

THE IMPACT OF PUBLIC GOVERNANCE AND ADMINISTRATIVE CAPACITY ON THE EFFECTIVE CORPORATE TAX RATE: AN EMPIRICAL EVIDENCE

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Abstract

Public administration, as the implementing body of public policies, plays a fundamental role in maintaining financial stability and fostering sustainable private sector development. Our study investigates the extent to which the quality of public governance – a direct reflection of administrative capacity – influences corporate taxation outcomes in the energy sector, deeply affected by financial crises and armed conflicts all over the world. Administrative capacity plays an important role in supporting competition, simplifying bureaucracy, and ensuring transparency in public spending. Strengthening the role of administrative capacity, particularly in the energy sector, is a key factor in public sector reform.

The empirical study analyzes the non-financial companies from the EU-27 countries, over the period 2004-2023, and integrates as main independent variables the public governance indicators. Our findings indicate that stronger governance, particularly where public administration is effective and transparent, contributes to the increase in corporate income tax and, implicitly, to increasing revenue collection. From a public policy perspective, the quantitative study results underscore the importance of strengthening administrative institutions and public governance mechanisms to improve taxpayers' voluntary compliance.

Keywords: administrative capacity, public policies, energy sector, effective corporate tax rate, panel data regression.

1. Introduction

In a changing world disrupted by financial turbulences, the pandemic crisis, armed conflicts, and the development of artificial intelligence, analyzing how public authorities act through public policy instruments remains a central focus in the context of governance studies. The quality of public governance determines whether public policies are well-designed, fair, and contribute to meeting citizens' interests. It also ensures the consultation of relevant stakeholders in the policymaking process.

It is well known that good governance influences companies' performance and contributes to fulfilling the state's role in the economy (Fonseca-Díaz, Fernández-Rodríguez and Martínez-Arias, 2019; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021, 2023). Thus, fiscal policies impact the engines of the companies, which is why it becomes vital to study how public administration factors affect business taxation. Fiscal policies play a crucial role in ensuring the sustainability of a country's economy, serving as the mechanism through which government authorities collect public revenues used to cover public expenditures. The effective tax rate represents the primary tool for measuring the impact of fiscal policy decisions on the business environment.

The energy sector plays a strategic role in the economy, as it ensures the functioning of all other economic branches, supports industrial development, and contributes significantly to national security and energy independence. As a strategic branch of the economy, the energy sector is essential for enabling infrastructure development and securing the country's energy sovereignty and long-term growth. In the energy field, the objective of fiscal policy is to maximize budget revenues, requiring a balance between the interests of stakeholders. In other words, a high-tax regime discourages or even stops investments, while a low-tax regime may lead to insufficient budget revenues.

Administrative capacity plays an important role in supporting competition, simplifying bureaucracy, and ensuring transparency in public spending. Administrative capacity involves a set of institutional rules, tools, and human resources through which public policies are designed, formulated and effectively implemented. Strengthening the role of administrative capacity, particularly in the energy sector, fiscal policy and social protection, is crucial for aligning with EU standards. Additionally, public authorities support efforts to use high-performance technologies to reduce the negative impact on the environment, as well as to identify the most suitable taxation tools that allow for increased state budget revenues and improved quality of life for citizens.

The objective of this research is to investigate the determinants of the effective tax rate among energy companies within the EU-27, over the 2004-2023 period. Specifically, this study aims to fill a gap in the literature, thereby contributing to the existing body of knowledge on corporate taxation in the energy sector. In addition to its academic contribution, the findings are intended to inform policymakers in the design of public policies and to provide valuable insights for corporate executives seeking to optimize tax burden management, as well as for researchers with a focus on taxation in the energy sector.

With the purpose of improving the functioning of central public services, the Blavatnik School of Government, together with the Institute for Government, created the International Civil Service Effectiveness (InCiSE) Index in 2017. Thus, the effectiveness of central public services in 31 countries was measured based on a set of indicators from a wide range of international data sources, with each indicator assessing a different dimension of public service efficiency, ultimately leading to the calculation of an overall score. Two years later, the central government public service proposed a new version of efficiency measurement, namely InCiSE 2019, which included 38 OECD and EU countries. Building on the framework developed for the InCiSE Index, in 2024, the Blavatnik School of Government, University of Oxford, launched the Blavatnik Index of Public Administration, which represents an assessment tool for public administration, covering 120 countries all over the world.

The Blavatnik Index of Public Administration provides an overview of how central public services function and serves as a tool for each country to improve governance by comparing itself with other countries and by implementing the best practices. According to the Blavatnik School of Government Report, the countries for which this index is calculated have been classified based on geographic region and income categories, following the World Bank's 2023 classification, namely: high-income economies (39 countries), upper-middle-income economies (35 countries), lower-middle-income economies (33 countries), and low-income economies (13 countries).

Figure 1 presents the Blavatnik Index of Public Administration 2024 scores for 25 of the EU-27 countries. Thus, Denmark achieved the highest score, while Romania ranked at the opposite pole. Moreover, considering all the 120 countries for which this index was calculated, Denmark ranked 3rd among the best public administrations, while Romania ranked 67th. It is important to note that Cyprus and Luxembourg are the EU-27 member states for which the Blavatnik Index of Public Administration was not reported, and Bulgaria was the only EU-27 country classified as an upper-middle-income economy, while the other countries were considered high-income economies.

Good public governance is very important for a country's development, leading to better economic growth, creation of human capital and strengthening of social cohesion. World Bank Group proposes a number of six Worldwide Governance Indicators which analyze the broad dimensions of the quality of public governance across countries and over time, namely: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption.

According to The Heritage Foundation, economic freedom represents the fundamental right of every human to control his or her own labor and property. In an economically free society, people are free to work, produce, consume, and invest, while governments allow labor, capital, and goods to move freely.

Our study represents both a theoretical and applied analysis of how public governance indicators impact corporate taxation. The first part of the paper synthesizes the findings of previous studies that analyzed the determinants of the effective tax rate, as well as the

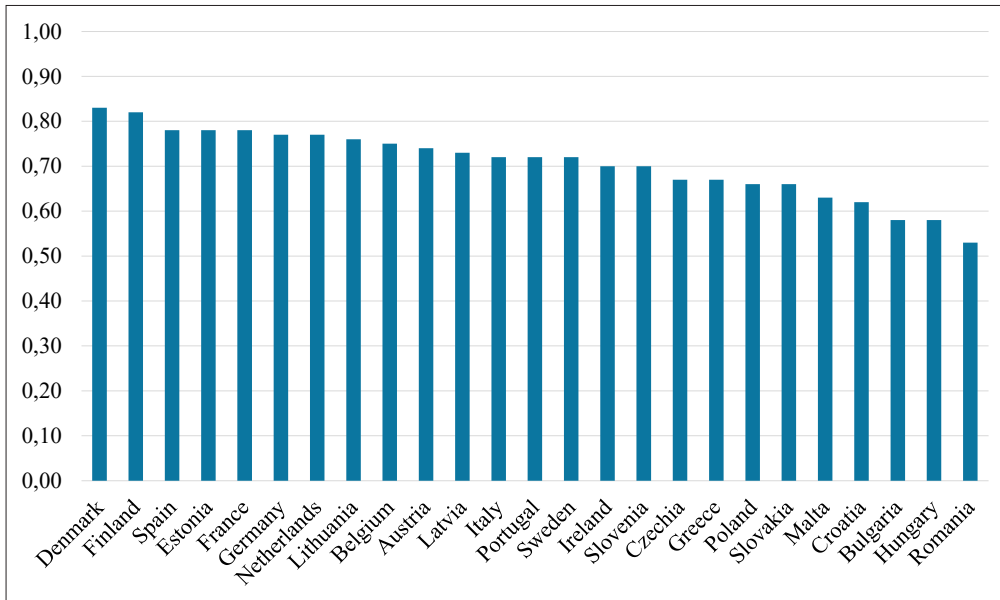


Figure 1: The Blavatnik Index of Public Administration 2024 for 25 countries from EU-27

Source: Authors' processing using the data provided by Blavatnik School of Government, University of Oxford

influence of public governance indicators on tax revenues. In the second part of the study, the relationship between the effective corporate tax rate and institutional variables is empirically examined, along with the main financial indicators identified in the specialized literature. The conclusion of the research includes the statistical and economic interpretation of the results obtained from the regression model estimations and their validation based on the reference literature. From a public policy approach, the quantitative study results underscore the importance of strengthening administrative capacity to improve taxpayers' voluntary compliance.

2. Literature review

The specialized literature includes numerous studies which analyze the determinants of the effective tax rate and the impact of public governance indicators on taxation at the macroeconomic level. However, previous research on the impact of public governance on corporate taxation is limited, with most existing studies focusing on financial indicators as the main influencing factors of the effective tax rate.

In this review of the previous literature, it is worth mentioning studies that highlighted the fiscal implications that public governance indicators can generate at the macroeconomic level (Epaphra and Massawe, 2017; Arif and Rawat, 2018; Bah, 2024). For instance, Arif and Rawat (2018) tested the influence of corruption and governance on tax revenue collection, using panel data analysis for EAGLE countries (Emerging and Growth

Leading Emerging Economies); the main findings demonstrate a negative relationship between corruption and the dependent variable, while good governance positively impacts the tax system. In other words, improving the governance quality leads to an increase in collected tax revenues, a result consistent with studies by Ajaz and Ahmad (2022), Bird, Martinez-Vazquez and Torgler (2014), and Günay and Topal (2021). Moreover, Yaru and Raji (2022) found that only corruption negatively affects tax revenues, while the other five public governance indicators are not statistically significant. Furthermore, within the framework of the rule of law, adopting fiscal policies that aim to reduce corruption will help lower poverty levels and reduce income inequality (Onofrei *et al.*, 2023). Based on these studies, it can be considered that fiscal policy is significantly influenced by non-economic factors, including the political, social, and institutional context. The ideology of the government, political stability, and electoral cycles play a crucial role in shaping decisions regarding taxation and public expenditure. Additionally, social factors such as demographic composition, inequality levels, and educational attainment substantially affect the demand for specific fiscal policies.

Another remarkable study conducted by Epaphra and Massawe (2017) demonstrated a positive relationship between revenues from direct taxes and control of corruption, government effectiveness, regulatory quality, and voice and accountability, while political stability and absence of violence/terrorism and rule of law have a statistically insignificant influence. In a similar context, Bah (2024) argued that institutional quality is a strong determinant of taxation, and its improvement is essential for increasing tax revenues. By empirically analyzing panel data for countries in sub-Saharan Africa, Bah (2024) showed that the six governance indicators positively impact both direct taxes and total tax revenues.

Research has expanded from the macroeconomic level to the microeconomic level, focusing on the influence of public governance variables on corporate taxation, represented by the effective tax rate. There is a strong connection between the public sector and the private economy, and the effects of a good public governance are also felt in the business environment. Regulatory frameworks characterized by clear, fair and efficient laws influence the financial and investment decisions of company managers. Although these decisions are determined by both corporate governance and institutional factors, there is a gap in the literature on the influence of public governance indicators and the index of economic freedom on the companies' tax burden.

A study by Aksoy Hazır (2025) demonstrated that Turkish listed companies engage in less tax evasion actions when public governance improves. A composite indicator determined as an average of the values of public governance indicators reported by the World Bank Group is used to measure the public governance. The key characteristics of a good public governance, namely transparency in policy making, efficiency of the regulatory framework, reduction of bureaucracy in the corporate environment, and implementation of effective methods to prevent corruption, contribute to economic growth and development of companies. In other words, Aksoy Hazır (2025) argued that a good public

governance leads to increased tax compliance of Turkish companies, but also reduces managers' involvement in opportunistic behaviors, which affects the increase in effective tax rate. At the same time, the impact of the index of economic freedom on effective tax rate was also analyzed and the results of the empirical analysis showed that when the index of economic freedom in Turkey increases, companies prefer to avoid paying taxes even more, which leads to a decrease in effective tax rate.

In a study by Sun *et al.* (2025) on companies listed on the Shanghai and Shenzhen Stock Exchanges in China, the effect of public governance on corporate tax avoidance, measured by effective tax rate, is analyzed using the case of anti-corruption campaign in China as a natural experiment. The objective of the study was to investigate whether improving public governance through anti-corruption campaigns reduces tax avoidance behavior among listed companies in China. The research results demonstrated that in the post-anti-corruption campaign period, the effective tax rate increased, which shows that a good public governance can transform the relationship between governments and firms, thus improving the business environment and corporate governance. Moreover, a country's governance characteristics shape the factors that companies' managers take into account when taking economic decisions. In other words, the economic consequences of poor public governance can be observed, at the company level, in the shortcomings of managerial decision-making, which affect corporate tax collection.

Fernández-Rodríguez, García-Fernández and Martínez-Arias (2023) examined the relationship between the effective corporate tax rate and certain institutional factors in G7 and BRIC countries. The main findings revealed that government effectiveness has a positive impact on the dependent variable, while regulatory quality and rule of law have a negative impact, being consistent with the studies by Fonseca-Díaz, Fernández-Rodríguez and Martínez-Arias (2019), and Fernández-Rodríguez, García-Fernández and Martínez-Arias (2021). Additionally, an increase in control of corruption leads to higher taxation of companies in BRIC countries. Furthermore, the Fraser Institute's Economic Freedom of the World index has a negative impact on the effective corporate tax rate in BRIC countries, a result that contradicts the findings of Fernández-Rodríguez, García-Fernández and Martínez-Arias (2021) regarding the Index of Economic Freedom, created by The Heritage Foundation and The Wall Street Journal. In addition, the study conducted by Molina-Morales, Amate-Fortes and Guarnido-Rueda (2011) shows that the influence of the Index of Economic Freedom created by The Heritage Foundation on fiscal pressure is weaker than that generated by the Fraser Institute's Economic Freedom of the World index.

The determinants of the effective tax rate have been analyzed in various studies which highlight the impact of financial indicators on corporate taxation. According to Păunescu and Vintilă (2018), inventory intensity, return on equity, return on assets, and company size exhibit a positive influence on the effective tax rate, while financial leverage and capital intensity have a negative impact on the dependent variable. The negative influence of capital intensity aligns with the findings of Andrejovska (2019), and Derashid and Zhang

(2003). The relationships between effective tax rate and return on equity, return on assets, and company size were also confirmed by another study (Vintilă, Gherghina and Păunescu, 2018), which additionally demonstrated a positive link between current liquidity and the dependent variable. Conversely, other studies (Ann and Manurung, 2019) highlight a negative influence of liquidity on tax aggressiveness, measured as the effective tax rate.

Lazăr (2014) demonstrated that return on assets has a positive effect on the effective tax rate, while capital intensity and leverage exert a negative impact. The impact of leverage and return on assets is consistent with the results obtained by Liu and Cao (2007) who, however, found a statistically insignificant relationship between the effective tax rate and company size or capital intensity. Additionally, Gupta and Newberry (1997), Richardson and Lanis (2007), and Delgado, Fernández-Rodríguez and Martínez-Arias (2014) showed that more profitable companies face a higher tax burden.

The study conducted by Li, Feng and Cao (2017) stands out for including corruption among the independent variables. The main findings show that company size, capital intensity, inventory intensity, return on assets, and corruption positively influence the effective tax rate. Positive correlations between the effective tax rate and company size, as well as return on assets are also reported in studies by Sharif and Khan (2024), and Salaudeen and Eze (2018), but they are in contradiction with the results obtained by Poli (2019) and Adhikari, Derashid and Zhang (2006).

Aksoy Hazır (2019) analyzed the determinants of the effective tax rate using a sample of Turkish non-financial publicly listed companies. Among the independent variables used in this quantitative research, company size and capital intensity have a positive impact on effective tax rate, which contrasts with the findings of Richardson and Lanis (2007). Leverage shows a negative effect, aligning with several studies in the literature (Richardson and Lanis, 2007; Kraft, 2014; Fonseca-Díaz, Fernández-Rodríguez and Martínez-Arias, 2019; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021).

Molina Llopis and Barberá Martí (2017) demonstrated that capital intensity, return on assets, and indebtedness negatively impact the effective tax rate. Additionally, a nonlinear relationship was observed between company size and the effective tax rate, showing that up to a certain size, the tax burden increases with the size of the company, but beyond a certain level, the effect changes, with larger companies facing lower effective tax rates. This result was also reported in studies by Fernández-Rodríguez and Martínez-Arias (2012) and Delgado, Fernández-Rodríguez and Martínez-Arias (2012), which demonstrated similar relationships for indebtedness and capital intensity.

Administrative capacity must consider these factors, both economic and non-economic, to establish a more equitable fiscal system, ensure efficient revenue collection, and promote the responsible allocation of public resources. Furthermore, the quality of governance, transparency, corruption levels, and civic culture profoundly impact the effectiveness and sustainability of fiscal policy.

3. Research methodology

3.1. Database and variables

The database consists of the EU-27 companies in the energy sector, over the period from 2004 to 2023. The general economic context, marked by financial crises and armed conflict events, constitutes the premises for the research focused on the energy sector. The initial sample consisted of all the 175 EU-27 energy companies, but given that there were companies that did not report data for the analyzed period, the final sample was reduced to 134 companies. The description of the variables is presented in Table 1.

Table 1: Variables description

Abbreviation	Variable name	Definition	Source
<i>Dependent variable</i>			
ETR	Effective tax rate	Tax expenses to earnings before taxes	Refinitiv Eikon
<i>Independent variables</i>			
VA	Voice and accountability	Score, ranging from -2.5 (weak) to 2.5 (strong)	World Bank Group
PV	Political stability and absence of violence/terrorism	Score, ranging from -2.5 (weak) to 2.5 (strong)	World Bank Group
GE	Government effectiveness	Score, ranging from -2.5 (weak) to 2.5 (strong)	World Bank Group
RQ	Regulatory quality	Score, ranging from -2.5 (weak) to 2.5 (strong)	World Bank Group
RL	Rule of law	Score, ranging from -2.5 (weak) to 2.5 (strong)	World Bank Group
CC	Control of corruption	Score, ranging from -2.5 (weak) to 2.5 (strong)	World Bank Group
ECFREE	Index of Economic Freedom	Score, ranging from 0 to 100: 0-49.9 (repressed), 50-59.9 (mostly unfree), 60-69.9 (moderately free), 70-79.9 (mostly free), 80-100 (free)	The Heritage Foundation
<i>Control variables</i>			
ROA	Return on assets	Net income to total assets	Refinitiv Eikon
CRTLQ	Current liquidity	Current assets to current liabilities	Refinitiv Eikon
LTDDBT	Long-term indebtedness	Long-term debt to total assets	Refinitiv Eikon
SIZE	Company size	Natural logarithm of total assets	Refinitiv Eikon
ATANG	Asset tangibility	Tangible assets to total assets	Refinitiv Eikon

Source: Authors' processing

The effective tax rate, as a measure for company taxation, represents the dependent variable. The independent variables are represented by the public governance indicators and the Index of Economic Freedom. The Worldwide Governance Indicators, proposed by the World Bank Group, are: (1) voice and accountability which examines the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media; (2) political stability and absence of violence/terrorism that measures the perceptions of the likelihood of political instability; (3) government effectiveness which analyzes the quality of the civil service, the quality of policy formulation and implementation, and the credibility of the government's commitment; (4) regulatory quality that relieves the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development; (5) rule of law which analyzes the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts; (6) control of corruption that measures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests. The Index of Economic Freedom, developed by The Heritage Foundation, measures the impact of liberty and free markets around the globe. The financial indicators are used as control variables, namely: return on assets, current liquidity, long-term indebtedness, total assets, and asset tangibility.

3.2. Descriptive statistics and correlation matrix

Table 2 indicates the descriptive statistics of all the variables included in the estimated empirical models, both for the EU-27 and for Romania. To highlight Romania's position in relation to the EU-27 countries, from the perspective of public governance indicators, descriptive statistics were presented separately for Romania.

It is observed that in the EU-27 countries, the effective tax rate has an average of 22.75%, and, moreover, the mean value of the effective tax rate in Romania (17.86%) is lower than in the EU-27 countries. Regarding the Worldwide Governance Indicators, the average of each of the six indicators is lower in Romania than in the EU-27 countries, suggesting that public governance in Romania could be improved by implementing measures that lead to economic growth, creation of human capital and strengthening of social cohesion.

Regarding political stability and absence of violence/terrorism, regulatory quality, and voice and accountability, the descriptive statistics situate Romania between the minimum and maximum values of the EU-27 countries. The political stability and absence of violence/terrorism indicator has a minimum value of -0.47 in Spain in 2009 and a maximum value of 1.62 in Finland in 2004, while Romania registered a minimum of 0.04 in 2018 and a maximum of 0.58 in 2021. In 2017, Netherlands obtained the best regulatory quality (maximum of 2.04), while the worst regulatory quality (minimum of 0.14) was registered by Greece in 2016. During the analyzed period, in Romania, the value of the indicator

Table 2: Descriptive statistics

EU-27 companies					
Variable	Mean	Median	Min	Max	SD
ETR	.2275	0.21	-.01	.64	.1679
VA	1.1119	1.12	.26	1.8	.3548
PV	.6172	0.58	-.47	1.62	.3735
GE	1.0165	1.17	-.36	2.35	.6501
RQ	1.1493	1.15	.14	2.04	.4675
RL	1.0634	1.18	-.19	2.12	.6329
CC	1.0194	1.175	-.38	2.46	.8053
ECFREE	67.997	68.5	50	82.6	6.381
ROA	-.0104	0.02	-.37	.18	.1299
CRTLQ	2.0382	1.37	.3	7.82	1.8601
LTDBT	.1507	0.1	0	.52	.1632
SIZE	19.2649	19.0625	14.5087	23.6677	2.6424
ATANG	.4076	0.41	0	.88	.272
Romanian companies					
Variable	Mean	Median	Min	Max	SD
ETR	.1786	0.17	-.01	.6	.1044
VA	.4785	0.5	.31	.6	.0852
PV	.239	0.185	.04	.58	.1682
GE	-.1415	-0.17	-.36	.22	.1573
RQ	.474	0.475	.18	.69	.1461
RL	.1825	0.195	-.19	.45	.2164
CC	-.208	-0.225	-.38	.04	.1132
ECFREE	64.05	64.9	50	69.7	5.2734
ROA	.0287	0.035	-.37	.18	.092
CRTLQ	2.7661	2.08	.3	7.82	2.1494
LTDBT	.0335	0	0	.52	.0634
SIZE	18.7724	17.4917	15.4249	23.2082	2.2017
ATANG	.4676	0.48	.08	.88	.1858

Source: Authors' computation

scored a minimum of 0.18 in 2004, and a maximum of 0.69 in 2011. In the EU-27 countries, voice and accountability indicator registered a minimum of 0.26 in Bulgaria in 2020, and a maximum of 1.80 in Denmark in 2004. In comparison with the EU-27 countries, in Romania the lowest value of the voice and accountability indicator (0.31) is obtained in 2013, while the highest value (0.60) is registered in 2017.

Over the analyzed period, Romania registered the lowest value of control of corruption, government effectiveness, and rule of law, in comparison with the other EU-27 countries. Control of corruption is the best regulated (maximum value of 2.46) in Denmark in 2006, and the weakest regulated (minimum value of -0.38) in Romania in 2012, even though Romania scored the highest value (0.04) in 2023. In the EU-27 countries, government

effectiveness is most pronounced (maximum of 2.35) in Denmark in 2007, and least pronounced (minimum of -0.36) in Romania in 2009, even though Romania recorded a maximum value of 0.22 in 2014. Relative to the rule of law indicator, the maximum value of 2.12 was obtained by Finland in 2014, contrary to Romania which registered a minimum of -0.19 in 2004, although in the period 2004–2023, the highest value of the rule of law indicator in Romania was 0.45 in 2016.

Regarding the Index of Economic Freedom, the maximum value (82.60) was registered by Ireland in 2007, suggesting a free country, and the minimum value (50.00) was registered by Romania in 2004, suggesting a mostly unfree country, although in the analyzed period the highest value of the indicator in Romania was 69.70 in 2017 and 2020, highlighting a moderately free country. Referring to the financial indicators, in Romania, the mean value of return on assets, current liquidity and asset tangibility is greater than in the EU-27 countries, meaning that the Romanian companies are more efficient in terms of performance, liquidity and tangibility. In conclusion, the most efficient countries in terms of public governance are Denmark and Finland, while Ireland has the best economic freedom.

In Table 3 the correlation matrix is presented.

Table 3: Correlation matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ETR	1.0000						
(2) VA	0.0866	1.0000					
(3) PV	-0.0516	0.6195	1.0000				
(4) GE	0.0496	0.9191	0.6187	1.0000			
(5) RQ	0.0091	0.8951	0.6521	0.9076	1.0000		
(6) RL	0.0285	0.9179	0.6356	0.9529	0.9330	1.0000	
(7) CC	0.0422	0.9192	0.6526	0.9486	0.9436	0.9599	1.0000
(8) ECFREE	-0.1516	0.5666	0.5759	0.5996	0.7371	0.6631	0.6943
(9) ROA	-0.2847	0.0322	0.1002	0.0224	0.0705	0.0584	0.0563
(10) CRTLIQ	-0.1126	-0.1612	-0.0521	-0.1098	-0.0599	-0.0639	-0.0848
(11) LTDBT	-0.1054	0.2688	0.0399	0.2440	0.1795	0.1998	0.1773
(12) SIZE	0.1399	0.1787	0.0327	0.1875	0.1021	0.1646	0.1321
(13) ATANG	-0.1364	-0.1341	-0.0534	-0.0809	-0.1240	-0.1230	-0.1571
Variable	(8)	(9)	(10)	(11)	(12)	(13)	
(8) ECFREE	1.0000						
(9) ROA	0.0725	1.0000					
(10) CRTLIQ	0.0472	0.1477	1.0000				
(11) LTDBT	0.1074	-0.1122	-0.2416	1.0000			
(12) SIZE	0.0196	0.0017	-0.2575	0.3459	1.0000		
(13) ATANG	-0.0696	-0.0587	-0.1065	0.2977	0.2677	1.0000	

Source: Authors' computation

Strong and positive correlations are identified between voice and accountability, government effectiveness, regulatory quality, rule of law, and control of corruption variables, meaning that these indicators will be included in separate regression models.

4. Empirical analysis, results and discussions

To analyze the influence of public governance on the companies' taxation, five econometrical models are estimated with Stata software, without effects and with random effects, using unbalanced panel data. Hausman test was also performed, and it suggested that the random effects regression is more appropriate than the fixed effects regression. Table 4 shows the empirical results.

From the perspective of public governance indicators, the empirical study results emphasize the importance of administrative capacity to improve voluntary tax compliance of companies, with a significant impact on the effective corporate tax rate.

According to the coefficient of determination R^2 , the results of the empirical models without effects explain 20.47% to 21.97%, while the econometric models with random effects explain 30.53% to 33.27% of the variation in the effective tax rate determined by the variation in public governance variables and financial indicators at the level of the analyzed companies.

It is identified a positive influence of five of the six public governance indicators represented by control of corruption (Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2023), government effectiveness (Fonseca-Díaz, Fernández-Rodríguez and Martínez-Arias, 2019; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021, 2023), rule of law, regulatory quality, and voice and accountability, on the companies taxation from the energy sector in the EU-27 countries, while the political stability and absence of violence/terrorism variable is statistically insignificant in all the estimated models.

A higher level of control of corruption leads to a higher effective tax rate. Control of corruption reflects the extent to which corruption is limited within public administration and the political sector, as well as the degree to which public power is exercised in an honest and transparent manner. In a low-corruption environment, unjustified tax exemptions obtained through bribery or political influence are reduced, and companies perceive the tax system as fair and impartial. Consequently, firms are more likely to accurately calculate corporate income tax, contributing to an increase in the effective tax rate. Moreover, combating corruption enhances the effectiveness of tax audits and improves voluntary tax compliance, thereby discouraging tax fraud and encouraging companies to correctly calculate, report, and pay the corporate income tax owed to the state budget, factors which are reflected in a higher effective tax rate. Therefore, effective corruption control is essential for the fair enforcement of tax regulations and the limitation of unjustified tax privileges, with direct implications for the increase of the effective tax rate.

Higher government effectiveness leads to a higher effective tax rate. Government effectiveness is reflected in the quality of public services and the tax system, the competence

Table 4: Empirical results

Variable	Model 1		Model 2		Model 3		Model 4		Model 5	
	Without effects	Random effects	Without effects	Random effects	Without effects	Random effects	Without effects	Random effects	Without effects	Random effects
CC	.0558*** (.009)	.0381** (.015)								
GE			.052*** (.0099)	.039** (.0163)						
RL					.0554*** (.0109)	.0301 (.0185)				
RQ							.0983*** (.0165)	.0552** (.0223)		
VA									.127*** (.0182)	.0374 (.0277)
PV	-.0204 (.018)	-.0082 (.0222)	-.0124 (.0181)	-.0066 (.0221)	-.0102 (.018)	-.0021 (.0231)	-.0154 (.0178)	-.003 (.0214)	-.0293 (.0182)	.003 (.0225)
ECFREE	-.0086*** (.0011)	-.0056*** (.0015)	-.007*** (.0011)	-.0048*** (.0014)	-.0075*** (.0011)	-.0047*** (.0015)	-.0091*** (.0012)	-.0053*** (.0015)	-.0072*** (.001)	-.0042*** (.0014)
ROA	-.9129*** (.0805)	-.8323*** (.0843)	-.9004*** (.0809)	-.827*** (.0843)	-.9149*** (.0809)	-.8262*** (.0844)	-.924*** (.0806)	-.8368*** (.0844)	-.9117*** (.0802)	-.831*** (.0845)
CRTLQ	-.0045 (.0028)	-.0061* (.0034)	-.0051* (.0029)	-.0065* (.0034)	-.0056** (.0029)	-.0068** (.0034)	-.0049* (.0028)	-.0068** (.0034)	-.0034 (.0029)	-.0066* (.0034)
LTDBT	-.2165*** (.0327)	-.1349*** (.044)	-.2206*** (.0332)	-.1392*** (.0441)	-.2133*** (.033)	-.1351*** (.0441)	-.2165*** (.0328)	-.1348*** (.044)	-.2473*** (.0334)	-.1389*** (.044)
SIZE	.0149*** (.0021)	.0092** (.0038)	.0149*** (.0021)	.0091** (.0038)	.0148*** (.0021)	.0091** (.0038)	.0156*** (.0021)	.0097** (.0038)	.0147*** (.0021)	.0096** (.0038)
ATANG	-.092*** (.0193)	-.019 (.0278)	-.1054*** (.019)	-.0227 (.0277)	-.1018*** (.0192)	-.0222 (.0278)	-.1007*** (.019)	-.0263 (.0277)	-.0873*** (.0193)	-.0254 (.0276)
CONSTANT	.6082*** (.0842)	.4756*** (.1185)	.5039*** (.0792)	.4278*** (.1135)	.5349*** (.0821)	.4262*** (.1164)	.5727*** (.0823)	.4211*** (.1129)	.444*** (.0744)	.3677*** (.11)
Observations	1196	1196	1196	1196	1196	1196	1196	1196	1196	1196
R ²	.2131	.3091	.2059	.3076	.2047	.3053	.2110	.3086	.2197	.3327

Significance level: *** p<.01, ** p<.05, * p<.1. Standard errors are displayed in brackets.

Source: Authors' computation using Stata software.

of the bureaucracy and its independence from political pressures, as well as the government's capacity to formulate and implement sound policies. Administrative capacity, a key dimension of government effectiveness, captures the technical and organizational ability of the state to enforce laws and ensure effective tax collection. Countries with efficient public administration are better able to enforce tax legislation by digitalizing and simplifying procedures for calculating, reporting, and paying taxes, which contributes to increased effective tax rates and reduces companies' tax compliance costs. In contrast, in countries

with less effective public administration, companies may exploit legal loopholes through tax avoidance practices, thereby lowering the effective tax rate.

The rule of law contributes to an increase in the effective tax rate. The rule of law serves as a foundation for fiscal fairness and efficiency within an economy. By ensuring the impartial enforcement of laws, reducing corruption, and strengthening trust in public administration, a high level of rule of law promotes greater tax compliance. A well-established rule of law enhances fiscal predictability and guarantees the consistent application of tax regulations, thereby improving voluntary tax compliance among companies, which can no longer obtain preferential tax treatment through corruption or political influence to reduce their corporate tax. Consequently, higher tax compliance leads to an increase in the effective tax rate.

High regulatory quality leads to a higher effective tax rate. Regulatory quality reflects the government's ability to develop and implement sound, clear, predictable, and consistently applied policies and regulations that support private sector development. A high level of regulatory quality ensures the stability of the tax system and facilitates the fair enforcement of tax rules, reducing ambiguities that could otherwise enable companies to engage in tax avoidance schemes. Coherent and predictable regulations increase corporate trust in the fiscal system, encouraging firms to comply rather than risk sanctions or reputational damage. As a result, aggressive tax optimization practices are reduced, leading to a higher effective tax rate.

An increase in the voice and accountability indicator is associated with a higher effective tax rate. Civic participation and democratic accountability, as captured by the public governance indicator 'voice and accountability', contribute to a fairer fiscal environment, more effective corporate income tax collection, and a narrowing of the gap between statutory and effective tax rates. In countries with high scores on this indicator, civil society and the mass-media play a key role in exposing abusive tax practices, such as evasion or aggressive tax planning. In such contexts, fiscal authorities are more motivated to enforce the law fairly, thereby reducing unjustified tax exemptions and limiting companies' ability to significantly lower their corporate tax and, by extension, the effective tax rate. Moreover, citizens can support more equitable tax policies through democratic processes, and responsive governments are likely to act on such demands by curbing preferential tax regimes, which increases effective tax rates for businesses.

Relating to the Index of Economic Freedom, it has a negative impact on companies' taxation (Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2023; Aksoy Hazır, 2025), meaning that an increase in the value of the Index of Economic Freedom leads to a decrease in the effective tax rate of the companies. A higher score on the Index of Economic Freedom reflects a freer economy with minimal government intervention; governments that promote economic freedom often implement tax policies aimed at attracting investment, such as tax exemptions, reductions in statutory tax rates, and other fiscal incentives – measures that tend to lower the effective tax rate. Furthermore, more relaxed regulatory environments may enable companies to more effectively employ tax

optimization tools, such as deductions, tax credits, and transfer pricing strategies, all of which can contribute to a reduction in the effective tax rate.

Regarding the control variables represented by the corporate financial indicators, on the one hand, return on assets (Adhikari, Derashid and Zhang, 2006; Molina Llopis and Barberá Martí, 2017; Poli, 2019; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021), current liquidity, long-term indebtedness (Liu and Cao, 2007; Richardson and Lanis, 2007; Kraft, 2014; Lazăr, 2014; Molina Llopis and Barberá Martí, 2017; Păunescu and Vintilă, 2018; Aksoy Hazır, 2019; Fonseca-Díaz, Fernández-Rodríguez and Martínez-Arias, 2019; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021; Aksoy Hazır, 2025), and asset tangibility (Derashid and Zhang, 2003; Richardson and Lanis, 2007; Lazăr, 2014; Molina Llopis and Barberá Martí, 2017; Păunescu and Vintilă, 2018; Andrejovska, 2019; Fonseca-Díaz, Fernández-Rodríguez and Martínez-Arias, 2019; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021; Aksoy Hazır, 2025) negatively impact the effective tax rate, suggesting that companies which have higher performance, better liquidity, and more tangible assets register lower effective tax rate, and, on the other hand, the company size (Richardson and Lanis, 2007; Li, Feng and Cao, 2017; Păunescu and Vintilă, 2018; Salaudeen and Eze, 2018; Vintilă, Gherghina and Păunescu, 2018; Fernández-Rodríguez, García-Fernández and Martínez-Arias, 2021; Sharif and Khan, 2024; Aksoy Hazır, 2025) positively affects the companies taxation from the energy sector in the EU-27 countries.

5. Conclusions

This study investigated the extent to which the quality of public governance (a direct reflection of administrative capacity) influences corporate taxation outcomes in the energy sector, deeply affected by financial crises and armed conflicts all over the world. The objective of the study was to identify the impact of public governance and the main financial indicators on corporate taxation. Using data from 134 non-financial companies in the energy sector across the EU-27 countries, for the 2004-2023 period, the empirical study integrated as main independent variables the public governance indicators proposed by the World Bank Group (voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption) and the Index of Economic Freedom developed by The Heritage Foundation.

Apart from political stability and the absence of violence/terrorism, the other public governance indicators have a favorable influence on the effective tax rate, highlighting the strong correlation between the public sector and the private sector. The effects of good public governance are also felt in the business environment and, consequently, on corporate taxation. Therefore, increasing control of corruption is expected to lead to higher tax revenues for the state budget, potentially driven by an increase in corporate income tax collection. In a country characterized by a high level of corruption, taxpayers may be tempted to engage in the informal economy, which could undermine the credibility of public authorities.

The study's results also highlight the positive influence of the rule of law and government effectiveness on corporate taxation, an aspect that could be explained by increased trust in societal norms, improvements in the quality of public functions, and greater independence of these functions from political pressures. These influences could lead to higher compliance within the business environment, with an effect on accurate reporting and payment of tax obligations owed by companies to the state budget.

Another interesting finding refers to the positive influence exerted by voice and accountability on corporate income tax, which could be explained by the increased degree of freedom of association for economic entities, for the purpose of business development and, implicitly, the growth of taxes due to the state budget. Additionally, there is a significant positive impact of regulatory quality on corporate taxation, as a result of increasing the efficiency of implemented policies that promote private sector development.

Empirical findings indicate that the Index of Economic Freedom has a negative influence on corporate taxation. This result can be economically justified by the possibility of affiliated companies to transfer their profits from the country of residence to countries with lower taxation. In other words, market openness, generated by a high degree of economic freedom, offers companies the chance to reduce their tax burden.

From the perspective of financial variables, return on assets and long-term indebtedness exert a negative influence on the effective tax rate. This could be explained, on the one hand, by the increase in earnings before taxes, and, on the other hand, by the tax savings generated by the deductibility of interest expenses related to financial debts.

In conclusion, we believe that good public governance encourages tax compliance, with a direct effect on increasing tax revenues to the state budget and the public sector influences the development of the private sector through the implementation of sustainable public policies. Therefore, improving public governance through the implementation of effective anti-corruption measures, the establishment of clear and fair regulations, the simplification of the fiscal system, the promotion of transparency in public spending, and the efficient allocation of resources leads to increased tax compliance among companies' managers.

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