accounting and Finance Perspectives*, vol. 2, no. 2, pp. 1-13
10. Callihan, D. (1994) Corporate effective tax rates: A synthesis of the literature, *Journal of Accounting Literature*, vol. 12, pp. 1-43
11. Chen, M.-C., Chang, C.-W., Lee, M.-C. (2020), The effect of chief financial officers' accounting expertise on corporate tax avoidance: the role of compensation design, *Review of Quantitative Finance and Accounting*, vol. 54, no. 1, pp. 273-296
12. Delgado, F. J., Fernández-Rodríguez, E., Martínez-Arias, A. (2018) Corporation effective tax rates and company size: evidence from Germany, *Economic Research-Ekonomska Istraživanja*, vol. 31, no. 1, pp. 2081-2099
13. Devereux, M. P. Griffith, R. (2003), Evaluating tax policy for local decisions, *International Tax and Public Finance*, vol 10, no. 2, pp. 107-126
14. Dyreng, S. D., Hanlon, M., Maydew, E. L. (2008), Long-run corporate tax avoidance, *The Accounting Review*, vol. 83, no. 1, pp. 61-82
15. Dyreng, S. D., Hanlon, M., Maydew, E. L., Thornock, J, R. (2017), Changes in corporate effective tax rates over the past 25 years, *Journal of Financial Economics*, vol. 124, no. 3, pp. 441-463
16. Elschner, C., Lammersen, L., Overesch, M., Schwager, R. (2005), The Effective Tax Burden of Companies and on Highly Skilled Manpower: Tax Policy Strategies in a Globalized Economy, *Discussion Paper No. 05-31*, at <ftp://ftp.zew.de/pub/zew-docs/dp/dp0531.pdf>
17. Fernández-Rodríguez, E., García-Fernández, R., Martínez-Arias, A. (2019), Influence of Ownership Structure on the Determinants of Effective Tax Rates of Spanish Companies, *Sustainability*, vol. 11, no. 5, pp. 1441-1460
18. Fernández-Rodríguez, E., García-Fernández, R., Martínez-Arias, A. (2021), Business and institutional determinants of Effective Tax Rate in emerging economies, *Economic Modelling*, vol. 94, pp. 692-702

19. Fonseca-Díaz, A.R., Fernandez-Rodríguez, E., Martínez-Arias, A. (2019), Factores empresariales e institucionales condicionantes de la presión fiscal a nivel internacional/Business and institutional determinants of international tax burden. *Spanish Journal of Finance and Accounting/ Revista Espanola de Financiacion y Contabilidad*, vol. 48, no. 2, pp. 224–253.
20. Gupta, G., Newberry, K. (1997), *Determinants of the variability in corporate effect tax rates: Evidence from longitudinal data*, *Journal of Accounting and Public Policy*, vol. 16, no. 1, pp. 1-34
21. Hanappi, T. (2018), Corporate Effective Tax Rates: Model Description and Results from 36 OECD and Non-OECD Countries, *OECD Taxation Working Papers No. 38*, <https://dx.doi.org/10.1787/a07f9958-en> (seen on August 2, 2020)
22. Hanlon, M. (2005), The Persistence and Pricing of Earnings, Accruals, and Cash Flows When Firms Have Large Book-Tax Differences, *The Accounting Review*, vol. 80, no. 1, pp. 137-166
23. Istrate, C. (2016), Impact of the IFRS on the disclosure of income tax figures by Romanian listed companies, *Journal of Accounting and Management Information Systems*, vol 15, no, 3, pp. 474-497
24. Lazăr, S., Istrate, C. (2018), Corporate tax-mix and firm performance. A comprehensive assessment for Romanian listed companies, *Economic Research-Ekonomiska Istraživanja*, vol. 31, no. 1, pp. 1258-1272
25. Mintz, J., Chen, D. (2014), The U.S. Corporate Effective Tax Rate: Myth and the Fact, Special Report to the Tax Foundation, no. 214, to be found at <https://files.taxfoundation.org/legacy/docs/SR214.pdf>
26. Park, S. H. (2020), Tax Burdens in Japan and South Korea: Measurement Using Average Effective Tax Rates, *Social Science Japan Journal*, vol. 23, no. 1, pp 37–64
27. Plesko, G. A. (2003), An evaluation of alternatives measures of corporate tax rates, *Journal of Accounting and Economics*, vol. 35, no. 2, pp. 201-226
28. Richardson, G., Lanis, R. (2007), Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia, *Journal of Accounting and Public Policy*, vol. 26, no. 6, pp. 689-704
29. Robu, I. B., Istrate, C., Jaba, E. (2015), Statistical estimation of the information influence regarding employees on the Romanian firms' market capitalization, *Procedia Economics and Finance*, vol. 32, pp. 208 – 215
30. Stamatopoulos, I., Hadjidema, S., Eleftheriou, K. (2019), Explaining corporate effective tax rates: Evidence from Greece, *Economic Analysis and Policy*, vol. 62, pp. 236–254
31. Stickney, C., McGee, V. (1982) Effective corporate tax rates. The effect of size, capital intensity, leverage, and other factors, *Journal of Accounting and Public Policy*, vol. 1, no. 2, pp. 125-152