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Миссия рецензируемого журнала “Journal of Tax Reform” заключается в содействии всесторонним исследованиям налоговых реформ и эффектов различных налоговых преобразований, ведущих к повышению качества и достоверности исследований в области налогообложения.

Цель журнала “Journal of Tax Reform” – представление значимых выводов оригинальных социо-экономических исследований, проведенных специалистами разных стран в области налоговых реформ и налогообложения в целом.

В журнале публикуются оригинальные эмпирические и обзорные статьи, связанные с административно-управленческими, экономическими проблемами налоговых реформ, а также рассматривающие вопросы, связанные с историей налоговых реформ и практикой противодействия уклонению от уплаты налогов.

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Journal Policy

Relevance of the thematic focus of the Journal

The exchange of competent opinions on tax reforms carried out in different countries is important for strengthening the theoretical grounding of tax reform practice and facilitating the implementation of best practices for simpler, fairer and more efficient tax systems.

International character of the Journal

The international character of the Journal is ensured by the universality of taxation topics and the international demand for the implementation of best practices in the field of tax reform. The facilitation of international collaborations and cross-border analytical comparisons is informed by a broad methodological similarity between techniques used to analyse the results of tax reforms carried out in different countries.

Mission and Objective

The mission of the peer-reviewed Journal of Tax Reform is to promote comprehensive research into tax reform and the effects of tax system reorganisation leading to improvements in the quality and credibility of research in the field of taxation.

The Journal of Tax Reform is aimed at presenting significant findings of original socio-economic research carried out by professionals from various countries in the field of tax reform and taxation in general.

The Journal publishes original empirical and review articles elucidating administrative-managerial and economic problems in tax reform, as well as those discussing issues related to historical tax reform and practices for countering tax evasion.

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Original Paper
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Tax Collection, Utilization Systems and the Performance of Small and Medium Scale Enterprises in Nigeria: A Multivariate Approach

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ABSTRACT
In both developed and developing nations, there are a number of empirical studies that had assessed the roles tax revenues play in augmenting economic growth; however, there is a literature gap on what is known about tax collection and utilization system and their effects on small and medium scale enterprises' performance in developing country like Nigeria. In line with the above, this study was carried out with the view to assess the relationships between tax collection and utilization systems and the performance of small and medium scale enterprises in Nigeria. The theories of expediency and benefits received from tax revenues were employed as the theoretical underpinning and the descriptive survey design involving questionnaire was used. A sample of 190 employees and 50 owners of small and medium scale enterprises were employed, hence the study sample comprised of 240 respondents. The dependent variable is small and mediums scale performance (measured by quality of service, profitability and turnover) while the independent variables are tax collection and utilization systems. Data obtained in the survey were analyzed using descriptive statistics (mean, standard deviation, and Karl Pearson correlation); diagnostic statistics (variance inflation factor) and inferential statistics (multivariate regression). In specific, the multivariate regression result indicated that tax collection and utilization systems negatively and significantly affect SMEs performance in areas of quality of service, profitability, and turnover in Nigeria. It was recommended that Nigerian government should put stringent mechanisms aimed at enhancing the collection and utilization of tax revenues and more importantly, multiple tax collections that seek to frustrate small and medium scale enterprises' performance should be adequately addressed.

KEYWORDS
tax collection, tax utilization, small and medium scale enterprises, quality of service, profitability, turnover

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УДК 336.22

Влияние систем сбора и использования налогов на эффективность малых и средних предприятий в Нигерии: многовариантный подход

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АННОТАЦИЯ
Как в развитых, так и в развивающихся странах проводится ряд эмпирических исследований, в которых оценивается роль налоговых поступлений в ускорении экономического роста. Однако существует пробел в литературе о том, что известно о системе сбора и использования налогов, а также их влияния на де-

ятельность малых и средних предприятий в развивающихся странах, таких как Нигерия. Данное исследование было проведено с целью оценки влияния систем сбора и использования налогов на эффективность малых и средних предприятий в Нигерии. В качестве теоретического обоснования использовались теории целесообразности и выгоды, получаемой от налоговых поступлений. Дизайн обследования включал анкетирование. Выборка состояла из 190 сотрудников и 50 владельцев малых и средних предприятий, следовательно, выборка исследования состояла из 240 респондентов. Зависимой переменной является производительность малых и средних предприятий (измеряемая качеством обслуживания, прибыльностью и оборотом), а независимыми переменными являются системы сбора и использования налогов. Данные, полученные в ходе опроса, были проанализированы с использованием описательной статистики (среднее значение, стандартное отклонение и корреляция Карла Пирсона); диагностическая статистика (фактор инфляции дисперсии) и статистика вывода (многомерная регрессия). В частности, результат многофакторной регрессии показал, что системы сбора и использования налогов негативно и существенно влияют на показатели малого и среднего предпринимательства в сферах качества обслуживания, прибыльности и товарооборота в Нигерии. Было рекомендовано, чтобы правительство Нигерии создавало строгие механизмы, направленные на повышение сбора и использования налоговых поступлений. Кроме того, следует решить проблему множественности налогов, снижающих эффективность малых и средних предприятий.

КЛЮЧЕВЫЕ СЛОВА
собираемость налогов, использование налогов, малые и средние предприятия, качество обслуживания, рентабельность, оборот

1. Introduction

In nations where businesses are accorded fair playing grounds, businesses like small and medium scale enterprises (SMEs) and economic successes are well thought-out as almost indistinguishable. SMEs have been hailed as crucial drivers of inclusive globalization and as a major promoter of economic growth.

In Nigeria, the importance of SMEs cannot be overemphasized, for instance, Nsoke et al. [1] observed that the Central Bank of Nigeria (CBN) in collaboration with Federal and State Governments through the Bank of Industry, Microfinance banks, Centers for entrepreneurship developments established different training SMEs centres for those already in existing businesses as well as those starting up new businesses.

Adekola et al. [2] asserted that SMEs are substantial contributors to value creation adding about 60% of value added in Nigeria. Buttressing the role of SMEs in Nigeria & Adeyeye [3] added that SMEs serve as primary source of employment, making up 70% of jobs.

Recently, there are over forty million, sixty-seven thousand, four hundred and sixteen (40,067,416) SMEs, employing more than 84% of the labour force and contributing 48.47% to Gross Domestic Product (GDP) in Nigeria[1]. Currently, SMEs makeup 90% of enterprises in Nigeria as compared to 53% in the United States and 65% in Europe[2]; given the widespread acknowledgment of the import of SMEs in an economy, one is left to ask why SMEs in Nigeria still struggle to survive and fail to maintain enhanced performance.

Akpubi & Igbekoyi [4] had identified several reasons for the inability of SMEs to survive and maintain enhanced performance to include inadequate knowledge of information and communication technology (ICT), weakness in legal and regulatory framework of SMEs, poor infrastructures, lack of financial incentives and unwillingness of most governments to use tax revenue as building blocks for promoting an enabling business environment for SMEs.

[1] Small and Medium Enterprises Development Agency of Nigeria, 2021; National Bureau of Statistics, 2020.
[2] IFC, 2022.

While most empirical studies such as Oaya & Mambula [5], Adeyeye [3], Ofurum et al. [6], Veiga & McCahery [7] had focused on how ICT, legal/regulatory frameworks, infrastructure and financial incentive affect SMEs' performance in both developed and developing nations, studies are yet to consider if tax collection and utilization systems will affect SMEs' performance (particularly as it concerns quality of service, profitability, and turnover) in Nigeria.

An effective tax structure or system could promote performance of organizations and SMEs inclusive Fu et al. [33]. Heet al. [8] asserted that SMEs that would have rather performed well left the market due to tax-related problems. Ochani & Gamade [9] observed that constraints of diverse taxes have continued to be significant obstacle for SMEs in Nigeria. The tax system is expected to affect how successfully favourably and significantly SMEs may operate in any economy [11]. However, in the Nigerian context, execution of tax laws that aim to create efficient systems of revenue-generation appear to be mostly outside of reality.

Practically gaining information on how tax system affects SMEs' performance in Nigeria, a cross-examination of SMEs owners and employees revealed that due to amount of tax fraud and abuses in Nigeria, SMEs are not getting the benefits they are entitled to get as taxpayers. As a relatively re-occurring problem, due to the tax laws where enterprises are liable to tax in the first operational year, enterprises that produce profits are often liable to several taxes, thus increasing the likelihood of failure of SMEs within the first few years of existence [1]. According to Bradshaw et al. [12], it inhibits investment and raises the likelihood that enterprises would collapse in periods of little or no profits.

Arising from the above, there is the need to find out how tax collection and utilization systems will affect SMEs' performance by adjudging from the perceptions of key players of SMEs.

This study was carried out with the view to assess the relationships between tax collection and utilization systems and the performance of small and medium scale enterprises in Nigeria. In that light, this paper emphasises on how tax collection and utilization systems will affect three key SMEs' performance metrics-quality of service, profitability and turnover.

In view of the above, the following were hypothesized:

Ho1: There is no significant relationship between tax collection and the performance of small and medium scale enterprises.

Ho2: There is no significant relationship between tax utilization and the performance of small and medium scale enterprises.

The remaining part of the paper is sectioned as follows in order to realize the study's goal: Review of Related Literature; Methods; Results and Discussions; Conclusion and Recommendations

2. Review of Related Literature

2.1. Taxation and SMEs Performance

Taxation relates to the determination, collection, supervision and management of tax proceeds. It deals with increasing tax income, controlling government spending, and managing government debt and the main goal of taxes is to finance public goods and services (Olaoye &Atilola [10]).

However, the merits that taxpayers receive from the government are not proportionate to or connected to the taxes paid (Okolo et al. [13]). Taxes are a requirement that cannot be evaded without incurring penalties, and the government makes no promises of reward or compensation to those who pay tax [14]. Tax Law of 2017 made it explicit that taxes are significant sources of government income and tools used by policymakers to promote economic growth.

Furthermore, while taxes are imposed for other purposes, the basic goal of the majority of taxes is to generate income for the government. Therkildsen [14] opined that taxes are now more crucial than ever because they guaranteed social fairness and stimulating economic growth. In developing countries, stabilizing income and spending is not the primary aim of tax; these nations experience a variety of issues with insufficient capital accumulation and savings, necessitating the promotion of particular goods to close supply and demand gaps.

Taxes decreases consumption, and thus alter the way income is redistributed. Wlodarczyk et al. [15] argued that the success of any tax system largely depends on its ability to have an efficient system for collecting and utilizing tax revenues.

Emudainohwo & Ndu [17] showed that tax administrators must ensure that all taxpayers comply with tax obligations as regards tax filing and payment so as to provide a fair level playing round for all businesses.

In contrast, Prichard et al. [19] showed that SMEs bear an inordinate amount of tax burden; hence making SMEs exhibit negative performance.

Atawodi & Ojeka [16] showed that more worrisome is the inability of SMEs to access adequate financial resources to promote their operations, they sometimes fail to file tax returns within the required statutory time, understate income and overstate deductions to aggressively reduce tax returns to the government and in turn to enhance their performance.

Thus, efficient tax collection and utilization systems are imperative to improving tax administration in any given nation (Pope & Abdul Jabbar [18]). In Nigeria, while tax authority has been able to fulfill its role of tax-filing by SMEs, the collection and utilization of tax revenues has been a major problem facing the relevant it. The argument in this paper is whether tax collection and utilization will lead to increased SMEs performance (quality of service, profitability and turnover) in Nigeria. Hence, we conceptualized our model as follows (Figure 1).

2.2. Theoretical Underpinnings

The expediency and benefits theories were used in explaining the relationship that exists among tax collection, utilization systems and SMEs performance. Firstly, expediency theory advocates that every tax system needs to satisfy the practicability test which is to ensure that taxes paid should as a matter of fact be done in a convenience and feasible way for the taxpayers. Thus, the impact of a tax system as well as the state's economic and social goals should be viewed as irrelevant when determining how expedient or practical tax collection and utilization systems should be Bhartia [12]. The expediency paradigm thus conforms to the view of SMEs who seek to conveniently pay taxes as their revenue increases.

In a practical sense, SMEs would want to make tax remittance to the relevant tax authorities when they are assured of stable turnover and profitability levels (Bradshaw et al. [20]; Okoro & Egbunike [21]).

This assertion is true because a tax that cannot be assessed and/or collected in the most efficient way is pointless. Second, the benefit theory operates under the presumption that taxpayers and the government have a basic contractual relationship. As argued in Okolo et al. [13] that members of the society get certain

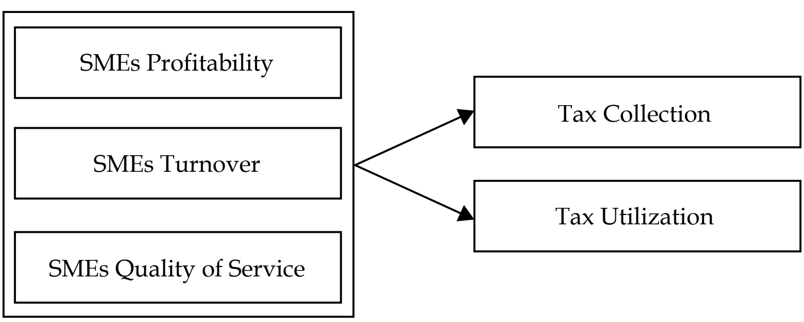

Figure 1. **Conceptual Model by the Researcher**

services from the government and in exchange for this, taxpayers (SMEs) pay a percentage of the associated costs from their profits.

The choice of complementing the expediency theory with the benefit theory of taxation is that in a realistic scenario, ability of SMEs to pay tax cannot be done in convenience. Fair distributions of wealth and incomes have no place in benefit theory of taxation; instead, benefits received are taken to represent the basis for distributing tax burden in a specific manner. However, Islahi [22] and Okolo et al. [13] argued that taxes should be collected on the basis of benefit received from government. Also, the theory overlooked the possible use of tax policy to establish economic growth or stabilization in a country.

Overall, while there are theories that can be used to describe the relationship between tax collection and utilization and SMEs performance, to the researchers' knowledge, there is lack of empirical studies that had investigated whether tax collection and utilization affect the performance of SMEs in Nigeria; the literature gap which this study has identified and seeks to fill.

3. Methods

This study adopted the survey research design in its investigation of tax collection, utilization systems and SMEs performance in Nigeria. The study population comprised of owners and employees of SMEs in Nigeria. There are over forty million, sixty-seven thousand, four hundred and sixteen SMEs and more than 84% of the total labour forces in the country are employees of SMEs.

Thus, we employed the convenience sampling technique in arriving at a sample of two hundred and forty (240) respondents who are owners and employees of SMEs in Delta State of Nigeria; the sample size was made up of fifty (50) SMEs owners and one hundred and ninety (190) employees of SMEs.

The sampled SME owners were those whose activities span across chemical, paint, shoes, apparel, and cosmetics. As a result, 190 employees of the sampled SMEs who partake in the management, marketing and accounting departments were selected.

Questionnaire designed on a 5-point scale of strongly agree, agree, undecided, agree and strongly disagree was used as data gathering method. The questionnaire was administered on face-to-face basis and to ascertain the dependability of the questionnaire, the Cronbach Alpha reliability test was performed (Table 1).

The result in Table 1 showed that all the independent variables (tax collection and tax utilization) and dependent variables (SMEs profitability, turnover and quality of service) met the minimum threshold for a reliable instrument since they are above 0.7. Given the dependent and independent variables of the study, the multivariate regression model was employed, and the empirical model is given as follows:

$$SMEsPerf = f(Taxcol, Taxutil), \qquad (1)$$

Where: *SMEsPerf* is a measure of SMEs profitability (prof), turnover (turn), and quality of service (qalser); *Taxcol* is tax collection system; *Taxutil* is tax utilization system.

Table 1

Reliability of Instrument on Tax Collection, Utilization and SMEs Performance

S/N	Variable(s)	No. of Items	Alpha Coefficient	Factor Loading
1	Tax Collection	3	0.721	0.865
2	Tax Utilization	3	0.835	0.622
3	SMEs Profitability	5	0.751	0.756
4	SMEs Turnover	5	0.711	0.649
5	SMEs Quality of Service	5	0.830	0.689

Source: Computed by the Researcher (2023).

Equation 1 was re-estimated as equation 2 to incorporate the regression coefficients as follows:

$$SMEsPerf_i = \delta_0 + \delta Taxcol_1 + \delta Taxutil_2 + \varepsilon_i, \quad (2)$$

Where: *i* represents the individual respondents (SMEs owners and employees); δ_0-δ_2 represents the regression coefficients; while *e* represents the error term.

Data obtained in the field survey were analyzed via descriptive statistics (mean, standard deviation and Karl Pearson correlation matrix), diagnostic statistics (variance inflation factor) and inferential statistics (multivariate regression). The statistical analysis was carried out using SPSS 25.0.

4. Results

In Table 2, evaluation of mean and standard deviation of dependent variables (SMEs performance dimensions – PROF, TURN & QUALSER) and independent variables (tax collection & utilization systems) were presented.

The results revealed that dimensions of SMEs performance (PROF = 3.2813; TURN = 3.0644; & QALSER = 3.0115), tax collection and utilization systems (TAXCOL = 3.3534; & TAXUTIL = 3.0158) beat the mean cut-off threshold of 2.5, thus validate the position that tax collection and utilization systems are good indicators for assessing SMEs performance.

Furthermore, the standard deviation values for the variables (tax collection and utilization systems) imply that the respondents' perception on the relationship between tax collection, utilization systems and SMEs performance are not too dispersed from each other and that most probable they share similar views on the research theme.

Presented in Table 3 are the Karl Pearson correlation results of tax collection, utilization systems and SMEs performance. The result showed that all the variables are carrying the negative signs; an indication that there is negative correlation between tax collection, utilization systems and SMEs performance; the results followed a-priori expectation advocated by the expediency theory that taxpayers (SMEs inclusive) seek to make tax remittance on the basis of practicability so as not to have their performance impaired.

Table 2

Results of Measures of Central Tendency and Dispersion

Parameters	Obs.	Mean Value	Standard Deviation
SMEs Profitability (PROF)	240	3.2813	0.4372
SMEs Turnover (TURN)	240	3.0644	0.3578
SMEs Quality of Service (QALSER)	240	3.0115	0.3848
Tax Collection (TAXCOL)	240	3.3534	0.4637
Tax Utilization (TAXUTIL)	240	3.0158	0.5477

Source: Computed by the Researcher (2023).

Table 3

Karl Pearson Correlation Results

Parameters	PROF	TURN	QALSER	TAXCOL	TAXUTIL
Profitability (PROF)	1.0000				
Turnover (TURN)	–0.2573	1.0000			
Quality of Service (QALSER)	–0.1251	0.2312	1.0000		
Tax Collection (TAXCOL)	–0.1146	0.1871	0.2246	1.0000	
Tax Utilization (TAXUTIL)	–0.1132	0.0079	–0.0301	–0.0072	–0.2016

Source: Computed by the Researcher (2023).

Besides, none of the Pearson correlation coefficients exceeded 0.8 as recommended by Gujarati (2003) as cited in Okoro [23]. The result suggests the nonexistence of multicollinearity problem between the pairs of the independent variables of the study.

Table 4 showed the VIF results; the mean VIF (2.0392) is less than the conventional VIF of 10.0. This implies the nonexistence of multicollinearity in the empirical model of tax collection, utilization systems and SMEs performance in Nigeria. Thus, the dataset satisfies one of the axioms of linear regression.

Table 5 showed the multivariate regression result for tax collection (TAXCOL), tax utilization (TAXUTIL), and measures of SMEs performance (PROF, TURN & QUALSER). Firstly, R-squared of 0.8031 suggests that tax collection accounts for about 80.3% of the systematic variation in the SMEs performance while tax utilization explained about 76% variation in the SMEs performance. The R-squared results suggest that the independent variables (TAXCOL & QALSER) provide good fit to the empirical model.

Secondly, the *t*-values for SMEs profitability ($t = -4.72$), SMEs turnover ($t = -2.87$) and SMEs quality of service ($t = -2.84$) indicated that tax collection and utilization systems negatively and significantly affect SMEs performance in Nigeria. Also, a unit decrease in tax collection and utilization systems will lead to an increase in SMEs performance in Nigeria.

Thirdly, the F-ratios showed that tax collection (F-value = 32.53; p-value = 0.0000) and tax utilization (F-value = 30.77; p-value = 0.0000) were significant at 0.05%, thus providing evidence that there is significant relationship between tax collection and utilization systems and SMEs performance in Nigeria. Hence the null hypothesis was rejected while the alternate hypothesis was accepted; besides, the relationship between tax collection and utilization was found to be negative.

5. Discussion

In Nigeria, tax collection has been faced with the problem of non-compliance on the part of taxpayers (Abiahu & Nwaorgu [26]) while on the other hand, the tax so collected by the tax authorities have been inefficiently utilized, thus raising concerns from taxpayers and researchers alike (Egberi & Egberi [27]). Again, tax collection tends to be dispro-

Table 4

Variance Inflation Factor Results

Parameters	VIF	1/VIF
Tax Collection (TAXCOL)	1.0074	0.9926
Tax Utilization (TAXUTIL)	1.0318	0.9691
Mean VIF	2.0392	

Source: Computed by the Researcher (2023).

Table 5

Multivariate Regression Results

Equation	Obs.	R-Squared	F-Value	Probability
TAXCOL	240	0.8031	32.53	0.0000
TAXUTIL	240	0.7597	30.77	0.0000
Parameters	Coefficients	T-value	Probability	
PROF	–0.0417	–4.72	0.0000	
TURN	–0.0459	–2.87	0.0001	
QALSER	–0.0032	–2.84	0.0001	
CONSTANT	0.4049	6.49	0.0000	

Source: Computed by the Researcher (2023).

portionately lower for small and medium scale enterprises (SMEs) (Dabla-Norris et al. [28]), perhaps due to the inability by the government to capture all SMEs in the country (Aminu & Shariff [29]).

On the contrary, some empirical studies such as Obert et al. [30], Abiola & Asiweh [31], Monica et al. [32], Kumai [34], Echekoba & Kasie [35] have shown that poor implication of tax policies and its administration on SMEs has been the major problem militating against tax collection and utilization.

In the light of the above, this study used a multivariate approach in investigating whether tax collection and utilization systems significantly affect the performance of SMEs in Nigeria. The study established from the quantitative data that there is significant link between tax collection and utilization systems and SMEs performance in Nigeria. However, the link between tax collection and utilization systems was found to be negative in influencing SMEs performance.

This finding of the study disagrees in part with the results of Oaya et al. [5], Adekola et al. [2], Ofurum et al. [6], Veiga & McCahery [7], Xu et al. [24], Wadesango et al. [25], and do not conform totally with the results of studies on SMEs since there had been no previously established results on whether tax collection and utilization systems affect SMEs performance in Nigeria.

6. Conclusion

In this paper, the relationship between tax collection, utilization systems and SMEs performance were assessed for 240 respondents who are SMEs owners and employees in Nigeria. The study was motivated due to the absence of studies on whether tax collection and utilization systems affect the performance of SMEs.

Thus, the study employed three performance (profitability, turnover, and quality of service – dependent variables) and two tax (collection and utilization systems – independent variables) measures.

Data obtained in the field survey was analyzed via descriptive, diagnostic, and inferential statistics. In specific, the multivariate regression result revealed that tax collection and utilization systems had negative and significant effects on SMEs performance particularly in terms of profitability, turnover and quality of service.

Hence tax collection and utilization could have been a panacea for SMEs performance in Nigeria if the tax administration were proficient and efficient in collection and utilization of tax revenues to promote SMEs operations

Consequent upon the above, it was recommended that Nigerian government should put stringent mechanisms aimed at enhancing collection and utilization of tax revenues and more importantly, multiple tax collections that seek to frustrate SMEs performance should be adequately addressed.

This paper contributes to management literature by testing empirically, the effects of tax collection and utilization systems on SMEs performance in Nigeria. Also, the study contributes to knowledge by showing that tax collection and utilization significantly and negatively affect the performance of SMEs in Nigeria.

Overall, the result of the study can be used by SMEs and government seeking to impact positively on SMEs performance.

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Personal Income Tax Deductions and Demand for Education: Case of Russia

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ABSTRACT

Tax system creates various incentive effects that can influence an individual's educational choice. Many studies have been conducted on the effect of tax incentives on education, however, no study that reveals such an effect has been conducted in Russia. With this in mind, we aimed to analyse whether the tax incentives for education influence the household's decisions to receive an education in Russia. In this context, we analysed the correlation between the number of individuals who received tax deductions and the number of individuals who received education by regions of the Russian Federation. The data source was tax reporting data of Federal Tax Service and the 2020 census data. The research methodology includes methods of regression and correlation analysis. The results show that tax incentives for education have low impact on the of household's decisions to receive an education in the Russian Federation. Tax deduction has a stable but weak positive association with total numbers of students. The calculated parameters of the model explain the dependence between the deduction for expenses for own education and quantity of people who receive education by 9.2% and dependence between the deduction for expenses for full-time education of children and quantity of people who receive education by 5.5%. There is low probability that the announced rise of the limit of social deduction in 2024 will change the situation. But government should continue to provide federal funding through tax benefits to promote voluntary compliance by fostering favourable taxpayer views of the tax system.

KEYWORDS

tax deductions, tax incentives, education, educational choice, regions of Russia

JEL I22, I26, H22, H31

УДК 336.228

Вычеты по индивидуальному подоходному налогу и спрос на образование: опыт России

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АННОТАЦИЯ

Налоговая система создает различные стимулирующие эффекты, которые могут исказить образовательный выбор человека. Было проведено много исследований влияния налоговых льгот на образование, однако исследований, раскрывающих такой эффект в России, не проводилось. В этом контексте мы стремились проанализировать, влияют ли в России налоговые льготы по образованию на решения домохозяйств получить образование. Была изучена взаимосвязь между данными о численности физических лиц, получивших налоговые вычеты, и сумме налоговых вычетов по регионам Российской Федерации и численности лиц, получающих образование, в разрезе регионов в 2020 г. Источником послужили данные налоговой отчетности Федеральной налоговой службы и данные переписи населения 2020 г. Методология исследования включает методы регрессионного и корреляционного анализа. Результаты показывают, что налоговые льготы по образованию мало влияют на решения домохозяйств о получении образования в Российской Федерации. Налоговый вычет имеет устойчивую положительную связь с общим количеством обучающихся. Рассчитанные параметры модели объясняют зависимость между вычетом на расходы на собственное обучение и количеством получающих образование на 9,2% и зависимость между вычетом расходов на очное обучение детей и количеством получающих образование на 5,5%. Маловероятно, что объявленное повышение лимита социальных вычетов в 2024 г. изменит ситуацию. Но государство должно продолжать предоставлять федеральное финансирование через налоговые льготы, чтобы способствовать добровольному соблюдению налогового законодательства путем формирования благоприятного отношения налогоплательщиков к налоговой системе.

КЛЮЧЕВЫЕ СЛОВА
налоговые вычеты, налоговые льготы, образование, образовательный выбор, регионы России.

1. Introduction

Tax system creates various incentive effects that can distort an individual's educational choices. Some of these tax effects discourage higher education, while others may encourage an individual's desire and choice to pursue higher education or improve skills. The structure of the tax system affects how long a person studies. Taxing capital income increases incentives to improve education, while a progressive payroll tax reduces those incentives.

Torres [1] summarized the information concerning the influence of taxes on the financial incentive to invest in post-compulsory education and lifelong learning in 31 OECD countries, India and South Africa.

She resumed that taxes have an immediate or direct impact on the incentive to invest in skills formation through following channels: (1) the tax treatment of the direct educational costs (e.g. tuition fees); (2) the tax treatment of savings (or equity), debt, income and fringe benefits (e.g. employer-paid training) used to finance the investment in education; (3) the (notional) tax treatment of foregone earnings or profits; (4) the (notional) tax treatment of foregone capital income; (5) the tax treatment of gross financial benefits (higher earnings for individuals and higher profits for employers); (6) tax features that provide insurance against the uncertainty of investment returns; (7) earmarked taxes on employers or tax-like mechanisms that ensure a minimum level of investment in training.

In our research we will concentrate on the first channel: the tax treatment of the direct educational costs.

Scientific publications offer two main points of view on the impact of this tax incentives on education.

The first argument, commonly referred to as "return on investment", is as follows. Tax incentives encourage people to invest more in their own education, which will lead to increased incomes and positive externalities from education. They are valuable not only to the individual receiving the benefit, but for society as a whole. Improvements should be such that tax incentives as government tax expenditures eventually pay off on their own for the government in particular or society as a whole.

This analysis of an educational policy within the context of an optimal taxation was started by Sheshinski (1972) [2], Atkinson (1973) [3] and Hamada (1974) [4] and continued in more recent works.

Blomquist [5] focuses on how large a fraction of educational expenses should be deductible.

Findeisen & Sachs [6] study tax policies and the optimal structure of education subsidies and find that the effect depends on how labor taxes are designed.

Da Costa & Severo [7] characterized optimal income taxes and human capital policies in a two period Merrilee's economy.

Dupor et al. [8] focus on the two distortions in the tax system that influence human capital most directly. The first distortion arises from the fact that not all inputs into human-capital production are tax-deductible The second distortion arises from the progressivity of the tax system, which discourages human-capital investment by reducing its return.

Another point of view is tax incentives are a tax cut. It is unevenly distributed, and the main beneficiary of the benefits is the middle class, since the poor cannot afford to pay for education, and for the rich this benefit is not significant.

For example, Boadway et al. [9] show that households differ in their ability to accumulate wealth and where the government has redistributional objectives, time inconsistency of tax policy arises.

Socias [10] shows that tax deductions and tax credits for educational expenditures tend to benefit not only higher-income individuals but higher-income districts.

Empirical justifications are provided to support each of these points of view. Most of the research is devoted to assessing the return on investment in education. To do this, it is necessary to prove that tax benefits and education decisions have a causal relationship. If this relationship is established, it is possible to predict the impact of education received on lifetime earnings. The absence of a causal relationship between benefits and education decisions and data on the distribution of benefits between households are proof of this point of view. As can be expected, most of empirical research devoted to this topic were conducted in developed countries especially in USA and Northern Europe countries.

For example, Koerselman & Uusitalo [11] find that university education in Finland is associated with about a half a million euro increase in discounted lifetime disposable income compared to vocational high school.

Gong & Pan [12] estimated the returns to an additional year of advanced undergraduate education The implied earnings return to the additional year of college is about 12 % six months after graduation.

Fischer [13] quantify the private and fiscal lifetime returns to higher education in Germany accounting for the redistribution through the tax-and-transfer system and find that private and fiscal returns are substantially higher than current market interest rates.

The purpose of this paper is to investigate the impact of tax incentives on education in the Russian Federation (RF). It's of current interest before the announced rise of the limit of social deduction in 2024.

The research hypothesis is following – tax incentives encourage people to invest more in their own education in Russia.

In this paper the authors set the following *research question*. Does the tax incentives for education in the Russian Federation influence the of household's decisions to receive an education and for what extend? To find the answer we used data from tax statistics and national census results.

The paper is structured as follows. In the next section of the paper, we explore the literature devoted to the topic, and describe the system of tax and nontax incentives for education in Russia, followed by explanation of the research method and data, next is the presentation of the results. The final part is devoted to discussion and conclusions.

2. Literature review

The empirical literature devoted to the topic can be divided into several groups.

The first group covers studies about the impact of fiscal policy on education. Studies in the US show that some public schools depend on property tax, and some – on federal support [14].

Researchers from RAND Corporation [15] examined how increases in educational attainment are associated with tax revenues, funds for social support and insurance programs, and spending on incarceration. The researchers found that an increase in a student's educational attainment – for example, completing high school rather than dropping out – is associated with substantial value for taxpayers over time.

Some political connection was discovered Poutvaara [16] between investments in education and voter's preferences in taxes. After investments in education have taken place, the median voter has an incentive to impose high taxes.

Another part of literature explores if tax incentives encourage training investments. Some authors declare positive effect of tax incentives, but others declare no effect.

2.1. Positive effect of tax incentives

Alstadsæter [17] discusses and provides evidence of the positive impact of a progressive income tax in the motivation to continue education. In her other work [18], she explores how the tax system influences an individual's choice of education type and hypothesizes that a progressive tax system might introduce distortions into an individual's choice of education and to encourage him to choose to a greater extent the type of education with a higher consumer value. She also claims [19] that educational choice is often not a constant choice of how many years of higher education to receive, but a discrete choice between different levels of education. In most cases, a person must get a degree (or complete a certain stage of education) in order to get a return on investment in education.

Viianto [20] studies the impact of a linear tax scale on educational decisions and welfare in a two-period model in which the educational decision is discrete and its returns are uncertain. He concludes that the linear tax rate has a positive effect on the number of agents who decide to pursue higher education. This effect becomes negative when income is returned in the form of a one-time transfer.

Leuven & Oosterbeek [21] investigate to what extent the resulting cost reduction encourages training investments with two different identification strategies. The first strategy uses the progressive structure of the income tax scheme and compares groups with taxable income just above or just below kinks. The second strategy takes advantage of the tax reform, which implied substantial changes in marginal tax rates. The results point in the same direction: tax incentives increase training participation.

Van den Berge et al [22] study what extent a tax deduction helps to stimulate post-initial training. Specifically, they employ a regression kink and regression discontinuity design as jumps in tax bracket rates generate exogenous variation in the effective costs of lifelong learning. Using high quality data on tax returns of the universe of Dutch taxpayers, authors find that the tax deduction has heterogeneous effects on lifelong learning. Low-income singles show no response. For high-income singles there is an effect of 10% on the probability to use the tax deduction. They also studied the effects of a tax deduction for lifelong learning [23], exploiting exogenous variation in the effective costs of lifelong learning due to jumps in tax bracket rates. The results: Low-income individuals show no response, but high-income individuals are more likely to report lifelong learning expenditures (though not a higher amount) when net costs are lower.

Elsayed [24] examines the effect of education tax benefits on college completion. His results suggest that tax benefits increase the likelihood of completing a college degree by 8 percentage points.

Bednar & Gicheva [25] examines how the tax code and government education policies affect graduate enrollment and find that graduate attendance is higher when the tax exemption is available.

2.2. No effect of tax incentives

Bulman & Hoxby [26] analyzed tax returns and other administrative documents to find the impact of tax credits and tuition deductions on learning outcomes, concluded that tax credits have no effect on the choice of educational paths or motivation to study. In another study [27] they find no evidence that the deduction increases college enrollment.

Heim & Winecoff [28] results imply that offering a tax benefit per se does not significantly increase the percentage of educational accounts or the average balances in accounts.

Dynarski & Scott-Clayton [29] come to the conclusion that that the tax credits and tuition tax deduction have precisely zero effect on human capital accumulation. If their intent is to increase schooling, they are a failure.

2.3. Overview of tax and non-tax incentives for education in Russia

In the Russian Federation, the federal government supports higher professional education and advanced training for citizens in the following ways:

– budget funding (state-funded scholarship, grants and funding for advanced training and retraining programs);

– subsidized student loan rate;

– funding education through "maternity capital";

– tax deductions and exemptions.

Budget funds play a leading role in financing all types of education, except for vocational training programs and additional professional programs. The state as a whole provides about 60% of the costs for all types of education[1]. The funds of the population are maximum in the costs of secondary vocational education and programs of additional education. Considering the possible impact of tax incentives on additional education, it should be taken into account that, on the one hand, it is closely related to the situation on the labor market, and, on the other hand, it is necessary for some specialties.

A reduced rate on a loan is a relatively new way of stimulating education in Russia. Its activation began in 2020, when a fixed interest rate of 3% per annum was set for a state-supported educational loan. 14.58% per annum is reimbursed through state subsidies.

As a result of the admission campaign for the 2021/2022 academic year, 16,813 agreements on the provision of educational loans with state support were concluded. This is 2.5 times more than in 2020/2021. This share is negligible, given that, according to the Ministry of Education and Science, in total, more than 2 million students studied at Russian universities on a paid basis in 2020 and 2021[2].

The number of those who financed education at the expense of "maternity capital" grows. Approximately 62.86 billion rubles were spent on the education of children from 3 trillion rubles of "maternity capital" in 2009–2020. Approximately 70% payers sent "maternity capital" for paid educational services, and 30% – for the maintenance of children in educational organizations[3].

Tax incentives that promote lifelong learning in Russia can be divided into incentives for citizens and for employers (Table 1).

Table 1

Tax incentives for education according to the Tax Code of the Russian Federation in 2023

Incentives for citizens	Incentives for Employers
Social deduction for the cost of educating children 13% of the amount but no more than 50,000	Inclusion of employee training costs in expenses
Social deduction for expenses for their education, brother sister 13% but not more than 120,000, taking into account other social expenses	
Social deduction for expenses for charity no more than 25% of income	
Exemption of scholarships from personal income tax	

[1] Bondarenko N.V., Gokhberg L.M., Zorin O.A. at al. Indicators of Education 2022: Statistical Collection. Moscow: NRU VSHE, 2022. 532 p. Available at: https://issek.hse.ru/mirror/pubs/share/557472415.pdf

[2] Official site of the Federal State Statistics Service. Russian Statistical Yearbook 2021. Education. Available at: https://gks.ru/bgd/regl/b21_13/Main.htm

[3] Bulletin of the Accounts Chamber of the Russian Federation, 2021, No 9. Maternity capital. Available at: https://img-cdn.tinkoffjournal.ru/-/mat-kapital.pdf

Costs of training and advanced training of employees are included in employers' expenses and thereby reduce income tax. This tax incentive has not yet led to a significant increase in employers' spending on education.

Employers' spending on education and advanced training of their employees look quite modest. So, according to one of the surveys conducted in 2022 in those companies where there is a corporate training system, it affects an average of 57% of employees. At the same time, large companies that employ more than 2,000 people involve 83% of their employees in training. While for small businesses this figure is almost two times less – only 46%. For ordinary employees, the amount spent on their training is 14,900 rubles per year, and for top managers – 38,100 rubles. The average budget for one employee training in 2021 was 26,500 rubles. Savings in income tax per employee will be 5,300 rubles in this case.

Data from a sample survey of organizations by Rosstat show even more modest data. Thus, the cost of vocational training is only 0.3% of labor costs, or 2156 rubles per year per employee. The share of expenses varies from 0.1% in trade, credit and real estate operations to 0.5% in transport, where training is a production necessity for ensuring security.

Incentives for citizens include two types of social tax deduction for education, a deduction for charity, which can also be used to fund educational organizations, as well as tax exemption for scholarships and grants.

The first deduction is a deduction for the cost of educating children (or patronized). The deduction is limited to the amount of expenses of 50,000 rubles per year for both parents.

The second deduction is a deduction for the cost of paying for your own education, the education of a brother or sister.

You can get a deduction for tuition costs:

1) in universities and secondary vocational schools;

2) in kindergartens;

3) in schools;

4) in institutions of additional education for both adults and children (for example, advanced training courses, employment service training centers, youth sports schools, music schools, children's art schools, etc.);

5) in other educational institutions.

A social tax deduction for expenses for charity is provided in the amount directed by an individual during the year for charitable purposes in the form of monetary assistance to non-profit organizations operating in the field of education in the amount of not more than 25% of the income received by an individual for the year.

3. Research method and data

As was mentioned above we want to figure out which one of two main points of view on the impact of tax incentives on education fits circumstances of modern Russia. To prove or to deny the first argument, that tax incentives encourage people to invest more in their own education we analyzed the correlation between tax deductions and the share of population receiving education.

We proceeded from the assumption that tax deductions could influence the household decision towards education. The result of this influence will be reflected in a large proportion of people receiving the education.

We decided to study the data about tax deductions and education in different regions of Russia. The year 2020 was chosen for the study, since this year the population census was conducted and data on the number of people receiving different forms of education by regions are available.

The data source is official open access data: tax reporting data on the number of individuals who received tax deductions and the amount of tax deductions by regions of the Russian Federation for 2020.

Data were analyzed for two deduction types: a deduction for expenses for own education or full-time education of a sister (brother) under the age of 24 (code 320) and a deduction for expenses for full-time education of children (including foster or guardians) under the age of 24; (deduction code 321).

The source of data on the number of individuals receiving education by region was the 2020 population census data of the Russian Federation. Tax reporting in the context of each subject was collected from the website of the Federal Tax Service[4]. The tax reporting initially lacked data on deductions for the following subjects: Kamchatka Krai, Ingushetia, Kursk Oblast, Zabaikalsky Krai.

The data sample was checked for outliers (observations that lie anomalously far from other values in the data set). To adjust, we applied the approach of determining the value of the statistical outlier from the median (via conditional formatting in Excel).

To make a decision on outliers, the statistical center of the range of values was determined. Then, through the application of the interquartile range (IQR) – this is the difference between the 75th percentile and the 25th percentile (Q1) in the data set – the spread of the average 50% of the values was measured and statistical outliers were identified. It was decided to exclude the following entities from the analysis: the Republic of Dagestan, Kabardino-Balkaria, North Ossetia (Alania), the Chechen Republic, the Republic of Tyva, the Samara Region, the Sakhalin Region, Moscow, St. Petersburg, the Jewish Autonomous Region, the Chukotka Autonomous Territory. In total, 68 observations remained in the final sample by region.

The influencing variables are deductions for code 320 (X^1) and code 321 (X^2). The resulting variable (Y) is the total number of the population receiving higher professional education, studying in basic and additional educational programs, studying only in additional educational programs.

Regression-correlation analysis was applied using the Excel analysis package. Another point of view is that tax incentives for education only provide some benefits to the part of taxpayers and the main beneficiary of the benefits is the middle class. To prove or to deny this argument, we analyzed data about the dynamics of tax deductions provided to citizens in 2015–2021.

The data source is official open access data: tax reporting data on the number of individuals who received tax deductions and the amount of tax deductions in the Russian Federation for 2015–2021.

Data were analyzed using two deduction codes: a deduction for expenses for own education or full-time education of a sister (brother) under the age of 24 (code 320) and a deduction for expenses for full-time education of children (including foster or guardians) under the age of 24 years; (deduction code 321).

4. Research Results

4.1 Tax incentives as a motive to invest in education

Education should be considered as a phenomenon with dual nature – investment and consumption. Higher wages later in life and the opportunity to work at an older age could be the return on investment in education. This affects the relative attractiveness of education compared to other investment alternatives.

In most cases, a person must earn a degree (or complete a certain stage of education) in order to get a return on investment in education. Assuming that there are no non-monetary returns to education, and that all people have the same level of innate ability, then the answer must be to choose the educational level that offers the greatest return.

Data on average monthly wages depending on the level of education, according to a sample statistical survey, show that higher professional education allows you to receive higher wages (Figure 1). At the same time, higher wages are received by workers with higher education, even if they do not belong to managers and highly qualified specialists.

The data in Figure 1 confirm the thesis that an increase in the level of education leads to an increase in income throughout

[4] Compiled according to the Federal Tax Service of Russia. Available at: https://www.nalog.gov.ru

life. But it does not allow us to judge the payback of people's investments in education, since, as already mentioned above, a significant part of the cost of education in Russia is carried by the state, not households.

4.2. Results of regression-correlation analysis

Conclusion of totals for the variable X^1 are presented in Tables 2–4.

First, we should pay attention to the R-square and coefficients.

R-square is the coefficient of determination. In our case, it is 0.092, or 9.2%. This means that the calculated parameters of the model explain the dependence between the studied parameters by 9.2%. We see that the model we have built cannot fully explain the relationship between deductions for code 320 and the number of students. This is quite logical.

The coefficient –16 741.5 shows what Y will be if all the variables in the model under consideration are equal to 0. That is, the value of the analyzed parameter is

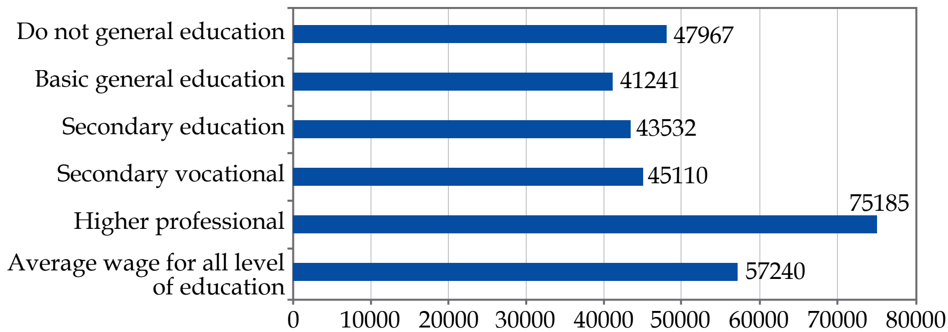

***Figure 1*. The average wages of employees in the Russian Federation per month in rubles by level of education for October 2021 according to Rosstat**

Table 2

Regression statistics for variable X^1

Multiple R	0.303
R-square	0.092
Adjusted R-squared	0.078
Standard error	74575.4
Observations (N)	68

Source: Prepared by authors.

Table 3

Analysis of variance

	Df	*SS*	*MS*	*F*	Sig.
Model	1	37143794498	37143794498	6,678749712	0,011976143
Error	66	367058288256	5561489216		
Total	**67**	**404202082754**			

Source: Prepared by authors.

Table 4

Analysis of variance (cont.)

		Error	t-stat	P-value	Lower 95%	Upper 95%
Y-intersection	–16741,5	39253,11601	–0,4265014621	0,671130414	–95112,88613	61629,86339
Variable X^1	2,84	1,099116921	2,58432771	0,011976143	0,6460205785	5,034936052

Source: Prepared by authors.

Table 5

Regression statistics for variable X^2

Multiple R	0.23
R-square	0.055
Adjusted R-squared	0.04
Standard error	76092.8
Observations (N)	68

Source: Prepared by authors.

Table 6

Analysis of variance

	Df	*SS*	*MS*	*F*	Sig.
Model	1	22054446416	22054446416	3,808981988	0,0552240377
Error	66	382147636338	5790115702		
Total	67	404202082754			

Source: Prepared by authors.

Table 7

Analysis of variance (cont.)

		Error	t-stat	P-value	Lower 95%	Upper 95%
Y-intersection	–84528,31986	85809,88248	–0,985065093	0,3281895904	–255853,278	86796,63829
Variable X^2	4,071072952	2,085952551	1,95166134	0,0552240377	–0,09366569121	8,235811596

Source: Prepared by authors.

clearly more influenced by other factors that not described in the model.

The coefficient 2.84 shows the weight of the variable X on Y. That is, the deductions have an impact on the number of students. The "+" sign indicates a positive impact: the higher quantity of students leads to the greater number of deductions. According to the correlation data in Table 4, tax deduction has a substantial positive connection with total numbers of students.

Conclusion of totals for the variable X^2 are presented in Tables 5–7.

We pay attention to the R-square and coefficients.

R-square is the coefficient of determination. In our case – 0.055, or 5.5%. This means that the calculated parameters of the models are explained by the dependence between the studied parameters by 5.5%. We see that the model we have built cannot be explained fully between "code 321" deductions and numbers of students, and that is quite expectable.

The coefficient -84 528.3 shows how Y will be if all the variables in the proposed model are equal to 0. That is, the value of the analyzed parameter reveals to a greater extent the characteristics and other factors that are not described in the models.

The coefficient 4.071072 shows the significant significance of X over Y. That is, the deductions matter for the number of students. The "+" sign is in response to a positive impact: tax deduction (code 321) has a substantial positive association with total numbers of students.

Table 8 shows the variables X^1 and X^2 are not multicollinear.

The graphical version of the presented correlation analysis is shown in Figure 2.

Table 8

The correlation matrix

	X^1	X^2	Y
X^1	1	0,085772	0,30314
X^2	0,085772	1	0,233587
Y	0,30314	0,233587	1

4.3. The tax cut and its beneficiaries

Let's consider the data on the dynamics of tax deductions provided to citizens in 2015–2021.

Figure 3 shows data on the growth (decrease) in the number of social tax deductions, deductions for the cost of educating children and deductions for spending on their own education (education of a brother/sister). Unfortunately, tax statistics do not allow for a deeper analysis of tuition deductions. It is impossible to pick out the level of education or its type from tax returns.

The data in the figure show that the total number of taxpayers receiving social tax credits and deductions for their education costs is growing at a faster rate than the number of taxpayers receiving deductions for children's education. This happens, among other things, because the amount that a taxpayer can potentially use as a tax deduction for his education (education of a brother or sister) does not increase over time but decreases.

The reason is that Article 219 of the Tax Code of the Russian Federation includes new types of taxpayer expenses which can be deducted: sports and recreation services, expenses for paying for an independent assessment of one's qualifications, expenses under a contract for non-

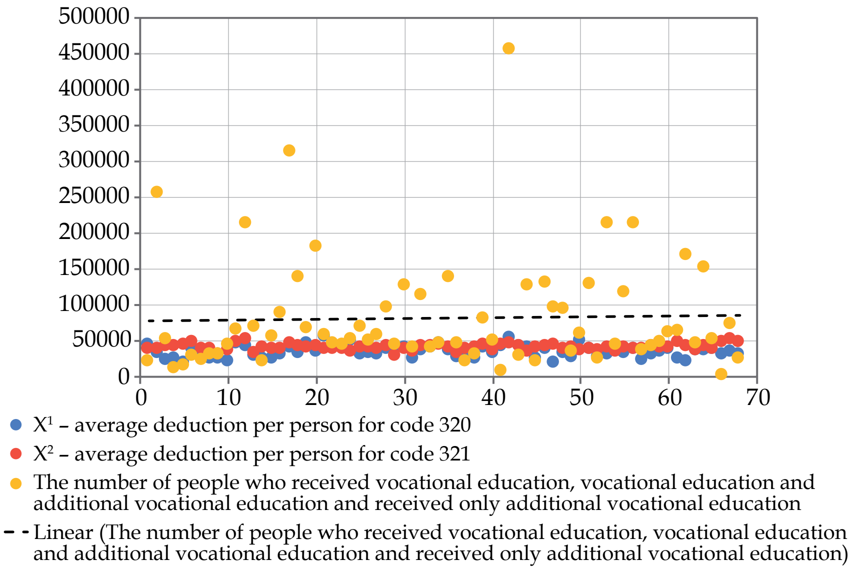

***Figure** 2.* **Correlation graph**

Source: Prepared by the authors (Excel)

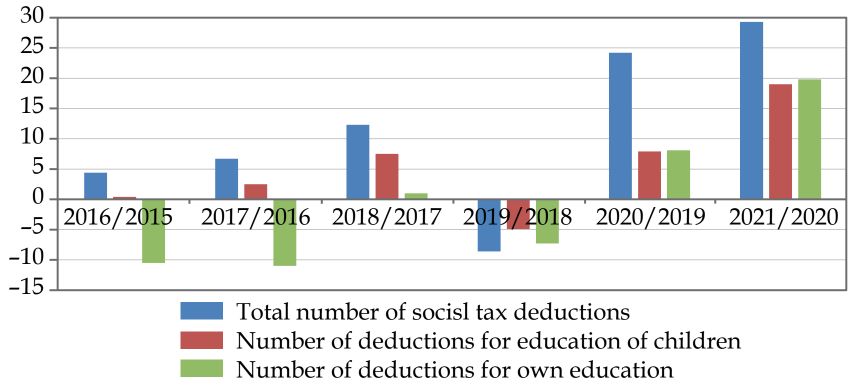

***Figure** 3.* **Dynamics of growth (decrease) in the number of recipients of various tax deductions (in % of the previous year) in the Russian Federation for 2016–2021**

state pension provision, voluntary pension insurance, voluntary insurance and for paying additional insurance premiums for a funded pension. At the same time, the maximum amount of expenses does not change and amounts in total to no more than 120,000 rubles for the tax period.

The dynamics of government tax expenditures for the social tax deductions is shown in Figure 4.

The total amount of social deductions increases, but not at the expense of deductions for education. So, the total amount of social tax deductions increased three times (from 77 to 206 billion rubles) from 2015 to 2021. At the same time, the number of deductions for children's education increased by 42% and for deductions for their own education by 33%.

On Figure 5 shows the dynamics of deductions per one submitted declaration.

The data in Figure 5 show that the average tuition deduction has increased slightly over the past seven years. This is especially true for deductions for the education of children, the amount of which is significantly lower than the cost of education.

The issue of increasing the maximum amount of the tax deduction for the costs of a child's education is currently being discussed – to double it to 110,000 rubles. The Russian government plans to increase the tax deduction for expenses for their own education, treatment, including for family members, as well as for the purchase of medicines from 120,000 to 150,000 rubles.

5. Discussion

Our research shows that the tax deductions have low impact on the decision to invest in education in Russia and other's countries demonstrate the same results.

Particular criticism has been directed toward the education tax incentives in developed countries, enacted mostly in the late 1990s, which shifted government funding for higher education from direct

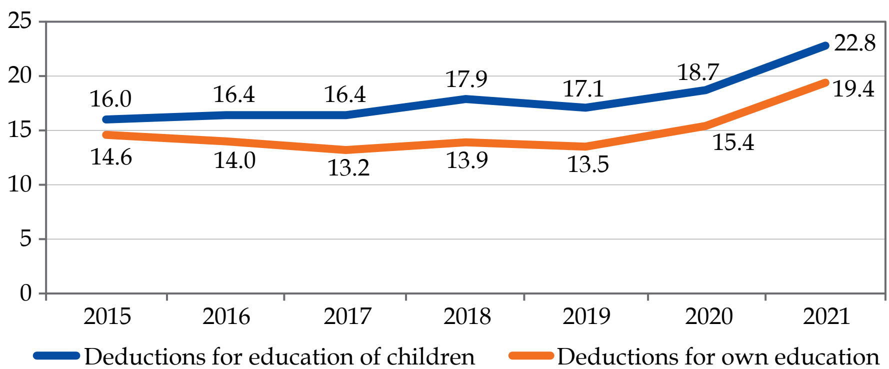

Figure 4. **Tax expenditures for the educational deductions in the Russian Federation in 2015–2021 (billion rubles)**

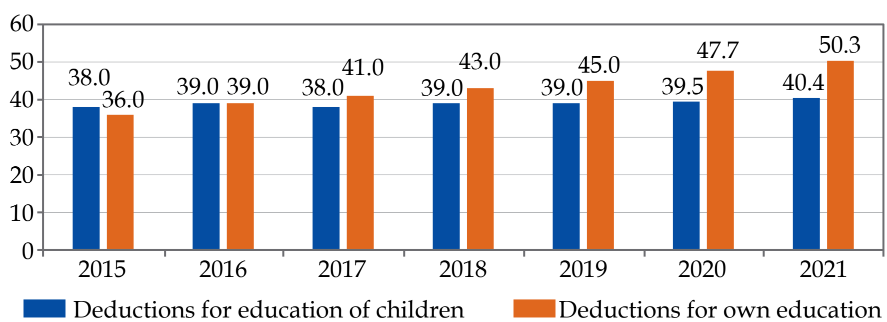

Figure 5. **Dynamics of deductions per one submitted declaration (thousand rubles)**

benefits to students in the form of grants and loans to indirect benefits through the tax system. The crux of this criticism is that the tax incentives, in addition to being costly and highly complex, have had virtually no effect on college enrollment and retention, see Bulman & Hoxby [26].

Watson [30] claims that the education tax incentives are not likely to achieve the desired result of increasing college enrollment and retention, particularly among lower-income individuals.

This general view on the education tax incentives has been summed up by Graetz [31] "The education tax incentives represent the greatest increase in federal funding for higher education… But no one can tell you what they are, how they work, or how they interact. Planning to pay for college around these tax breaks is essentially impossible for middle-income families".

To understand whether a tax deduction can affect the decision to invest in education, we can make a simple calculation of the benefit of receiving a tax deduction when paying for a child's higher education on their own compared to other types of financing for higher education.

For comparison, let's take several price and funding options for the of undergraduate education – a state-funded place and payment by "maternity capital", which amounted to 453026 rubles in 2015–2019 and the amount of tax deduction (Table 9).

It should also be noted that, unlike budget expenditures, Maternity capital and educational loans, savings from tax refunds are deferred. It means that expenses have already been incurred, which also reduces the investment value of the tax deduction.

The benefit to the household of free state-funded education stimulates the fund's flow from formal to informal sector. Parents prefer to pay tutors for training their children for Unified State Examination in hope to get state-funding place than to save money for college fee. Data of a sociological survey in which 3,000 parents of students in grades 7–11 from all districts of Russia took part demonstrate the amount of funds redistributed from the sphere of formal to non-formal education (Table 10)[5]. Parents were asked questions "Does your child have tutors?" and "How much do you spend on tutoring for your child in average per week?"

[5] https://www.superjob.ru/research/articles/112782/roditeli-uchenikov-10-i-11-klassov-tratyat-na-repetitorov-po-3500-rublej-v-nedelyu/

Table 9

Comparison of the tax deduction for the education of a child with other forms of state support for education in the Russian Federation (rubles)

Forms of financing the education of a child	Options for tuition fee per year		
	100000	150000	200000
Economic benefit for the household			
State-funding	100000	150000	200000
Maternity capital	100000	113256	113256
Tax deduction	26000	26000	26000

Table 10

Share of pupils, who have tutors and average per week tutors fee for different school grades in the Russian Federation in 2021

Characteristics	Grades		
	7–8 grades	9 grades	10–11 grades
Have a tutor	27%	34%	43%
Weekly expenses	2800 rub.	3000 rub.	3500 rub.

Also, the tax incentives can increase schooling only for those whose college attendance is sensitive to price.

Dynarski & Scott-Clayton [32] explain this situation with following example. A student admitted to Yale, whose family earns $100,000, is going to college, tax incentive or none. This student is not sensitive to price. This is not a value judgment: the family may appreciate a tax credit and make good use of it. But, for this student, the tax incentives do not open the door to college. For the tax incentives to get more people into college, they need to reach people who are sensitive to price, who would not go to college in the absence of the incentive. This is who we should keep in mind as we design tax incentives for college: a low-income person attending an inexpensive public college.

But it must be said that there are some advantages to providing federal funding through tax benefits. First, it is politically more expedient to provide funds indirectly through the tax system than to appropriate funds to students or educational institutions directly through the budget. Second, tax incentives for education promote voluntary compliance by fostering favorable taxpayer views of the tax system. If a taxpayer does not benefit directly, he or she may benefit indirectly from the positive external benefits of an educated populace, such as a stronger economy, a lower rate of crime, and even better health [33].

There are several limitations that affect assessing tax incidence.

First, any individual tax deduction may interact with other provisions in the tax code in complex ways. In Russian case, there are other social deductions (for medical expenses, sport, pension insurance). Claiming one tax deduction also may affect eligibility for claiming another.

Second, who benefits from a tax deduction depends not just on the parameters of the deduction itself, but also on marginal tax rates.

Third, take-up is never perfect: not all who qualify for a tax benefit will claim it. In some cases, the decision not to claim may be a reasoned one. In other cases, confusion and bureaucratic hurdles may serve as barriers to take-up.

For example, Bobek et al. [34] investigate how the *number* of different incentives, affects individuals' use of tax incentives. Their results do show that individuals faced with high choice complexity are more likely to make errors and less likely to choose the optimal incentive.

We absolutely agree with Dynarski & Scott-Clayton [29] that a full assessment of incidence thus requires far more than a description of eligibility criteria and benefit calculations. At a minimum it requires detailed data on actual tax records for taxpayers of varying characteristics. But unfortunately, such detailed data currently are not available in Russia.

6. Conclusion

The purpose of this paper was to investigate the impact of tax incentives on education in the Russian Federation.

We confirmed our hypothesis, that tax incentives encourage people to invest more in their own education in Russia. But we found that tax incentives for education have low impact on the of household's decisions to receive an education in the Russian Federation.

Tax deduction has a substantial positive association with total numbers of students. The calculated parameters of the model explain the dependence between the deduction for expenses for own education or full-time education of a sister (brother) under the age of 24 (code 320) and quantity of people who receive education by 9.2% and dependence between the deduction for expenses for full-time education of children (including foster or guardians) under the age of 24 studied parameters and quantity of people who receive education by 5.5%. But the model cannot fully explain the relationship between deductions and the number of students. That is, the quantity of people who receive education is clearly more influenced by other factors than tax deductions.

There is low probability that the announced rise of the limit of social deduction in 2024 will change the situation. But government should continue to provide federal funding through tax benefits to promote voluntary compliance by fostering favorable taxpayer views of the tax system.

In short, we add to the literature in a number of ways. First, we estimate the effect of tax deductions on education in Russia where previous papers have typically touched developed countries experience. Second, in addition to tax deductions, we also account for the other ways to finance the education. Our method could be useful than tax deductions will be raised and new census data will be available.

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Tax Incentive Policy and Recovery of SMEs in the post-COVID Period: The Moderating Role of Perceived Policy Effectiveness in Indonesia

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ABSTRACT

The efficacy of the lockdown measures implemented by the Indonesian government in mitigating the spread of COVID-19 has been proven, albeit at the cost of significant economic repercussions. The Indonesian government expeditiously enacted a comprehensive tax and fee reduction policy as a precautionary measure against adverse shocks. This study tries to prove (through the SME's perspective) whether the tax incentives provided by the government have a positive impact on SMEs in maintaining their sustainable financial performance that leads to the survival-recovery of SMEs. This study also tries to observe the moderating effect of the perceived effectiveness of the implementation of tax assistance to increase the positive influence of the policy. Researchers collected data through a survey by distributing questionnaires to 1026 SMEs in Cianjur, Sukabumi, Bandung, and Bogor cities and Regencies. The data were then analyzed using the PLS-SEM method with the help of SMARTPLS version 3. The results showed that tax incentives from the government for SMEs have a significant positive effect on their sustainable financial performance and survival-recovery of SMEs. Indirectly, government tax incentives positively affect SMEs' survival-recovery via the mediating role of sustainable financial performance. In addition, the perceived effectiveness of tax policy implementation positively moderates the effect of this relationship, thus increasing the impact of tax incentives on sustainable financial performance. In the end, sustainable financial performance has been proven to positively influence the survival and recovery of SMEs during a pandemic. This research closes with government policy recommendations for helping SMEs recover their performance in future crises.

KEYWORDS

tax incentives, perceived policy effectiveness, sustainable financial performance, COVID-19 pandemic, SMEs

JEL E5, G4, L26

УДК 336.228

Политика налогового стимулирования малого и среднего бизнеса в постковидный период: сдерживающая роль воспринимаемой эффективности политики в Индонезии

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АННОТАЦИЯ

Эффективность мер изоляции, введенных правительством Индонезии для смягчения распространения COVID-19, была доказана, хотя и ценой значительных экономических последствий. Индонезийское правительство оперативно приняло всеобъемлющую политику снижения налогов и сборов в качестве меры предосторожности для недопущения неблагоприятных последствий.

В исследовании предпринята попытка доказать в разрезе малого и среднего бизнеса, оказывают ли налоговые льготы, предоставляемые правительством, положительное влияние на бизнес в поддержании устойчивости их финансовых показателей, а также приводит ли эти льготы к восстановлению малого и среднего бизнеса. Также предпринята попытка исследовать смягчающий эффект воспринимаемой эффективности реализуемой налоговой политики для увеличения ее положительного влияния. Данные для исследования мы собрали в ходе опроса, распространив анкеты среди 1026 малых и средних предприятий в городах и округах Чианджур, Сукабуми, Бандунг и Богор. Затем данные были проанализированы с использованием метода PLS-SEM с помощью SMARTPLS (версия 3). Результаты показали, что налоговые льготы для малого и среднего бизнеса оказывают значительное положительное влияние на устойчивость их финансовых показателей, а также в плане восстановления этого бизнеса в постковидный период. Налоговые льготы оказывают положительное влияние на выживание и восстановление малого и среднего бизнеса именно через повышение устойчивости финансовых показателей бизнеса. Кроме того, воспринимаемая эффективность реализации налоговой политики положительно смягчает эффект этой взаимосвязи, тем самым увеличивая влияние налоговых стимулов на устойчивость финансовых показателей. В итоге было доказано, что повышение устойчивости финансовых показателей положительно влияют на выживание и восстановление малого и среднего бизнеса. Данное исследование завершается рекомендациями в отношение государственной политики, направленными на то, чтобы помочь малому и среднему бизнесу сохранить устойчивость своих финансовых показателей в возможных будущих кризисах.

КЛЮЧЕВЫЕ СЛОВА
налоговые льготы, предполагаемая эффективность политики, устойчивость финансовых показателей, пандемия COVID-19, малый и средний бизнес

1. Introduction

Measures aimed at curbing the transmission of the COVID-19 pandemic, including quarantine protocols and mobility constraints (i.e., lockdowns), have resulted in a deceleration of the global economy. The curtailment of mass production due to disturbances in worldwide supply chains and diminished overall demand persists in impeding investment and undermining the sustainability of commercial enterprises and consumers [1].

The crisis has significantly impacted the SME sector, a crucial economic component. According to a Bank Indonesia (BI) survey in March 2021, a significant proportion of SMEs, precisely 87.5%, were adversely impacted by the pandemic. Furthermore, 93.3% of business actors in this sector reported decreased sales turnover. The circumstance above has forced stakeholders within the Penta Helix corridor to pursue optimal exit strategies that facilitate sustainable performance and recovery of SMEs.

Manrejo et al. [2] and Zutshi et al. [3] have elucidated how SMEs can sustain their growth and endure during times of crisis. Their study's findings indicate that SMEs' enduring expansion and adaptability are closely linked to internal and external factors. A company's internal components that hold significant importance include the company's performance, employee performance, and the attributes and performance of managers or company owners. Regarding the external sector, the essential factors include government participation, suppliers, and consumers. The development of a sustainable SME business is facilitated by a combination of internal and external factors that work in tandem.

Several prior investigations, including those conducted by [4–6], have focused on exploring the collective impact of governmental support and the capacity of SMEs to innovate and adjust to weather the crisis. The scholarly literature posits that the ability of SMEs to adapt and innovate in their marketing and service operations exerts a substantial impact on the sustainability of their businesses.

Simultaneously, governmental aid facilitates the implementation of these innovative endeavors [7]. Some studies have observed the effect of specific policy factors on the continuity of SMEs' business. For instance, Le et al. [8] found that tax-supporting policy positively influences SMEs' survival-recovery. Kurniawan [9] also found that the banking waiver policy from the government has affected sustainable financial performance. Regrettably, based on the researcher's observations, prior studies have overlooked several aspects. Besides, research on the impact of government assistance on the sustainability of SMEs during times of crisis, particularly in emerging economies like Indonesia, remains limited. One of the specific policies that is rarely examined is the tax incentive policy.

Commencing in March 2020, the government has implemented diverse tax incentive programs for commercial entities, encompassing SMEs. SMEs are eligible for various tax incentives such as exemption from PPh 21 and 22, final PPh incentives PP 23, incentives for installments of PPh articles 25 and 29, VAT incentives, and exemption from import duties for specific categories of goods [10].

This study investigates the influence of government tax incentives policy on SMEs' sustainable financial performance amidst the ongoing pandemic crisis. Furthermore, as one of the study's novelties, the study also observes the potential moderating role of perceived effectiveness of incentives implementation in the association between the policy and the sustainable financial performance of SMEs during times of crisis.

It is crucial to monitor the perceived effectiveness of the policy. According to scholarly research conducted by [10] and [11], the perceived effectiveness of implementation by society plays a crucial role in achieving the goals of a policy. The present research builds upon the prior works of [4; 13], demonstrating that the sustainable financial performance of SMEs can be enhanced through strategic exploration and government support in fostering business networks. This study hypothesizes that providing effective government tax incentives can positively impact SMEs' sustainable financial performance. The sound financial performance of SMEs is crucial for their recovery and survival amidst the ongoing pandemic crisis. Effective policy implementation will also increase the positive effect of the policy incentives.

This study poses the inquiry as to:

1. How do SMEs' tax incentives influence the sustenance of their financial performance and enhance their likelihood of survival-recovery amidst the pandemic crisis?

2. Does the moderating effect of SMEs' perception of policy implementation effectiveness on this relationship increase the positive impact of tax incentives?

The study proposes the five hypotheses below:

H1: Tax incentives from the government directly positively affect the financial performance of MSMEs as measured by ROA, ROE, and ROS.

H2: Government tax incentives also positively influence the recovery and continuity of MSME businesses during the pandemic crisis.

H3a: Sustainable financial performance directly has a positive effect on the survival-recovery of SMEs during the pandemic crisis.

H3b: Sustainable financial performance positively mediates the relationship between tax incentive policies on the survival-recovery of SMEs.

H4: Perceived policy effectiveness positively moderates the relationship between tax incentive policies and sustainable financial performance.

The subsequent section will provide a comprehensive literature review elucidating the theoretical framework employed and the hypotheses formulated. The following section entails an exposition of the research methodology, encompassing an elucidation of the population under study, the sample selection process, the techniques employed for data collection, the variables considered, and the methods used for data analysis. The subsequent section encompasses the findings and analysis, culminating in conclusions based on the research outcomes.

2. Literature Review

2.1. Literature Discussion on How SMEs Maintain Their Financial Performance during the Pandemic Crisis and the Role of Tax Incentive Policies

The scholarly literature has identified two distinct categories of research that investigate the conduct of SMEs concerning sustaining their competitive performance and enduring periods of crisis.

The works [2] and [3] have conceptualized two distinct groups, emphasizing the importance of optimizing and integrating SMEs' external and internal factors to achieve sustainable performance. The triad of external factors comprises governmental entities, consumers, and other pertinent stakeholders. The endogenous factors encompass dimensions of organizational performance, human resources, and aspects of the entrepreneurial acumen of proprietors (Figure 1).

The first research group emphasizes the significance of SME participants' capabilities in adjusting to the alterations and disturbances due to the COVID-19 pandemic. The initial cohort deliberated on the potential of SMEs to persevere and thrive amidst a pandemic-induced crisis

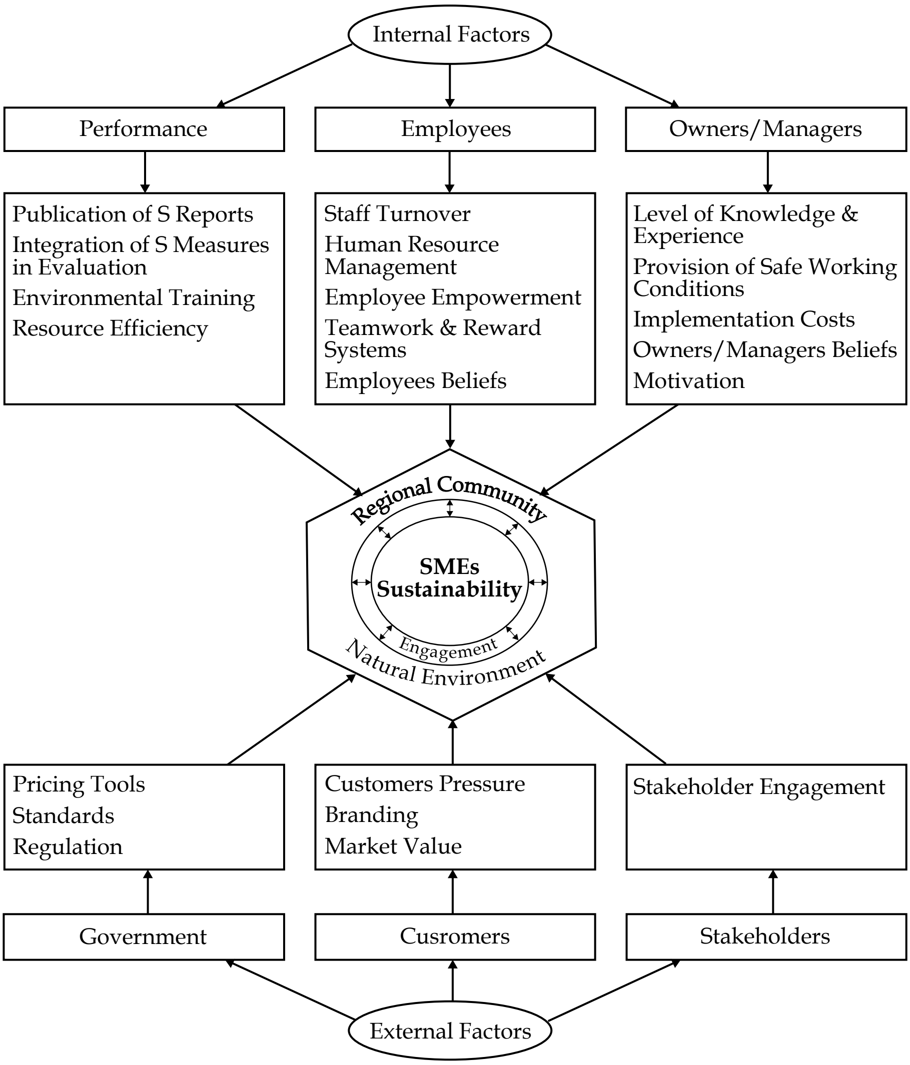

Figure 1. **SMEs' Sustainable Performance Framework [2]**

through their unwavering dedication and nimble responsiveness to changing market conditions, as evidenced by the works of [5] and [7]. According to [14], adopting technology and innovative financial practices incorporating digitalization is crucial for enhancing business sustainability during the COVID-19 pandemic. This adaptation is considered one of the most significant innovations for achieving sustainability.

Prior studies have emphasized the significance of technology adoption and open innovation in facilitating business sustainability among women-owned SMEs. According to [14], female SMEs can enhance their competitiveness and meet market demands by adopting open innovation practices in the technology sector, expanding their global network of collaborators, engaging in the purchase and sale of business licenses, updating their technological infrastructure, and forming partnerships with external entities. According to [6], utilizing online resources and expertise to innovate production, marketing, and financial aspects is a viable recovery strategy for SMEs.

The second cohort comprises scholars concentrating on external entities' function in facilitating SMEs' resilience during adversity. The group's primary focus pertains to external factors beyond SMEs' control, including government support, consumer conduct, and investor engagement. The COVID-19 pandemic is a worldwide issue that necessitates a unified approach within a nation, thereby underscoring the significance of governmental involvement in enacting regulations and formulating policies that promote the viability and recovery of SMEs.

The works [4–6] and [14] have researched the impact of government assistance on marketing and product innovation processes and its potential to expedite business recovery processes. The study conducted by Le et al. [8] examines the impact of various forms of economic aid on the resilience and recovery of SMEs in times of crisis. The study revealed that implementing capital injections, banking relief, social insurance policies, and the active involvement of professional associations had a favorable impact on the long-term viability and recovery of SMEs in Vietnam.

The Indonesian government has implemented its assistance policies through the National Economic Recovery (PEN) program, which encompasses a range of fiscal measures, including taxation, banking, social insurance, capital injection, and other forms of aid. Providing government aid is crucial in optimizing the resources at the government's disposal to sustain a country's macroeconomic state [15]. The policy above offers significant advantages to SMEs in effectively handling and preserving their existing assets, thereby enhancing their productivity during adversity. According to [8], utilizing existing resources, particularly cash flow, is crucial for improving business performance and sustaining profitability and financial well-being.

The present study builds upon prior research conducted by [14] and [16] investigating the potential impact of tax assistance policies on sustainable financial performance and recovery of SMEs during times of crisis, as perceived by MSME actors. The study conducted by [8] does not incorporate the effectiveness factor in examining the ramifications of government assistance policies. The work [16] employed an econometric analysis utilizing cognitive modeling to evaluate effectiveness rather than relying on perceived effectiveness from the perspective of SMEs. This study addresses two areas of research that have not yet been explored, thus filling essential gaps in the existing literature.

The primary hypothesis of this study posits that government policies aimed at providing tax assistance will positively impact sustainable financial performance directly, thereby ultimately influencing business continuity and the recovery of SMEs amidst the ongoing pandemic crisis. As per the works of [4] and [12], sustainable financial performance can be characterized as the capacity of an enterprise to uphold its financial status quo, thereby ensuring profitability and averting financial adversities. The variable in question is evaluated through a subjective appraisal conducted by MSME stakeholders regarding their business's Return on Assets, Equity, and Sales (ROA, ROE, and ROS).

The works [4] and [12] have elucidated that a subjective evaluation of financial performance was employed due to the challenges associated with obtaining factual information on the return on assets (ROA), return on equity (ROE), and return on sales (ROS) of respondents. It is primarily due to the confidential nature of this data for SMEs, and not all SMEs can compute these ratios consistently. Furthermore, subjective evaluations may enhance the respondents' ease and assurance in articulating their financial performance. Thus, the present research puts forth the subsequent hypothesis.

H1: Tax incentives from the government directly positively affect the financial performance of MSMEs as measured by ROA, ROE, and ROS.

H2: Government tax incentives also positively influence the recovery and continuity of MSME businesses during the pandemic crisis.

The ratios of ROA, ROE, and ROS are indicative of a business's productivity and profitability. The efficacy of tax incentives for SME actors positively impacts their financial performance. Sustainable financial performance enhances the likelihood of SMEs' survival and recovery during the pandemic crisis. The work [8] characterize the survival and recovery of SMEs as a subjective evaluation of their success in gradually recuperating from the adverse effects of the COVID-19 pandemic by considering their profitability and financial performance. Consequently, this study proposes the following hypothesis.

H3a: Sustainable financial performance directly has a positive effect on the survival-recovery of SMEs during the pandemic crisis.

H3b: Sustainable financial performance positively mediates the relationship between tax incentive policies on the survival-recovery of SMEs.

2.2. Research Gap: Examining the Moderating Role of Perceived Policy Effectiveness of Tax Incentives

The effectiveness assessment holds significant importance in determining the degree to which the execution of governmental policies has been successful. Prior research has examined the impact of policy efficacy on the attitudes and level of public attention toward issues that are the focal point of policy formulation. Previous research has identified perceived policy effectiveness as a variable that mediates and moderates the impact of policies or phenomena, as evidenced by studies conducted by [10; 11] and [17].

The works [10] and [11] researched the impact of policy effects on individuals' attitudes and behaviors toward healthy living and recycling practices. The study revealed that the perceived effectiveness of government policies aimed at environmental control facilitated the implementation of environmental regulations. It was attributed to the policies' clarity, precision, and expediency.

The present research posits the perceived efficacy of policies among SME participants could moderate the influence of tax incentive policy factors on sustainable financial performance, as indicated by the results above. The evaluation of the construct under consideration involves the assessment of the tax assistance provided to SME stakeholders in terms of its practicality, efficacy, and precision. This assessment has been documented by [10] and [11]and drawn policy implications from them. Nevertheless, little research has been conducted to investigate the role of perceived effectiveness of policy measures in predicting recycling behaviour. To address this, a model that integrates the TPB and NAM was proposed in this study, and a street survey was conducted to investigate the case. The results illustrate that recycling intention is influenced by subjective norms, perceived behavioural control, moral norms, and awareness of consequences, as well as a newly proposed construct, namely perceived policy effectiveness. The study proved self-reported recycling behaviour (direct behaviour. Implementing favorable tax incentives can positively impact the effectiveness of aid received by SMEs. This measure is expected to sustain SMEs' financial performance and profitability. The achievement of positive financial outcomes will ultimately enhance the organization's capacity to withstand and recover from the crisis. As a result, this study proposes additional hypotheses subsequently.

H4: Perceived policy effectiveness positively moderates the relationship between tax incentive policies and sustainable financial performance.

This research model can be visualized in Figure 2.

3. Method

3.1. Data Collection and Sample

The present investigation employs primary data from self-reported surveys conducted online and offline. Digital forms provided by Google are utilized to streamline the online survey process. Enumerators, comprising students and volunteers, are deployed to perform an offline survey by distributing questionnaires directly to potential respondents. Over four weeks, specifically from June 5 to June 26, 2022, a questionnaire was disseminated in Indonesian, acquiring data from 1026 SME participants.

Most participants in the offline survey were derived from West Java province, focusing on the City and District of Sukabumi, the City of Cianjur, the City and District of Bogor, and the City and District of Bandung. Regarding the online survey, the questionnaires were disseminated non-discriminately through various social media platforms, such as WhatsApp, Facebook, LinkedIn, and Line, without geographical limitations.

Enumerators were trained to comprehend the questionnaire's purpose. They accompanied respondents during the completion process to mitigate the potential for self-report bias from respondents' confusion while completing the questionnaire. The authors of the online survey furnish a brief depiction of the operational definition of each cluster of questionnaire indicator items that embody variables and systematize inquiries in a concise, unambiguous fashion. The authors advise the participants to use initials instead of their full names while responding to the questionnaire. This measure is intended to ensure confidentiality and promote accurate survey completion.

The research employed a purposive sampling technique that involves selecting participants based on predetermined criteria that align with the research objectives. The samples chosen from SME respondents are based on the specific criteria below:

1. The respondent is the official owner or general manager who the owner trusts.

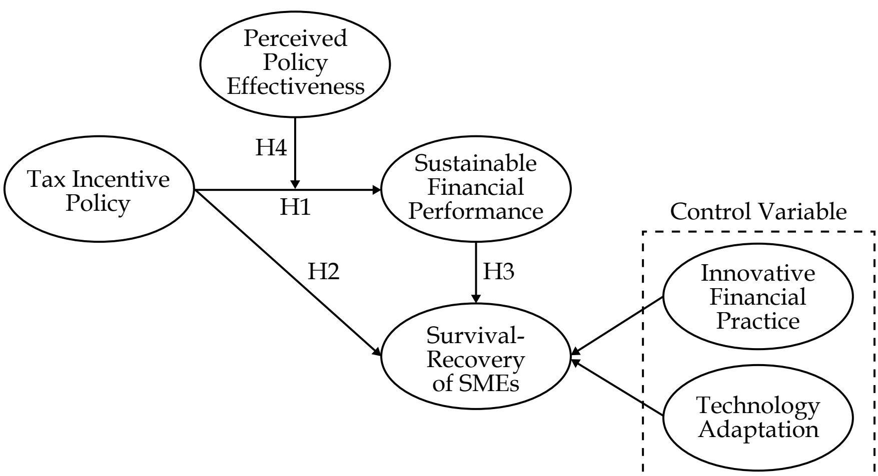

Figure 2. **Research Model**

2. Following Law Number 20 of 2008 concerning MSME Criteria, the respondent's business must have a minimum annual sale of 60 to 300 million rupiah (taxable income limit).

3. Having a Taxpayer Identification Number (NPWP).

4. Have a minimum of 1 to 5 employees (Law No. 20 of 2008).

5. The business run by the respondent must continue to run during the COVID-19 pandemic starting from March 1, 2020, until the sampling period is carried out.

6. Ever/frequently received tax/duty payment relief from the Directorate General of Taxes and Customs and Excise, namely: exemption from PPh 21 and 22, final PPh incentives PP 23, incentives for installments of PPh articles 25 and 29, VAT incentives, and exemption from import duties.

7. Researchers avoid choosing ultra-micro businesses such as street vendors with carts or small tents because they are most likely unbackable and do not pay taxes.

3.2. Measurement and Variable Definition

The research model's construct indicators were evaluated through a structured questionnaire, which aimed to gauge the perceptions and opinions of the respondents. The variables mentioned in the text are assessed through a Likert scale ranging from 1 to 5, where 1 represents strong disagreement, and 5 represents strong agreement.

Before administering the official questionnaire, a pilot study was conducted wherein questionnaires were sent to researchers with doctoral degrees in management and behavioral economics and significant research experience. The purpose of this pilot study was to conduct a peer review of each indicator item. The outcomes that have undergone peer review are subsequently employed as source material for revising each indicator's editorial quality. After that, a group of 30 participants was chosen to complete a preliminary survey to assess the dependability and accuracy of the structured questionnaire. The final data set of the study did not incorporate these thirty participants.

The research model construct comprises four latent variables, two designated as control variables. The study examines the relationship between tax incentives policy (TIP) as an independent variable, perceived policy effectiveness (PPE) as a moderating variable, sustainable financial performance (SFP) as a mediating variable, and the survivalrecovery of SMEs (SRS). According to Kurniawan et al. [7], innovative financial practices (IFP) and technological adaptation capabilities (TA) are recognized as significant control variables that exert an impact on the dependent variable, as evidenced by previous studies.

Table 1 delineates the number of indicators and references employed in constructing the questionnaire apparatus.

3.3. Data Analysis

The research data were analyzed using a combination of Partial Least Square and Structural Equation Modeling (PLS-SEM). The PLS-SEM analysis process is executed through the utilization of SMARTPLS version 3.

The present study employs the Confirmatory Composite Analysis (CCA) methodology. It relies on a robust theoretical foundation established in prior research, whereby the model construction and latent variable indicators are firmly grounded. The PLS-SEM methodology entails a two-stage analysis process, which involves the examination of both the outer and inner models. The external model comprises a set of statistical analyses conducted to assess the soundness and consistency of constructs composed of a range of indicators within the survey tool.

The instrument's validity was assessed through two different measures, specifically convergent and discriminant validity. The assessment of instrument reliability was conducted through the utilization of Composite Reliability (CR) and Cronbach's alpha (CA) metrics. In the CCA approach, any latent variable that exhibits CR and CA values exceeding 0.70 is deemed reliable. The assessment of convergence validity in the CCA method involves utilizing the Average Variance Extracted (AVE) metric, which should exceed 0.50, as stipulated by [20].

Table 1

Measurements and Questionnaire Items

Variable	Code	Items	Reference
Technology Adaptation (TA)		*Definition:* SME ability to adopt information technology for marketing, reducing operating costs, improving consumer services, increasing reaction time between producers and customers, producers, and input suppliers, and strengthening trade relations.	[5; 18]
	TA1	I sell and offer products/services online more often through social media during the COVID-19 pandemic.	
	TA2	I joined many online groups/communities on social media to get new consumers during the COVID-19 pandemic.	
	TA3	I primarily sell using e-commerce applications (Shopee, TokoPedia, BukaLapak, and others) or Super-App (Gojek, Grab, Maxim, and others) during the COVID-19 pandemic.	
	TA4	I often use online advertising services to market my business products/services, such as Facebook Ads, Instagram Ads, and Google Ads during the COVID-19 pandemic.	
	TA5	I often coordinate and communicate with suppliers, sales agents, and consumers online via Zoom Meetings or Video Calls on social media during the COVID-19 pandemic.	
Tax Incentive Policy (TIP)		*Definition:* Various kinds of tax incentive schemes from the government for business actors, including SMEs, including exemption of PPh 21 and 22, final PPh incentives for PP 23 installment, incentives for PPh articles 25 and 29, VAT incentives, and exemption from import duties for several categories of goods.	[4; 6; 8; 19]
	TIP1	I got a tax reduction/exemption from the government (income tax, VAT levy, or import and export duties) during the COVID-19 pandemic.	
	TIP2	I got an extension to pay my outstanding taxes, installments, or arrears during the COVID-19 pandemic.	
	TIP3	The government has provided an exemption/reduction of late tax payment fines during the COVID-19 pandemic.	
	TIP4	The government has suspended my inspection as a taxpayer during the COVID-19 pandemic.	
	TIP5	In general, I feel very helped by the existence of tax incentives from the government.	
Innovative Financial Practice (IFP)		*Definition:* Perceptions and objective opinions of MSMEs regarding their ability to use innovative digital financial products/services so that business operations and investments are more effective and efficient.	[5; 7]
	IFP1	I use mobile banking/internet banking more frequently during the pandemic for buying and selling transactions.	
	IFP2	I often use digital wallets such as DANA, OVO, and Gopay/ShopeePay to make it easier for me to transact with sellers and buyers during the COVID-19 pandemic.	
	IFP3	I use legal and safe online loan/credit applications to meet my business capital needs during the COVID-19 pandemic.	
	IFP4	Using digital financial facilities, in general, makes it easier for my business operations during the COVID-19 pandemic.	

End of Table 1

Variable	Code	Items	Reference
		Definition: Perceptions and objective opinions regarding the effectiveness of implementing government assistance policies are felt by MSME actors as measured by their subjective assessment.	
Perceived Policy Effectiveness (PPE)	PPE1	The tax incentives provided by the government can be relied upon to help my business survive and recover from the impact of the COVID-19 pandemic.	[11; 17]
	PPE2	Government assistance in the form of tax incentives is sufficient to help my business survive and recover from the impact of the COVID-19 pandemic.	
	PPE3	In my opinion, government assistance in the form of tax incentives has been appropriately targeted to those in need.	
	PPE4	In general, government assistance in the form of tax incentives is effective in helping my business survive and recover from the impact of the COVID-19 pandemic.	
		Definition: The ability of a business to maintain financial conditions to remain profitable and avoid financial difficulties as measured by subjective assessments of positive Return on Assets, Equity, and Sales (ROA, ROE, and ROS) during the COVID-19 pandemic.	
Sustainable Financial Performance (SFP)	SFP1	What is the current condition of your business's net profit (after tax payment compared to total assets (ROA)) compared to the early period of the COVID-19 pandemic?	[4; 13]
	SFP2	What is the current condition of your business's net profit (after tax payment compared to total Equity (ROE)) compared to the early period of the COVID-19 pandemic?	
	SFP3	What is the current condition of your business's net profit (per total sales (ROS)) compared to the early period of the COVID-19 pandemic?	
		Definition: Subjective assessment regarding business continuity and recovery of MSME businesses from the actors' perspective during the COVID-19 pandemic crisis.	
Survival-Recovery of SMEs (SRS)	SRS1	I was able to sustain my business during the COVID-19 pandemic crisis.	[8]
	SRS2	I can recover my business after being affected (directly and indirectly) by the COVID-19 pandemic.	
	SRS3	My business has developed gradually after being affected (directly and indirectly) by the COVID-19 pandemic.	

Table 2 demonstrates that each indicator item analyzed in this study exhibits a loading factor value exceeding 0.70, signifying that all indicators accurately reflect the construct.

Table 2 illustrates that the comprehensive reliability (CR) and composite reliability (CA) values for every latent variable examined in this investigation exceeded 0.70. Each latent variable in this study exhibited an AVE value greater than 0.50. The ratio above values suggests that the instrument constructed from this study's latent variables and indicators demonstrates reliability and validity.

The Heterotrait-Monotrait (HTMT) coefficient is a statistical measure utilized to assess the discriminant validity of a given research instrument. The work [21] have posited that using the HTMT ratio is a more precise approach to evaluate discriminant validity in PLS-SEM analysis. The HTMT ratio mustn't exceed 0.90 to establish the instrument's validity.

Table 3 illustrates that the HTMT ratio values for each latent variable are less than 0.90, indicating that the research instrument is valid for assessing the constructed model.

The purpose of assessing the inner or structural model is to evaluate the conceptual model's predictive capacity concerning the independent variable's variance. Thus, four measurement analyses were conducted. The R-square (R^2) value determines the coefficient of determination.

The objective is to ascertain the significance level of the collective impact of

Table 2

Convergent Validity and Reliability Test Result

Variable	Item	Factor Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Tax Incentive Policy (TIP)	TIP1	0.826	0.899	0.925	0.713
	TIP2	0.899			
	TIP3	0.861			
	TIP4	0.833			
	TIP5	0.800			
Perceived Policy Effectiveness (PPE)	PPE1	0.766	0.852	0.899	0.692
	PPE2	0.881			
	PPE3	0.820			
	PPE4	0.855			
Sustainable Financial Performance (SFP)	SFP1	0.899	0.873	0.922	0.797
	SFP2	0.906			
	SFP3	0.873			
Survival-Recovery of SMEs (SRS)	SRS1	0.770	0.809	0.883	0.717
	SRS2	0.884			
	SRS3	0.881			
Technology Adaptation (TA)	TA1	0.888	0.897	0.923	0.706
	TA2	0.878			
	TA3	0.879			
	TA4	0.841			
	TA5	0.699			
Innovative Financial Practice (IFP)	IFP1	0.846	0.780	0.858	0.610
	IFP2	0.828			
	IFP3	0.724			
	IFP4	0.873			

Table 3

Discriminant Validity (HTMT Ratio)

	IFP	PPE	PPE*TIP	SFP	SRS	TA
Innovative Financial Practice (IFP)						
Perceived Policy Effectiveness (PPE)	0.208					
Moderating Variable (PPE*TIP)	0.066	0.035				
Sustainable Financial Performance (SFP)	0.294	0.297	0.022			
Survival-Recovery of SMEs (SRS)	0.265	0.160	0.123	0.359		
Technology Adaptation (TA)	0.862	0.282	0.021	0.226	0.128	
Tax Incentive Policy (TIP)	0.162	0.348	0.189	0.140	0.125	0.216

exogenous factors on endogenous factors. Subsequently, the statistical significance of the direct and indirect path coefficients was evaluated by applying the bootstrap technique utilizing a subsample of 5000. The examination assesses the t-statistical value or p-value, requiring a value less than 0.1 to establish a statistically significant relationship between the latent variables. During this phase, the hypotheses in the study are tested per the research methodology outlined by [22].

Subsequently, a Goodness of Fit analysis is conducted to verify the soundness of the overarching structural model and assess the collective efficacy of both the measurement and structural models. The present study analyzed the SRMR, NFI, and Chi-Square ratios to determine their respective values. The study conducted a predictive analysis of relevance using the blindfolding method, which was based on cross-validated redundancy as outlined by [22]. Sarstedt, and Straub in 2012, the purpose of this paper is to review and analyze the use of partial least squares structural equation modeling (PLS-SEM.

4. Results

Table 4 contains comprehensive profiles of the companies of the participants. Most of the SMEs that participated in the study were classified as micro-enterprises. According to the Law on SMEs in Indonesia, micro-enterprises are characterized by having a workforce of one to five employees, a maximum yearly income of US$19,200, and a business asset value not exceeding US$3,200. The data analysis indicates that most participants, precisely 71.05%, reported having a workforce size ranging from 1 to 5 employees. Additionally, 52.53% of the respondents reported possessing company assets of less than US$3,200, while 70.9% reported annual revenue of no more than US$19,200. The statement accurately reflects the prevailing reality in Indonesia, wherein a significant proportion of businesses (98.70%) are comprised of micro-enterprises, amounting to over 62 million.

Most enterprises, precisely 90.06%, are held by individuals and families. Corporations (CV) and limited liability companies (PT/Ltd) are subsequent entities. Regarding the duration of operation,

Table 4

Business Profile of Respondents

Business Profile	Frequency	Percentage (%)	Business Profile	Frequency	Percentage (%)
Education			*Number of Employees*		
Elementary School	97	9.45%	1–5	729	71.05%
Junior High School	127	12.38%	5–19	236	23.00%
Senior High School	576	56.14%	20–99	51	4.97%
Bachelor	206	20.08%	>99	10	0.97%
Master/Ph.D.	20	1.95%	*Ownership*		
Annual Revenue (USD)			Individual/family	924	90.06%
3,900–19,200	789	76.90%	CV	64	6.24%
19,200–160,000	195	19.01%			
160,000–3,200,000	42	4.09%	PT/Corporate	38	3.70%
Total Asset (USD)			*Age of Business*		
3,200 maximums	539	52.53%	<10 years	589	57.41%
3,200–32,000	392	38.21%	10–15 years	249	24.27%
32,000–640,000	95	9.26%	15–20 years	92	8.97%
			>20 years	96	9.36%

most participants (57.41%) have been in business for a maximum of ten years. Approximately 24.27% of the entities under consideration have been in operation for a duration spanning between 10 to 15 years. The survey results indicate that 8.97% and 9.36% of the participants have reported engaging in business activities for 20 years or more. The data suggests that many business proprietors possess a bachelor's degree or higher (20.08%). It is trailed by those who hold an associate's degree (12.38%), followed by individuals with a high school diploma (9.45%), and lastly, those who have attained a master's degree or beyond (1.95%).

4.1. PLS-SEM Prerequisites

At a minimum, two conditions must be satisfied as prerequisites for conducting a PLS-SEM analysis. [20] stated that missing values and outlier data must be ensured to perform the PLS-SEM test. The study yielded a total of 1558 completed questionnaires, out of which 532 responses were found to have missing answers. Upon completing the screening process, this study's ultimate sample size amounted to 1026 participants. This study employed a sample size of 1026, following the recommendation of [23], which stipulates that the number of samples suitable for data analysis using the SEM-PLS approach should be 5–10 times greater than the number of indicators. This study comprises 24 indicators, necessitating a minimum sample size of 240. Thus, the study's sample size satisfies the requirements.

The PLS-SEM approach necessitates the assumption of free multicollinearity among the variables construct. The fulfillment of this criterion may be achieved by evaluating the internal VIF value via the employment of the PLS technique. According to [23], multicollinearity among indicators can be inferred if the Variance Inflation Factor (VIF) value exceeds 3.

Table 5 demonstrates that the inner VIF value among variables and indicators is below 3. Thus, the present research deduces that there exists no assumption of multicollinearity.

Table 5

Inner VIF Results (Common Method Bias Test)

	Sustainable Financial Performance	Survival-Recovery of SMEs
Innovative Financial Practice		2.089
Perceived Policy Effectiveness	1.097	
Moderating Variable (PPE*SFP)	1.037	
Sustainable Financial Performance		1.074
Technology Adaptation		2.089
Tax Incentive Policy	1.135	1.047

According to [23], conducting a model fit assessment is imperative to evaluate the collective efficacy of both the outer and structural model/inner model. According to [24], the SMARTPLS website specifies specific criteria for determining the suitability of a model. Specifically, a model can be considered appropriate if it satisfies the condition that the Theta RMS (Root Mean Square) value is less than 0.102, the SRMR (Standardized Root Mean Square) value is less than 0.10 or 0.08, or the NFI value is more significant than 0.9 or close to 1.

Table 6 displays that the NFI value of the estimated model is 0.860, indicating a high level of goodness of fit, and the SRMR value is 0.061, below the recommended threshold of 0.10. The study's findings suggest that the model created in the research satisfied the Goodness of Fit (GoF) assumption.

Table 6

The Goodness of Fit Test Result

	Saturated Model	Estimated Model
SRMR	0.051	0.061
d_ULS	0.765	1.111
d_G	0.305	0.308
Chi-Square	1923.802	1919.576
NFI	0.860	0.860

4.2. Structural (Inner) Model

The initial step in the structural model analysis involves the computation of the coefficient of determination. The R-square (R^2) value acquired from the PLS algorithm steps determines this test. According to [23], the R^2 ratio level can be categorized into three distinct levels, which are strong (0.75), moderate (0.50), and weak (0.25).

According to Table 7, the R^2 value for the survival-recovery of SMEs is 0.134. Meanwhile, sustainable financial performance has a value of 0.070.

Table 7

Determination Coefficient Test Results

	R Square	R Square Adjusted
Sustainable Financial Performance	0.072	0.070
Survival-Recovery of SMEs	0.137	0.134

The tax incentive policy exhibits a limited explanatory power of up to 14% towards the three endogenous variables (SRS), with the remaining proportion being accounted for by exogenous variables not included in the model. It's caused the research to be limited in scope as it solely concentrates on examining a single government policy variable. This variable is a crucial determinant in the sustainability and recovery of SMEs, thereby enhancing the quality of academic discourse.

The subsequent phase of the inner model assessment involves the evaluation of the outcomes obtained from the blindfolding ratio. The Blindfolding test is utilized to assess the Q^2 value, indicating a construct model's predictive validity [23]. If the value of Q^2 exceeds 0.05, it can be inferred that the model developed in this investigation is suitable for elucidating the phenomenon.

According to Table 8, the Q^2 values of the two endogenous variables (SFP and SRS) in this investigation exceeded 0.05 (0.055 and 0.089). The appropriateness of the exogenous variables employed for predicting the endogenous variables in this study can be inferred.

4.3. Hypothesis Testing Result

The inner model analysis procedure's final stage involves verifying hypotheses via the bootstrapping technique. To evaluate the degree of relevance of the structural model, scholars employed 5,000 sub-samples to ascertain the level of data stability, as [23] reported. The present investigation uses a significance level ranging from 5% to 10%. It denotes the commonly acknowledged threshold of significance in economics and management studies.

Table 9 displays the results indicating a positive correlation among latent variables. The findings from the bootstrapping analysis indicate that tax incentive policies have a statistically significant and positive impact on sustainable financial performance. Tax incentive policies directly and significantly impact the survival-recovery of SMEs. Furthermore, tax incentive policies have a direct and significant positive impact on sustainable financial performance.

Table 8

Blindfolding Test Result

	SSO	SSE	Q^2 (= 1 – SSE / SSO)
Innovative Financial Practice	4104	4104	
Perceived Policy Effectiveness	4104	4104	
Moderating Variable (PPE*SFP)	1026	1026	
Sustainable Financial Performance	3078	2909.699	**0.055**
Survival-Recovery SMEs	3078	2805.408	**0.089**
Technology Adaptation	5130	5130	
Tax Incentive Policy	5130	5130	

Table 9 illustrates that the perceived policy effectiveness plays a constructive and statistically significant role in moderating the correlation between tax incentive policies and the sustainable financial performance of SMEs. The present study's results indicate the manifestation of "Quasi Moderation" as the type of moderating effect. The reason for this is that the perceived policy effectiveness has a direct and substantial impact on sustainable financial performance, and it exhibits a strong correlation with tax incentive policies (PPE*TIP), which also significantly influence the survival-recovery of SMEs. As per [25]'s assertion, the above state is commonly denoted as quasi-moderation.

The graphical representation depicted in Figure 3 illustrates the interplay between the moderating factor of perceived policy effectiveness, marked as PPE*TIP. The present simple slope analysis indicates that SMEs who perceive the effectiveness of implementing tax incentive policies as excellent are more likely to sustain financial performance during the pandemic. Meanwhile, SMEs that perceive neutral or less efficacy of tax incentives are less likely to sustain their financial performance amidst the pandemic.

The figure shows that the level of effectiveness of the green line moderating effect (evident from the degree of slope) is considerably higher than that of the red

Table 9

Direct Effect Test Result

Hypothesis	Path	Coefficient	Standard Deviation	T Statistic	P-Value	Decision
H1	TIP → SFP	0.059	0.036	1.655	0.098	Supported*
H2	TIP → SRS	0.063	0.036	1.733	0.083	Supported*
H3a	SFP→ SRS	0.275	0.033	8.433	0.000	Supported**
H4	**Moderating Effect** (PPE*TIP → SFP)	0.060	0.036	1.665	0.094	Supported*
	PPE → SFP	0.245	0.034	7.180	0.000	
	TA → SRS	0.122	0.044	2.751	0.006	
	IFP → SRS	0.248	0.045	5.542	0.000	

Note: ** Significant in 5% error *Significant in 10% error

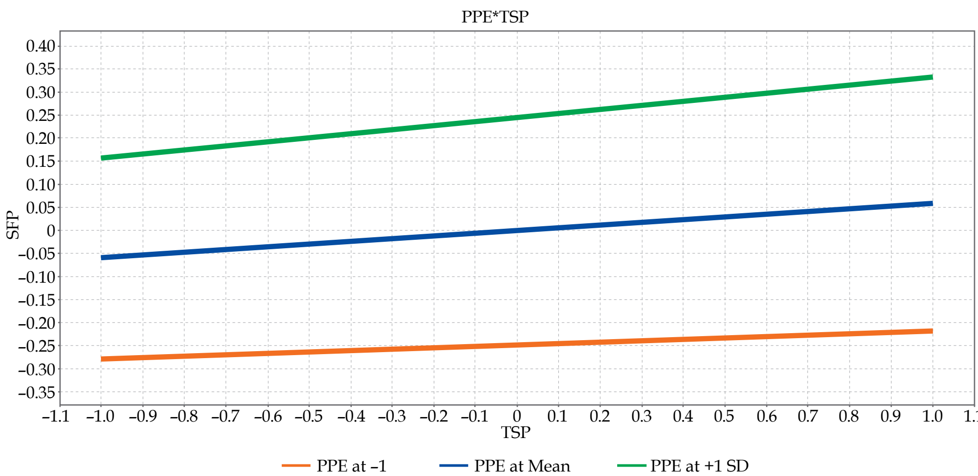

***Figure 3*. Results of Simple Slope Analysis for Moderating Variables**

Note: PPE = Perceived Policy Effectiveness, TSP = Tax Incentive Policy, SFP = Sustainable Financial Performance or blue line moderation effect. However, overall, the impact of tax incentive policies on the sustainable financial performance of SMEs is always positively and significantly moderated, regardless of whether the policies are highly effective, neutral, or less effective. Thus, it can be inferred that hypothesis H4 is supported.

Table 9 demonstrates that the prerequisites for the mediation association in this framework have been met. According to [25], for a mediator (intervening) variable to effectively mediate an effect, the independent variable must impact the mediator variable, and the mediator variable must simultaneously affect the dependent variable. The findings above indicate a statistically significant association between all latent variables in a direct manner, specifically from TIP to SFP to SRS.

Thus, there is a high likelihood that the SFP variable serves as a mediator for the TIP variable with the SRS. Examining the outcomes of indirect influences is necessary to demonstrate this assertion. The findings conclude that hypotheses H1, H2, H3a, and H4 have been supported, while H0 has been refuted.

Table 10 displays the correlation between latent variables in an indirect manner.

Table 10 demonstrates that sustainable financial performance is the mediating factor between tax incentive policies and the continuity and recovery of SMEs. The acceptance of H3b and the rejection of H0 can be inferred.

5. Discussion

The present study provides theoretical support for prior research conducted by [8; 19; 26]. These studies have demonstrated that tax policy has emerged as a crucial exit strategy for governments in the ASEAN region to safeguard business actors during the COVID-19 pandemic crisis. The policy above offers significant advantages to SMEs in effectively overseeing and preserving their existing assets, thereby enhancing productivity during adversity.

Utilizing existing resources, particularly cash flow, is crucial in improving business performance and sustaining profitability and financial well-being, as [27] and [28] noted.

Conversely, the present study refutes the conclusions drawn by [29] based on their qualitative research, suggesting that the employment of tax incentives by MSMEs in Indonesia is feeble due to inadequate implementation.

The present discovery possesses enhanced validation as it employs a survey research method based on quantitative analysis. The present study aligns with the research conducted by [28], which demonstrated that implementing tax incentives can lead to a growth of 2.38% in China's economy.

Furthermore, the study has also revealed that the secondary and tertiary industries witness more significant growth in export and import activities when tax incentives are provided compared to the scenario where no such incentives are given. Based on the findings of [28]'s study, it can be inferred that the favorable economic expansion can be attributed, at least in part, to the actions of SMEs that capitalize on tax incentives to sustain their financial stability amidst a pandemic.

Reducing tax collection or other associated costs can lead to a decrease in overall business expenditures. The pandemic has highlighted the collaborative efforts between the state, consumers, and business people by implementing bill exemptions, fine reductions, and tax installment adjustments. Implementing this policy may result in a short-term decrease

Table10

Indirect Relationship Test Results

Hypothesis	Path	Coefficient	Standard Deviation	T Statistic	P-Value	Decision
H3b	TIP → SFP → SRS	0.064	0.01	1.731	0.083	Supported*

Note: ** Significant in 5% error *Significant in 10% error.

in State revenue through taxation. However, over the long term, it may lead to an increase in tax collection and the creation of employment opportunities as companies undergo rehabilitation during the crisis period. This assertion is supported by the findings of [8; 19; 26].

The study demonstrates that policy effectiveness plays a significant role in achieving policy objectives. Implementing efficacious incentives facilitates the accessibility of tax assistance for SME stakeholders, thereby culminating in achieving sustainable financial performance for SMEs.

The research findings are a practical impetus for the government, particularly the Directorate General of Taxes and Customs and Excise, to continue educating SME taxpayers. It will enable them to leverage tax incentives during periods of crisis effectively.

According to [30; 31], the Indonesian Ministry of Finance data indicates that a mere 3.4% or 200 thousand SME taxpayers avail themselves of tax incentives out of 2.3 million. The greater the number of SMEs that help themselves with tax incentives, the higher the likelihood of survival amidst a pandemic crisis. The government should enhance the efficacy of tax incentive provision implementation as it significantly impacts the approach and triumph of SMEs in availing themselves of this support.

6. Conclusion

Tax incentives represent an essential fiscal tool that plays a crucial role in supporting the survival of SMEs in Indonesia amidst the financial crisis triggered by the COVID-19 pandemic.

The present study has effectively addressed the inquiry regarding the integrity of the proposition that the government's implementation of a proficient tax incentive policy facilitates the sustenance of the financial performance of SMEs, thereby ensuring their viability and profitability and enabling them to recuperate and uphold their business continuity in the face of the pandemic crisis.

The investigation results indicate that tax incentive measures directly and favorably impact the sustainable financial performance of SMEs. It is evidenced by the positive return on assets (ROA), return on equity (ROE), and return on sales (ROS) observed during the pandemic. Tax incentives positively impact business continuity and recovery, directly and indirectly, by facilitating sustainable financial performance. The financial performance of SMEs is positively affected by tax incentives, particularly when SMEs' perceived effectiveness of policies moderates such incentives.

The optimal execution of tax incentive measures yields significant advantages in supporting the financial stability of SMEs amidst the COVID-19 crisis. Based on the findings and conclusions above and the findings from previous research, the authors summarize several policy recommendations for the government, including:

1. Expanding the methods and scale of outreach and education of tax incentive programs for SMEs, facilitating SME tax payments, and exempting tax payments during a pandemic.

2. Increasing the effectiveness of distributing incentives for SMEs. It has been proven to increase the chances for SMEs to receive tax incentives from the government.

3. Maintaining the SME incentive program in times of future crises. It is proven to help SMEs maintain financial performance and recover gradually from the crisis because they can manage cash flow or current assets.

Despite achieving the research objectives and goals, further efforts are required to address certain study limitations. Initially, it should be noted that the analysis solely focused on a singular type of government financial policy, namely the preferential policies implemented by the bank. Subsequent research endeavors may explore further prospects for deliberations on future studies, encompassing diverse financial matters such as tax exemption, social insurance policies, and the involvement of small and medium-sized enterprise professional associations.

Moreover, many extrinsic factors, such as the impact of external stakeholders, encompassing clientele, vendors, stockholders, and proprietors, have gone unnoticed. Further examination is required to determine how these parties can employ comprehensive analytical approaches to mitigate the impact of the pandemic crisis on small and medium-sized enterprises (SMEs).

Subsequent investigations may also examine the contributions of employees and executives in the realm of administration and their facilitation of the enterprise's adaptation towards resilience amidst the ongoing pandemic. The abovementioned factors will be perceptible in the forthcoming period, presenting intriguing research opportunities.

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The Impact of Tax Structure on Economic Growth: New Empirical Evidence from Central and Eastern Europe

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ABSTRACT
This study aims to provide new evidence of the impact of total tax revenue and tax structure on economic growth in a sample of eleven European Union (EU) member states located in Central and Eastern Europe (CEE), namely Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. The methods used are description, comparison, synthesis, regression and correlation analysis of annual panel data for the period 2000-2021. The ordinary least squares (OLS) method is used to estimate the parameters of the regression models. The causal relationship between the variables is confirmed by the Granger causality test. The main results indicate that there is a significant negative effect of total government spending on economic growth rate, while the total tax revenue has a positive impact. These findings suggest low efficiency of public spending. The structure of tax systems does not seem to hinder economic growth, as both direct and indirect tax revenues show a positive growth-supporting effect. Only social security contributions are estimated to have a detrimental impact on economic growth. Value added tax and both income taxes (personal and corporate) are found to be growth-conductive, while property taxes and excise duties seem to have no significant impact on the growth rate. Based on the research findings it is obvious that government expenditure is not an effective tool for positive fiscal impact on the economy, so policymakers can support economic growth by decreasing the share of public spending in GDP or by increasing its efficiency. It is recommended to maintain the current ratio between direct and indirect tax revenue, while carefully considering changes to social security systems to promote sustainable and inclusive growth.

KEYWORDS
tax revenue, tax structure, economic growth, Central and Eastern Europe (CEE)

JEL E62, H21, O47

УДК 336.25, 336.027

Влияние налоговой структуры на экономический рост: новые эмпирические данные из Центральной и Восточной Европы

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АННОТАЦИЯ
Наше исследование направлено на предоставление новых доказательств влияния налоговых поступлений и налоговой структуры в части прямого и косвенного налогообложения на экономический рост в выборке из 11 государств-членов Европейского союза, расположенных в Центральной и Восточной Европе, а именно в Болгарии, Хорватии, Чехии, Эстонии, Венгрии, Латвии, Литве, Польше, Румынии, Словакии и Словении. Использованы методы описания, сравнения, синтеза, регрессии и корреляционного анализа годовых панельных данных за период 2000–2021 гг. Для оценки параметров регрессионной модели используется метод наименьших квадратов. Причинно-следственная связь

между переменными подтверждается тестом причинно-следственной связи Грейнджера. Основные результаты свидетельствуют о значительном негативном влиянии совокупных государственных расходов на темпы экономического роста, в то время как совокупные налоговые доходы оказывают положительное влияние. Эти данные свидетельствуют о низкой эффективности государственных расходов. Налоговая структура не препятствует экономическому росту, поскольку как прямые, так и косвенные налоги демонстрируют положительный эффект, поддерживающий экономический рост. По нашим оценкам, пагубное воздействие на экономический рост оказывают только взносы на социальное обеспечение. Установлено, что налог на добавленную стоимость и подоходный налог (личный и корпоративный) способствуют росту, в то время как налоги на имущество и акцизы, по нашему мнению, не оказывают существенного влияния на темпы роста. Исходя из результатов исследования, очевидно, что государственные расходы не являются эффективным инструментом положительного фискального воздействия на экономику, поэтому политики могут поддерживать экономический рост за счет снижения доли государственных расходов в ВВП или повышения их эффективности. Рекомендуется поддерживать текущее соотношение между прямыми и косвенными налогами, тщательно рассматривая при этом изменения в системах социального обеспечения для содействия устойчивому и инклюзивному росту.

КЛЮЧЕВЫЕ СЛОВА
налоговые доходы, налоговая структура, экономический рост, Центральная и Восточная Европа

1. Introduction

The impact of taxation on economic growth is a key issue of fiscal policy, especially for small open economies like the new member states of the European Union (EU) located in the Central and Eastern Europe (CEE), namely Bulgaria, Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.

A modern tax system is expected to be effective and efficient, ensuring sound public finances and contributing to social justice and fair distribution of income, while promoting competitiveness and growth. The relationship between taxation and growth has been broadly discussed in both theoretical and empirical research. While government spending is generally expected to support growth, taxation is believed to cause distortions and have a negative impact on economic development.

Neoclassical growth theory postulates that higher taxes can discourage saving, investment, and entrepreneurial activity, thereby hindering long-term economic growth. Lower tax burden, on the other hand, is expected to incentivize productive behavior and stimulate GDP growth.

At the same time, endogenous growth theory suggests that the impact of taxation on growth is much more nuanced. It argues that well-designed tax policies that fund public goods, infrastructure, and human capital development can positively influence productivity, innovation, and overall economic growth.

In this regard, the composition of taxes, such as the share of direct versus indirect taxes, is also expected to affect economic growth. Numerous studies suggest that indirect taxes on consumption tend to have a less detrimental impact on growth than direct taxes on income and wealth, which can discourage savings and investment.

The purpose of the study is to examine the impact of total tax revenue and tax structure on economic growth in a sample of eleven countries from Central and Eastern Europe (namely Bulgaria, Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) for the period 2000–2021.

This paper tests the following three *hypotheses*:

H1: Total tax revenue has a negative impact on economic growth.

H2: Direct taxes and social security contributions have a negative impact on economic growth.

H3: Indirect taxes have a positive impact on economic growth.

The study is structured in six sections. After this brief introduction, the second section examines classical and contemporary scholar knowledge on the impact of taxation on economic growth. Section three describes the methodological framework and data used in the study. The fourth section presents the main results of the study. The fifth section compares our findings with the evidence provided by prior research on the topic. The last section draws conclusions and policy implications.

2. Literature Review

Numerous empirical studies have examined the relationship between total tax burden and economic growth, employing various methodologies, covering different time periods and focusing on different countries or regions. However, no consensus about the nature and significance of such a relationship has been reached.

This is not surprising, given that the relationship between tax burden and GDP growth is complex and multifaceted. While some studies find a positive association, suggesting that increased tax revenues can support public investments and spur economic growth, others highlight the importance of efficient public expenditure management and the avoidance of excessive tax burdens (particularly on labor and capital) that may hinder private sector activity.

Certain studies suggest that higher tax burden can act as a constraint on economic growth.

Engen & Skinner [1] analyzed data from 107 countries for the period 1970–1985 and found that a balanced-budget increase in taxation and government spending reduces output growth rates.

An econometric panel study conducted by Folster & Henrekson [2] on a sample of rich countries covering the 1970–1995 period found that both taxation and public spending are negatively associated with economic growth.

Chu et al. [3] applied ordinary least squares (OLS) and generalized method of moments (GMM) techniques on panel data from 37 high-income and 22 low-to-middle-income countries covering the period 1993–2012. As expected, they revealed a significant negative impact of increased levels of government expenditure and tax revenue on growth.

Koester & Kormendi [4] analysed data from 63 countries and identified clear negative effects of tax rates on growth.

This is further supported by a recent study by Kaneva et al. [5], who also argued that the overall tax burden is harmful for the GDP per capita growth rate in Baltic States and Central European counries over the period 2000–2021.

Another confirmation is provided by Pradhan [6], who found that the effect of taxation on economic growth is negative in a panel of middle-income countries over the period 1960–2017.

Ozpence & Mercan [7] applyed vector autoregression (VAR) and Granger causality test and found a negative impact of tax burden on economic growth in Turkey for the period 1970–2018.

Çollaku et al. [8] used VAR and vector error correction model (VECM) to examine the relationship tax revenues – economic growth in Kosovo over the period 2010–2021 and found negative long-run effects.

At the same time, there is a number of studies that challenge these results.

A recent study by Tanchev & Mose [9] employed a panel ordinary least squares (OLS) technique with a fixed effect estimation method for the period 1995–2020 and argued that the increase in tax revenue and government expenditure leads to an increase in economic growth in 28 EU countries.

This is further confirmed by Spulbar et al. [10], who applied structural equation modeling (SEM) technique and revealed that the level of taxation has a positive influence on GDP dynamics in the EU-28 member states for the period 2005–2017.

Pradhan et al. [11] found that taxation contributes to the long-run economic growth in both the OECD and non-OECD countries over the period 1961–2019.

Kalaš et al. [12] analyzed taxes and growth in the United States over the period 1996–2016 and found a strong positive relationship between tax revenue and economic growth.

A positive impact of taxation on growth is identified by Gashi et al. [13], who applied regression analysis on 2007–2015 time series data for Kosovo.

Similar results are observed by Krysovatyy et al. [14], who revealed a positive correlation between the tax burden and GDP growth in Ukraine.

Alzyadat & Al-Nsour [15] applyed VAR and VECM on annual data for the period 1970–2019 and found a short-term positive impact of tax revenues on economic growth in Jordan. However, the effect turned to negative in the long term.

A study by Moyo et al. [16] applied the autoregressive distributed lag (ARDL) model and found that tax revenue has a significant positive relationship with economic growth in South Africa for the period 1991–2018.

It is interesting to note that there are findings disputing the existence of a clear and evident relationship between tax burden and economic growth.

A study by Easterly & Rebelo [17] analyzed a dataset of a broad cross-section of countries for the period 1970–1988 and concluded that the effects of taxation are difficult to isolate empiricaly. They believe that main fiscal variables are highly autocorrelated (e.g. countries with higher tax burden also have higher public spending), so the empirical results are fragile and it is difficult to find a distinct relation between government size and growth.

These conclusions are further supported by Oyinlola et al. [18], who applied the GMM estimation technique on 1995–2015 data for 27 sub-Saharan African countries and found that taxation does not have a significant impact on growth.

Agell et al. [19] share a similar view. They argue that some of the estimated correlations between size of the public sector and economic growth are statistically insignificant and highly unstable across specifications. They concluded that cross-country growth regressions are unlikely to come up with a reliable finding for the growth effects of taxation and government spending.

Another set of studies argues that the composition of taxes, such as the share of direct versus indirect taxes, affects economic growth. Research suggests that reliance on indirect taxes, like consumption taxes, tends to have a less negative impact on growth compared to direct taxes, which can discourage savings and investment.

Myles [20] reviewed the findings on the topic and supported the claimed that a shift from income taxation to consumption taxation would raise the growth rate.

An OECD study [21] also argued that taxes on corporate and personal income are the most detrimental to growth, while taxes on consumption and property are considered less harmful.

Dackehag & Hansson [22] report similar results. They found that both taxation of corporate and personal income negatively influences economic growth in 25 rich OECD countries over the period 1975–2010.

Arnold [23] also conducted a set of panel growth regressions for a sample of 21 OECD countries over the period 1971–2004 and found that property taxes are the most growth-friendly, followed by consumption taxes, while personal income taxes and corporate income taxes appear to have the most negative effects on growth.

This is further confirmed by McNabb [24], who concluded that increases in income taxes are associated with lower long-run GDP growth in a panel of 100 countries.

Oz-Yalaman [25] used a panel VAR for 29 OECD countries over the period 1998-2016 and found that corporate tax rate has a significant negative effect on economic growth.

Balasoiu et al. [26] used panel data from EU-27 countries covering the period 2008–2020 to investigate the impact of direct taxation on economic growth. Applying fixed effect models and dynamic GMM methods the study found that corporate income taxes and personal income tax have negative effects on growth.

Hakim [27] used the GMM estimation in a panel of 51 countries over the period 1992–2016 and concluded that tax structure based on direct taxes such as taxes on income, profit and capital gains is harmful to the economic growth, yet more efficient in terms of collecting the tax revenue in a country.

Neog & Gaur [28] investigated the relationship between tax structure and economic growth in India for the period 1980-2016 applying ARDL model. They found that personal income tax, corporate income tax and excise duties are harmful to the long-run growth.

Examining Turkey from 2006 to 2018, Korkmaz et al. [29] employed the ARDL approach and found a significant positive impact of indirect taxes, as well as a significant negative impact of direct taxes on economic growth.

Moreover, according to a series of reports by the European Commission [30], [31] there has been a general trend in some EU member states to shift the tax burden from direct to indirect taxation, and in particular from taxes on labor and capital to taxes on consumption.

In contrast to these findings, Bernardi [32] performed an aggregated analysis of tax trends across euro area (EA-17) countries, and a disaggregated, country-by-country analysis, with regard to the 2000–2014 period. He found that the gains from a tax shift (from direct to indirect taxes) do not appear to be as straightforward as claimed by the previous researches. On the contrary, he predicts that the tax shift may exacerbate the economic slump spreading across the EU, particularly as an effect of the general adoption of restrictive fiscal policies by almost all member countries.

Canavire-Bacarreza et al. [33] evaluated the effect of different tax instruments on growth for Latin American countries using VAR techniques and panel data estimation. They found that personal income tax does not have the expected negative effect on economic growth. For corporate income tax, their results suggest reducing tax evasion and greater reliance on collection may boost economic growth in the region. The reliance on consumption taxes has significant positive effects on growth in Latin America in general, although they found slight negative effects in some of the selected countries.

Stoilova [34] studied the impact of taxation on the economic growth in the EU-28 member states for the period 1996–2013 through regressions on panel data. She found that imposing value added tax affects negatively EU-28 economies and concluded that a tax system based on selective consumption taxes, taxes on personal income and property is more supportive to the economic growth.

Ahmad et al. [35] used time series data for the period 1976–2011 to investigate the impact of tax revenue on economic growth of Pakistan and concluded that direct taxes should be increased (rather than indirect taxes) to support the economic prosperity of the country.

Chugunov et al. [36] estimated the impact of government revenue on economic growth in Ukraine for the period 2014–2018 using a correlation-regression analysis and the multiplier effect concept. The authors substantiated that the increased share of direct taxes is growth-conductive, whereas the increased share of indirect taxes causes decrease of the real GDP.

The main conclusion of the literature review is that there is a wide variety of classical and contemporary empirical studies, but they do not reach a consensus on the nature, direction and significance of the relationship between the total tax burden and economic growth. Economic logic suggests that a higher tax burden can discourage saving, investment, and entrepreneurial activity, thereby hindering economic growth, but some findings show that the impact of taxation on growth is not so straightforward, but much more nuanced.

The impact of the tax structure on growth has also been extensively studied using various methods and covering different time periods and samples of countries. Although there are findings that point in opposite directions, it seems that most studies identify direct taxes as hindering economic growth, while indirect taxes are generally estimated as less harmful.

3. Methodology and data

This research uses descriptive and comparative analysis as well as correlation and regression analysis on panel data to study the impact of total tax burden and tax structure on economic growth in a sample of eleven EU member states located in the region of Central and Eastern Europe (CEE), namely Bulgaria, Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia.

As a basis of the regression model is accepted the endogenous model proposed by Barro [37] and further developed by Davoodi and Zou [38], who concluded that the long-term economic growth rate is a function of the taxation and the shares of spending by different levels of government.

Our empirical study follows the common approach applied in most of the researches on this topic. The conventional simple specification tries to explain the economic growth by government expenditure and tax revenues, so the regression equation (1) has the following structure:

$$y_{it} = b_0 + b_1 TS_{it} + b_2 TR_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable (y_{it}) is the annual growth rate of GDP of country i in year t, measured as a percentage change on the previous period. The independent variables are the total government spending to GDP for each country and year (TS_{it}) and the total revenue from taxes and social contributions presented as a ratio to GDP for each country and year (TR_{it}). The parameters of the model are b_0, b_1, and b_2. The symbol of ε_{it} marks the error term.

This simple specification is further extended to take into account different types of government revenue (direct taxes on income and wealth, indirect taxes on consumption and social security contributions) as well as a variety of taxes (value added tax, excise duties, personal income tax, corporate income tax, property taxes).

Thus, the variables included in the regression analysis are as follows:

GDP_GRit – growth rate of the real GDP of country i in year t (percentage change on the previous period);

GOV_EXPit – total government expenditure of country i in year t (percentage of GDP);

TAXit – total revenue from taxes and social contributions of country i in year t (percentage of GDP);

DIR_TAXit – direct tax revenue of country i in year t (percentage of GDP);

IND_TAXit – indirect tax revenue of country i in year t (percentage of GDP);

SSCit – social security contributions of country i in year t (percentage of GDP);

VATit – revenue from value added tax of country i in year t (percentage of GDP);

EXCISEit – revenue from excise duties of country i in year t (percentage of GDP);

PITit – revenue from personal income tax of country i in year t (percentage of GDP);

CITit – revenue from corporate income tax of country i in year t (percentage of GDP);

PROPit – revenue from property taxes of country i in year t (percentage of GDP);

The panel ordinary least squares (OLS) method is used to estimate the parameters of the regression model. OLS estimations are reported in Table 1. Correlation coefficients between the main variables of the regression model are calculated and presented in the correlation matrix (Table 2). Hypotheses for bilateral causal relations are tested by Pairwise Granger Causality Test (Table 3).

The analysis is based on the official statistical annual data for the period 2000–2021 provided by the European Commission in the Eurostat database [39].

4. Results

One of the most important purposes of taxation is to finance government expenditure, so the total tax burden is largely related to public spending. During the analyzed period government spending in the selected CEE countries has a pronounced cyclical dynamics (Figure 1).

It it clear that the size of the public sector has increased during the major global crises, as government interventions have been needed to prevent the collapse of economic and social systems.

It is noteworthy that the size of government varies significantly across the selected CEE countries. As seen, Bulgaria, Romania, Estonia, Latvia and Lithuania demonstrate quite restrictive fiscal models, with the ratio of government spending to GDP rarely exceeding 40%. Public spending in Poland, Czech Republic and Slovakia varies in the range between 40% and 45% of GDP. Croatia, Hungary and Slovenia report the largest size of the public sector among the selected CEE countries. The total amount of public expenditure in these countries varies on average within 45–55% of GDP, which is around the EU-27 average for the analyzed period.

The average ratio of total tax revenue and social contributions to GDP in the EU-27 is relatively high (40.0%) due to traditional strong social protection, which requests higher levels of government spending and the associated tax burden (Figure 2).

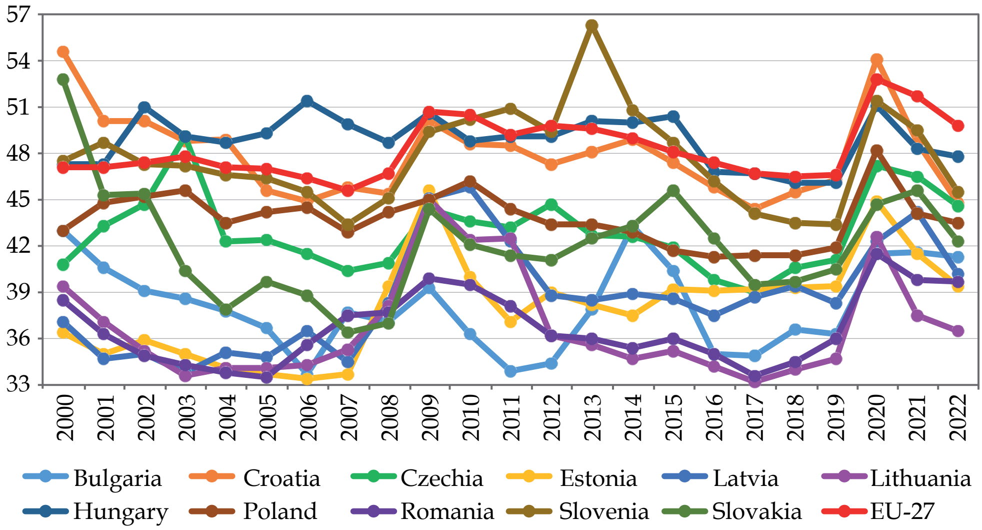

***Figure 1*. Dynamics of total government spending in the selected CEE countries (% of GDP)**

Source: Eurostat database [39]

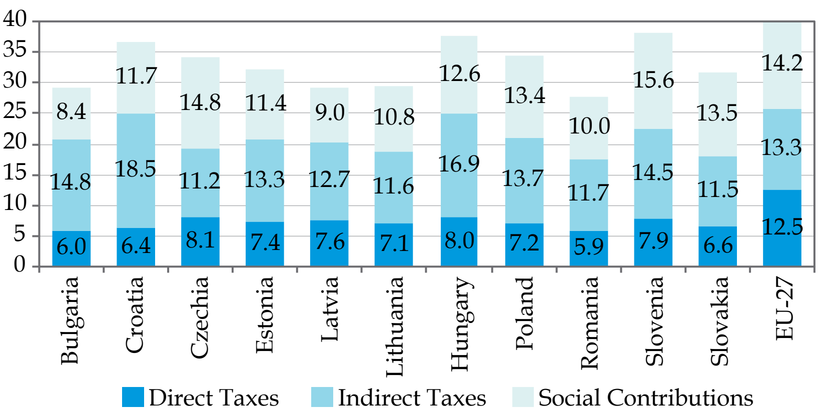

***Figure 2*. Distribution of total tax burden in the selected CEE countries, average for the period 2000–2021 (% of GDP)**

Source: Eurostat database [39]

However, the tax burden in the selected CEE countries is generally lower than the EU-27 average as a result of the liberal economic reforms of the democratic transition. As seen, the total tax burden varies considerably from country to country. The lowest total-tax-to-GDP ratios are reported by Romania (27.6%), Bulgaria (29.2%), Latvia (29.3%) and Lithuania (29.5%), while the highest rates are observed in Croatia (36.6%), Hungary (37.5%) and Slovenia (38.0%).

During the analyzed period, the average tax burden in the EU-27 is close to the even distribution between direct taxes, indirect taxes, and social contributions. On average, receipts from social contributions amount to 14.2% of GDP, followed by indirect taxes (13.3% of GDP), while direct taxes account for 12.5% of GDP. Due to the different patterns of national tax systems, the importance of direct taxes, indirect taxes and social contributions varies widely from country to country in terms of revenue generated.

Specific to the selected CEE countries is the reliance on indirect taxes as the main source of revenue. As seen, all countries report lower than EU-27 average shares of direct taxes in GDP, while half of them register higher than EU-27 average levels of indirect taxes to GDP ratio. The lowest ratios of direct taxes to GDP among CEE countries (as well as among all EU member states) are reported by Romania (5.9%), Bulgaria (6.0%), Croatia (6.4%) and Slovakia (6.6%). The countries reporting comparatively high relative figures are Czechia, Hungary and Slovenia, which collect 7.9%-8.1% of GDP through direct taxes. The highest ratios of indirect tax revenue to GDP are recorded in Croatia (18.5%), Hungary (16.9%), Bulgaria (14.8%) and Slovenia (14.5%), while the lowest levels of indirect tax revenues are found in Czechia (11.2%), Slovakia (11.5%) and Lithuania (11.6%).

The results from the OLS estimations are reported in Table 1.

Separate specifications of the regression equation have been constructed by different combinations of independent variables. As a starting point, the parameters of the regression are estimated under the simplest version of the equation (Model 1), which includes only total government spending and total tax burden as independent variables. In the subsequent models, the total tax burden is replaced by disaggregated tax revenue variables. Model 2 estimates the impact of direct taxes, indirect taxes and social security contributions, while Model 3 studies the influence of value added tax (VAT), excise duties, personal income tax (PIT), corporate income tax (CIT), social security contributions (SSC) and property taxes. The probability of the F-statistic confirms the adequacy of the applied models. The R-squared values indicate that, across models, 23–28% of the variations in the dependent variable is explained by the variation in the independent variables. The Durbin-Watson statistic indicates that there is no autocorrelation in the residuals from the regression analysis.

Contrary to conventional economic logic, the regression results show a significant negative impact of general government spending on the GDP growth rate, while tax revenue has a positive impact. These findings suggest low efficiency of public spending. It seems that the structure of tax systems in the selected CEE countries do not hinder economic growth, but government expenditure is not an effective tool for positive fiscal impact on the economic development.

Surprisingly, both direct and indirect tax revenues have a positive effect on GDP growth. Value added tax and both income taxes (personal and corporate) are estimated as growth-supportive, while social security contributions hinder economic growth. At the same time, property taxes and excise duties seem to have no significant impact on the growth rate.

The correlation matrix (Table 2) presents the correlations between each pair of variables, included in the regression model.

Table 1

Results from the regression analysis

Variable	Model 1	Model 2	Model 3
(Constant)	8.9680*** (4.1655)	8.8780*** (3.9750)	8.8315*** (3.7495)
GOV_EXP	–0.6270*** (–7.9766)	–0.6248*** (–8.5789)	–0.5922*** (–8.6430)
TAX	0.5170*** (5.1133)		
DIR_TAX		0.6362*** (3.2201)	
IND_TAX		0.7131*** (5.4560)	
SSC		–0.4945*** (–3.5944)	–0.4283*** (–3.0773)
VAT			0.9377*** (5.1904)
EXCISE			–0.1831* (–0.6539)
PIT			0.4293** (2.0443)
CIT			1.4254*** (4.9077)
PROP			0.4283* (3.0773)
R-squared	0.2319	0.2672	0.2835
Adjusted R-squared	0.2255	0.2548	0.2620
Akaike info criterion	5.3906	5.3602	5.3624
Schwarz criterion	5.4339	5.4323	5.4778
Durbin-Watson statistic	2.0095	2.0063	2.0099
F-statistic	36.0904	21.6046	13.2278
Prob(F-statistic)	0.0000	0.0000	0.0000
Observations	242	242	242

Source: Author's calculations

Notes: *t*-statistics shown in parentheses below coefficient; Asterisks (*, **, ***) indicate the significance level (10%, 5%, 1%) of the coefficients.

Table 2

Correlation matrix of the variables of the regression model

	GDP_GR	GOV_EXP	TAX	IND_TAX	DIR_TAX	SSC	VAT	EXCISE	PIT	CIT	PROP
GDP_GR	1.000	–0.412	0.222	0.089	0.082	–0.205	0.016	–0.143	0.082	0.024	0.045
GOV_EXP	–0.412	1.000	0.850	0.498	0.196	0.619	0.274	0.241	0.029	0.272	0.241
TAX	0.222	0.850	1.000	0.669	0.302	0.633	0.488	0.251	0.096	0.255	0.177
IND_TAX	0.089	0.498	0.669	1.000	–0.080	–0.011	0.871	0.542	–0.035	–0.061	0.298
DIR_TAX	0.082	0.196	0.302	–0.080	1.000	0.335	–0.167	–0.287	0.724	0.249	0.127
SSC	–0.205	0.619	0.633	–0.011	0.335	1.000	–0.152	–0.150	0.094	0.287	–0.008
VAT	0.016	0.274	0.488	0.871	–0.167	–0.152	1.000	0.353	–0.006	–0.204	0.098
EXCISE	–0.143	0.241	0.251	0.542	–0.287	–0.150	0.353	1.000	–0.286	–0.026	0.479
PIT	0.082	0.029	0.096	–0.035	0.724	0.094	–0.006	–0.286	1.000	–0.442	0.099
CIT	0.024	0.272	0.255	–0.061	0.249	0.287	–0.204	–0.026	–0.442	1.000	–0.304
PROP	0.045	0.241	0.177	0.298	0.127	–0.008	0.098	0.479	0.099	–0.304	1.000

Source: Author's calculations

Correlation coefficients between some of the independent variables exceed 0.2, indicating multicollinearity. The correlation analysis confirms that total government spending and economic growth are negatively correlated, while the correlation between total tax revenue and growth is positive. It is interesting to note that the correlations between both direct and indirect tax revenues and economic growth are positive but extremely weak. Social contributions and excise duties are negatively correlated with growth, while revenues from income taxes (PIT and CIT), property taxes and value added tax (VAT) demonstrate a weak positive correlation.

The results of Pairwise Granger Causality Tests (Table 3) confirm that there are bidirectional causal relationships between total government expenditure, total tax revenue and GDP growth rate.

Obviously, total revenues from indirect taxes as well as VAT and social contributions are also factors in economic growth. The null hypothesis cannot be rejected for the variables direct taxes, personal and corporate income taxes, property taxes and excise duties, so it seems that these variables do not clearly cause GDP growth.

5. Discussion

The results of the analysis do not confirm our first hypothesis that total tax burden has a negative impact on economic growth. Contrary to conventional economic logic, our findings show a significant negative impact of general government spending on the GDP

Table 3

Pairwise Granger Causality Tests

Null Hypothesis	Obs	F-Statistic	Prob.
GOV_EXP does not Granger Cause GDP_GR	220	2.09624	0.0024
GDP_GR does not Granger Cause GOV_EXP		7.90043	0.0005
TAX does not Granger Cause GDP_GR	220	0.76214	0.0179
GDP_GR does not Granger Cause TAX		1.54163	0.0364
IND_TAX does not Granger Cause GDP_GR	220	0.41313	0.0002
GDP_GR does not Granger Cause IND_TAX		8.83130	0.6621
DIR_TAX does not Granger Cause GDP_GR	220	0.46373	0.6296
GDP_GR does not Granger Cause DIR_TAX		2.67275	0.0714
SSC does not Granger Cause GDP_GR	220	0.10424	0.0071
GDP_GR does not Granger Cause SSC		5.07022	0.9011
VAT does not Granger Cause GDP_GR	220	2.10556	0.0072
GDP_GR does not Granger Cause VAT		7.48165	0.1243
EXCISE does not Granger Cause GDP_GR	220	0.39661	0.6731
GDP_GR does not Granger Cause EXCISE		0.13542	0.8734
PIT does not Granger Cause GDP_GR	220	1.65229	0.1940
GDP_GR does not Granger Cause PIT		2.64964	0.0730
CIT does not Granger Cause GDP_GR	220	2.17226	0.1164
GDP_GR does not Granger Cause CIT		2.87689	0.0585
PROP does not Granger Cause GDP_GR	220	0.30681	0.7361
GDP_GR does not Granger Cause PROP		8.46058	0.0823

Source: Author's calculations
Note: lags = 2

growth rate, while total tax revenue has a positive impact.

Surprisingly, both direct and indirect tax revenues appear to have a positive effect on GDP growth. VAT and both income taxes (personal and corporate) are estimated as growth-supportive, while social security contributions hinder economic growth. Property taxes and excise duties seem to have no significant impact on the growth rate.

These findings are consistent with our third hypothesis, which suggests that indirect taxes have a positive impact on economic growth.

The second hypothesis is partially confirmed, since only social security contributions have a significant negative impact on economic growth, while direct taxes, contrary to our expectations, are estimated to have a weak positive impact.

Although unconventional, our findings are supported by various authors. Confirmation for the negative impact of total government spending on growth is provided by Engen & Skinner [1], Folster & Henrekson [2], Chu et al. [3], Barro [37], Todorov & Durova [40].

Also, Esener & Ipek [41] found significant decreasing effects of public expenditure on economic growth by applying dynamic generalized method of moments (GMM) techniques to panel data for 33 middle-income countries for the period 1999–2014. Using linear regressions on panel data Cenc [42] found a negative impact of government spending on GDP growth in 19-euro area countries over the period 1995-2020.

Similar results were reported by Shaddady [43], who analyzed panel data from 19 Central Asian and Eastern European countries for the period 1995–2019 and found that government expenditure was negatively related to economic growth. This is further confirmed by Alfonso & Tovar [44], who analyzed empirical data for a sample of 108 countries covering the period 1970-2008 and suggested that economic growth is negatively affected by the size of government.

At the same time, there is a number of studies that challenge our results, such as the works of Tanchev & Mose [9], Alzyadat & Al-Nsour [15], Moyo et al. [16], who found that government expenditure has positive growth-supporting effects. This is confirmed by Rubinson [45] who used cross-sectional data to form several samples from 7 to 91 countries and argued that higher government spending stimulates growth, especially in poorer and less developed economies. A study by Lin [46] also estimated that government expenditure has positive impact on economic growth for both developed and less-developed countries. Attari & Javed [47], Alzyadat & Al-Nsour [48], Hamza & Milo [49] also concluded that public spending has a positive effect on GDP growth in Pakistan, Jordan and Kosovo respectively.

Consistent with our findings, total tax revenues are identified as positively related to growth by the works of Tanchev and Mose [9], Spulbar et al. [10], Pradhan et al. [11], Kalaš et al. [12], Gashi et al. [13] and Krysovatyy et al. [14], while Engen and Skinner [1], Folster and Henrekson [2], Koester and Kormendi [4], Kaneva et al. [5], Ozpence and Mercan [7] and Çollaku et al. [8] argue that total tax burden is harmful for the economic growth.

Confirmation of our results for the positive effects of direct taxes on the economic growth is found by Canavire-Bacarreza et al. [33], Ahmad et al. [35], Chugunov et al. [36] and Tanchev [50].

On the opposite side are the results of Dackehag & Hansson [22], Arnold [23], McNabb [24], Oz-Yalaman [25], Balasoiu et al. [26], Hakim [27], Neog & Gaur [28], who define direct taxes as growth-suppressing.

Similar to our findings, a significant positive impact of indirect taxes on growth is estimated by Korkmaz et al. [29], Canavire-Bacarreza et al. [33] and Szarowska [51], while Chugunov et al. [36] argue that the increased share of indirect taxes causes decrease of the real GDP.

Only a few studies have identified similar unidirectional effects of both direct and indirect taxes on growth. Consistent with our findings are the results of Hoang et al. [52], who analyzed data for

63 countries over the period 2003–2017 using the GMM and found that most taxes have a positive impact on economic growth in poor countries and taxes on goods and services promote economic growth in rich countries.

In contrast to our results, a study by Abd Hakim et al. [53] investigated the impact of taxation on the economic development of 47 developed and 90 developing countries covering the period 2000–2020 and concluded that both direct and indirect taxes have a significant negative relationship with economic development in developing countries. However, they found a significant positive relationship between direct taxes and economic development for developed countries. A study by Luo [54] also found that both distortionary and non-distortionary taxation is negatively associated with growth in a panel of OECD countries over the period 1980–2015.

Support for our results on the positive effect of VAT on growth is providied by the work of Ayoub & Mukherjee [55], who investigated the role of value added tax on the economic growth in China for the period 1985–2016 and found a significant positive relationship. Elshani & Pula [56] also argued that VAT had a positive effect on growth in Eurozone countries over the period 2002-2019. Omodero & Eriable [57] found that aggregate VAT revenue exhibits positive and strong causal effects on manufacturing output in Nigeria over the period 2010–2021. Nguyen et al. [58] applied regression analysis and concluded that value added tax has a positive effect on economic growth in the localities of Vietnam for the period 2007–2017. In contrast to these findings, Koroleva [59] concluded that VAT does not have a significant impact on economic growth in Russia.

Confirmation of the depressing effects of social contributions on economic growth is found in the work of Elshani & Pula [55], who concluded that social security contribution has a negative effect on GDP in the Eurozone countries during the period 2002-2019. On the opposite side are the results of Zhang & Zhang [60], who estimate social security as growth conductive.

Like any research, our study has territorial and temporal limitations. The analysis covers the period 2000–2021 and is limited to the eleven new member state of the European Union located in Central and Eastern Europe.

6. Conclusions

The relationship between taxation and GDP growth is complex and multifaceted. It is crucial to develop tax policies that strike a balance between generating revenue and fostering economic growth. Well-designed tax systems that support public investments and social cohesion would promote economic growth, while an excessive tax burden spent on inefficient public programs would harm GDP growth.

The main results of the correlation and regression analysis of panel data from the selected CEE countries (Bulgaria, Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia) for the period 2000–2021 show a significant negative effect of total government spending on economic growth rate, while the total tax revenue has a positive impact. These findings suggest low efficiency of public spending.

The structure of tax systems in the sample of CEE countries does not seem to hinder economic growth, as both direct and indirect tax revenues show a positive growth-supporting effect. Only social security contributions are estimated to have a detrimental impact on economic growth. Value added tax and both income taxes (personal and corporate) are found to be growth-conductive, while property taxes and excise duties seem to have no significant impact on the growth rate.

The study has several practical and research implications. Based on the research findings it is obvious that government expenditure is not an effective tool for positive fiscal impact on the economy, so policymakers can support economic growth by decreasing the share of public spending in GDP or by increasing its efficiency.

Regular evaluation of government expenditure programs and policies is important to identify inefficiencies and reallocate resources where they can have a greater impact on GDP growth. Policymakers should maintain the current ratio between direct and indirect tax revenue, while carefully considering changes to social security systems to promote sustainable and inclusive economic growth.

Further research is needed to explore the specific channels through which tax burden and tax structure impact GDP growth, particularly in different country contexts. Such insights can contribute to evidence-based policymaking and enhance overall economic performance.

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Tax-Cut Policies, Accounting Conservatism, and Corporate Tax Burden Stickiness: Empirical Analysis from China

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ABSTRACT

This study explores the relationship between tax-cut policy, accounting conservatism, and corporate tax burden stickiness in Chinese listed companies from 2008 to 2019. The primary objective is to identify the underlying reasons for continued high levels of corporate tax burdens despite the introduction of tax-cut policies. An econometric model was developed to analyze the transmission mechanism of these policies affecting corporate tax burden stickiness to achieve this goal. The tax burden stickiness refers to the mismatch between the objective and subjective tax burdens. Results reveal four primary findings: Firstly, macro tax-cut policies induced micro-enterprises to soften their accounting conservatism, leading to increased corporate tax burden stickiness. Secondly, the reduced quality of corporate accounting reports, influenced by tax-cut policies, contributes to corporate income tax burden stickiness. In contrast, the VAT tax burden remains unaffected. Thirdly, compared to state-owned enterprises, private enterprises responded more sensitively to tax reduction policies by significantly decreasing their accounting conservatism level and increasing corporate tax burden stickiness. Finally, high-tech manufacturing enterprises recorded the highest increase in corporate tax burden stickiness, suggesting that different robust accounting policies exist across various industries and may be critical factors determining corporate tax burden stickiness. In practical terms, this study provides important insights into improving businesses' understanding of tax burden patterns, enabling improved resource allocation of taxes accordingly. Additionally, it focuses on enhancing accounting conservatism to alleviate the pain of high tax burdens on such businesses. Ultimately, minimizing the stickiness of tax burdens will allow fiscal and taxation policies to better flex their regulatory muscles toward achieving effective and stable economic growth.

KEYWORDS

tax burden stickiness; tax-cut policy; corporate tax burden; accounting conservatism

JEL H20, H21, H26

УДК 336.62, 336.221

Политика снижения налогов, бухгалтерский консерватизм и тяжесть корпоративного налогового бремени: эмпирический анализ из Китая

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АННОТАЦИЯ

В статье исследуется взаимосвязь между политикой снижения налогов, бухгалтерским консерватизмом и тяжестью корпоративного налогового бремени в китайских листинговых компаниях с 2008 по 2019 гг. Цель состоит в том, чтобы выявить основные причины сохраняющегося высокого уровня корпоративного налогового бремени, несмотря на реализацию в Китае политики снижения налогов. Для достижения этой цели была разработана эконометрическая модель анализа трансмиссионного механизма политики снижения налогов, влияющей на тяжесть корпоративного налогового бремени. Под тяжестью налогового бремени понимается несоответствие между объективным и субъективным восприятием налогового бремени. Результаты формируют четыре основных вывода. Во-первых, политика снижения налогов на макроуровне побудила микропредприятия смягчить свой консерватизм в бухгалтерском учете, что привело к увеличению тяжести корпоративного налогового бремени. Во-вторых, снижение качества корпоративной бухгалтерской отчетности под влиянием политики снижения налогов способствует повышению тяжести корпоративного подоходного налога. При этом налоговое бремя по НДС остается неизменным. В-третьих, по сравнению с государственными предприятиями, частные предприятия более чутко отреагировали на политику снижения налогов, значительно снизив уровень консерватизма в бухгалтерском учете и увеличив тяжесть корпоративного налогового бремени. Наконец, высокотехнологичные производственные предприятия зафиксировали наибольшую устойчивость уровня корпоративного налогового бремени. Это свидетельствует о том, что в различных отраслях существует разный уровень надежности учетной политики, который может быть критическим фактором, определяющим тяжесть корпоративного налогового бремени. С практической точки зрения это исследование дает важную информацию о том, как улучшить понимание менеджментом предприятий тяжести налогового бремени, что позволит соответственно улучшить распределение налогов в экономике. Исследование также фокусируется на вопросах усиления консерватизма в бухгалтерском учете, чтобы ослабить тяжесть налогового бремени для таких предприятий. Снижение тяжести налогового бремени для разных предприятий позволит налоговой политике усилить регулирующий потенциал для достижения экономического роста.

КЛЮЧЕВЫЕ СЛОВА

тяжесть налогового бремени; политика снижения налогов; корпоративное налоговое бремя; бухгалтерский консерватизм

1. Introduction

Despite China's economic growth over the years, many enterprises need a challenging business environment resulting in declining business performance. China has implemented several tax-cut policies in three stages from 2008 to 2019 to counter this. These policies aim to reduce the costs of enterprises, regulate their economic behavior, improve their control ability, and ultimately enhance their sustainability.

However, while these tax-cut policies should alleviate the issue of high taxes, some scholars note that a phenomenon called "tax burden stickiness" prevents the full potential benefits of these policies [1].

The tax burden stickiness refers to the mismatch between the objective and subjective tax burdens, which hinders fiscal policy's regulatory function and undermines the cost-benefit matching principle in accounting. Therefore, despite the implementation of these policies, the sense of gain of taxpayers must be increased, and the pain of the tax burden must be reduced [2].

Tax burden stickiness refers to the fact that taxpayers may take longer to adjust their behavior in response to tax policy changes, leading to a perceived disconnect between tax policies and taxpayer experiences. As a result, trust in the tax system may be eroded, making it harder to implement effective tax policies. On the other hand, high levels of tax perception can inspire taxpayers to push for tax reform and hold governments accountable.

The primary objective is to identify the underlying reasons for continued high levels of corporate tax burdens despite the introduction of tax-cut policies.

The research hypothesis. Tax-cut policies increase corporate tax burden stickiness by reducing accounting conservatism.

2. Literature review

2.1. The study of tax burden stickiness

The study of tax burden stickiness originated from cost stickiness research [3] in accounting. Over time, cost stickiness research [4] has evolved to focus on analyzing its causes more detailedly.

Liu et al. [5], Xiao & Xie [6] and Gan et al. [7] are increasingly interested in examining the first-level accounting subjects' cost stickiness, such as sales, management, R&D, wage, and tax burden stickiness, displaying a mounting concern.

Banker et al. [8], Liang [9] and Daryaei et al. [10] have formed a consensus that difficulty in cost adjustment, optimistic expectations among management, and management agency problems are closely related to cost stickiness when analyzing its causes.

However, no agreement exists on which financial indicators should be empirically used to examine these factors [11].

Research into tax burden stickiness is still in its early stages. Early scholars (Cong & Zhou [12], Tao & Chen [13]) revealed the objective existence of tax burden stickiness in China's income tax and value-added tax.

Research by Blaufus et al. [2] suggests that if individuals consistently behave rationally based on traditional economic theory, the perceived impact on the tax burden of tax rate changes and deductions would be equivalent.

However, empirical evidence indicates that people often avoid cognitive strain when making decisions and use simplified decision heuristics. Therefore, changes in tax rates may have a more significant influence on the perceived tax burden than changes in the tax base when accounting for behavioral biases [14].

Recent scholars have explored the causes of corporate tax burden stickiness in more detail, focusing on internal and collection/management environments. In terms of manufacturing industry VAT burdens, Lin & Wang [15] demonstrated the sticky effect of VAT tax burden through asymmetric inventory fluctuations.

From another perspective, Deng et al. [16] concluded that the intensity of tax inspection increases enterprise comprehensive tax burden stickiness.

Kong et al. [17] found that the self-interest of enterprise managers affects the income tax burden stickiness and enterprise value.

Hu & Wu [18] explored the causes of corporate income tax burden stickiness in four dimensions: equity, tax avoidance, fiscal decentralization, and collection/management efforts.

Regarding corporate tax cuts and fee decreases, Gan et al. [7] believe that examining tax burden stickiness can better illustrate the law of corporate tax burden. Internal factors affecting corporate tax burden stickiness include property rights and political connections. External factors, including local government and tax collection/management environment, also impact corporate tax burden stickiness.

Based on the analysis above, this paper conducts an empirical study using financial data from China's A-share listed companies between 2008 and 2019. The three leading contributions are as follows.

Firstly, compared to past tax-cut policies' ineffective outcomes, this paper provides a new perspective by exploring and analyzing the stickiness of both VAT and income tax burdens, enriching the research on corporate tax burden stickiness.

Secondly, while previous scholars focused on examining the sticky effects of single policy stages, we consider structural tax reduction, VAT tax reform, comprehensive tax cuts, and fee cuts. Consequently, our study comprehensively explores the nature of corporate tax burden stickiness.

Thirdly, we uncover the transmission mechanism between macro tax-cut policies and micro-enterprise tax burden stickiness, thereby enriching research on the interaction between macro-fiscal policy and micro-enterprise behavior [19].

2.2. Hypotheses Development

The relationship between tax-cut policies and corporate tax burden stickiness can be attributed to the framework analysis of the interaction between macroeconomic policies and micro-enterprise behavior [20].

Rao et al. [21] proposed the relationship framework between macro policy and micro-enterprise behavior.

The promulgation of macro policies (such as fiscal policy, monetary policy, credit policy, etc.) directly affects the primary behavior of enterprises (such as corporate governance, accounting policy, financial management, etc.) [22].

Secondly, the affected corporate behavior will be further transmitted to corporate output (such as resource cost adjustment, corporate performance, earnings capacity, etc.) [23]. Finally, the output of the enterprise is aggregated into the macroeconomic output. Macro-monetary policy fluctuations will affect the robustness of the accounting policies of enterprises. During tightening monetary policy, it will often lead to a slowdown in economic development and a reduction in credit supply in the market. Micro-enterprise entities prefer sound accounting policies. Improving the quality of accounting information of enterprises eases the information asymmetry with debtors to gain creditors' trust. Following this transmission path, tax-cut policies as a macro-fiscal policy will affect the primary behavior of enterprises (accounting conservatism) and then affect the adjustment of resource cost (tax burden stickiness) of enterprises. With the help of the output behavior of countless micro individuals, it will eventually affect the output of a macroeconomy.

The government's behavior of tax cuts and profit concessions can alleviate the environmental pressure of external credit for enterprises [24]. Tax cuts and fee reductions can increase the after-tax profit of enterprises and then increase the proportion of internal financing of enterprises [25].

Liao et al. [26] found that policy burden increases enterprises' cost stickiness by affecting the accounting information's transparency. Then, as a macro-fiscal policy, tax-cut policies can also affect the credit transmission mechanism and thus affect the accounting policy robustness of enterprises.

The conservatism of accounting policies is one of the essential characteristics of accounting policies [27]. It requires companies to promptly confirm assets and profits while also promptly confirming the impairment of assets [28].

The choice of accounting policy conservatism is mainly to meet the needs of creditors because creditors tend to focus more on the information credibility of earnings and solvency in financial reports [29]. The tax-cut policies can affect the expected judgment of enterprises on the external financing environment. When the government's tax-cut policies are introduced to the enterprise to release the signal of the improvement of the external financing environment, the contradiction between the demand and supply of credit will be alleviated to a certain extent, and the enterprise will relax the accounting conservatism. When the business volume of the enterprise rises, the financing cost of the enterprise decreases, the financing scale of the enterprise will expand, and the management will increase the relevant tax burden expenditure; when the business volume of the enterprise decreases, the robustness of the accounting policy is still weak, and the enterprise will not immediately adjust the relevant tax burden cost, which increases the tax burden stickiness of the enterprise.

The analysis of the causes of cost stickiness mainly focuses on the three levels of management optimism, adjustment cost difficulty, and agency conflict. Similarly, the robustness of accounting policies can also affect the tax burden stickiness of enterprises by affecting the optimistic expectation of management, the adjustment cost of enterprises, and the principal-agent problem.

First, the principle of accounting conservatism observed by enterprises is conducive to narrowing the prediction deviation of management's earnings ability [30]. The higher the conservatism of accounting policies, the lower the optimistic expectation tendency of management [31]. The tax-cut policies can increase the expected degree of management. In the face of the reduction of the business volume of the enterprise due to the shrinking market, this optimism of the management will underestimate the business risk of the enterprise, overestimate the cash flow of the enterprise, reduce the accounting conservatism of the enterprise, and adopt more radical expansion means to still invest in risky projects [32]. Therefore, it is more harmful to control the risk cost of the tax burden and more antagonistic to treat the tax burden financial cost due to the timeliness of accounting cost and income measurement [33].

Second, the "contract view" economics theory can better explain the relationship between adjustment costs and the stickiness of corporate tax burden. To reduce the operating costs of enterprises, enterprises tend to prefer to sign long-term contract contracts with relevant resource providers, such as labor contracts, fixed asset procurement contracts, etc., which bring tax burden, and cost managers. It takes work to adjust in the short term. Due to the tax reduction and fee reduction, the accounting policy choice of the enterprise with lower conservatism will bring lower financing costs and higher free cash flow. When the business volume rises, the cost of adjusting resources is lower, and the enterprise often has more funds to increase the investment of related resources. When the business volume of an enterprise declines, if the enterprise considers the direct tax burden cost (paying high default fees) and indirect tax burden cost (reducing the tax burden risk cost caused by tax burden service cost) brought by reducing resources and the replacement cost when the future performance rebounds, often the enterprise is more inclined to abide by the spirit of the contract and does not adjust the relevant tax burden cost, and is more inclined to retain some idle resources brought by the tax-cut policies to wait for the opportunity to invest, thus increasing the tax burden stickiness of the enterprise.

Thirdly, from the perspective of the principal agent, under the tax-cut policies, on the one hand, the reduction of accounting conservatism will increase the contract friction between shareholders and management, increase shareholders' suspicion of high-quality accounting information, and increase agency costs [34]. On the other hand, reducing conservatism will increase managers' self-interest behavior. When the business volume of the enterprise increases, the management will increase the resources and improve their compensation for the sake of maximizing the benefits, thereby increasing the related tax burden cost; when the business volume of the enterprise declines, the management, out of the consideration of maximizing the benefits, will avoid reducing the resources under their control and reducing their salaries, and will not reduce the related tax burden costs. The tax burden stickiness occurs.

Based on this, the research hypothesis of this paper is put forward: Tax-cut policies increase corporate tax burden stickiness by reducing accounting conservatism.

3. Methodology

3.1. Data

Based on the financial data of Chinese A-share listed companies from 2008 to 2019, this paper takes tax-cut policies as the primary investigation policy [35]. It explores why the tax burden of enterprises remains high during the period of tax reduction and fee reduction from the perspective of tax burden stickiness.

The samples from 2008 to 2019 are divided into three stages according to the three levels of tax reduction and fee reduction: the stage of structural tax reduction from 2008 to 2015, the stage of comprehensive tax reduction from 2016 to 2017, and the stage of comprehensive tax reduction and fee reduction from 2018 to 2019.

All the data in this paper come from CSMAR's and Wind's databases. Based on this, the samples were processed in advance. The treatment is as follows.

First, select the stock as a share.

Second, select non-backdoor listed and non-delisted enterprises in the study year.

Thirdly, select non-ST or non-negative fixed assets listed companies in the study year.

Fourth, select enterprises with complete and continuous financial data.

Fifth, the financial data of the enterprise's annual report are calculated for some of the data missing for one or two years.

Sixth, the continuous variables are reduced by 1% and 99%.

According to the above treatment, 16128 sample enterprises were finally obtained to study the stickiness of corporate tax burden. Data analysis and result output were performed using STATA statistical software.

3.2. Variables

There are three explained variables in this paper: (1) the change in the total tax burden of enterprises, (2) the change in the income tax burden of enterprises, and (3) the change in the VAT burden of enterprises.

Among them, *Ln_tax* is used to represent the change in the total tax burden of enterprises, which is the ratio of the current tax burden of enterprises to the tax burden of enterprises in the previous period, and then the natural logarithm is taken.

Referring to the research of Liu & Liu [36], the method of measuring enterprises' total tax burden (*tax*) is to pay all kinds of tax burdens minus the tax return received plus the end balance of tax payable minus the beginning balance of tax payable.

Ln_income is used to represent the change in the income tax burden of enterprises, and the ratio of the current income tax burden of enterprises to the previous income tax burden of enterprises is taken as the natural logarithm. Referring to the literature of scholars Liu & Liu [36], the enterprise income tax burden is defined as the change of income tax burden minus deferred income tax minus payable income tax.

Ln_vat is used to represent the change in the VAT tax burden of enterprises, and the ratio of the current VAT tax burden of enterprises to the previous VAT tax burden of enterprises is taken as the natural logarithm. Referring to the research method of Yu [15], the calculation method of VAT burden is to calculate the cash received by selling goods and providing services minus the cash received by purchasing goods and providing services and then convert the difference into the amount without VAT and calculate the VAT under the corresponding tax rate.

The explanatory variables of this paper are operating income changes, tax reduction policies, and accounting conservatism.

This paper's change in operating income is defined as *Ln_turn*, the natural logarithm of the ratio of the current operating income to the previous operating income. Among them, the introduction of a dummy variable *D* represents the direction of the change in the operating income of the enterprise. Its value is 1, indicating that the current operating income scale has declined compared with the previous period. Conversely, its value is 0.

The tax-cut policies are expressed as policy. The general public budget revenue ratio to local GDP in each province is selected to evaluate the effect of macro tax-cut policies.

To measure accounting conservatism (*CScore*), this paper draws on the Model (4) constructed by Basu [37], in which the stock return rate (*RET*) represents the measure of good and bad news and introduces the dummy variable *M* in which the more significant the β_3, the stronger the accounting conservatism (*CScore*). To indicate the decline of accounting conservatism, *Score* is selected as the representative. If *CScore* decreases for two consecutive years, the *M* value is 1; otherwise, 0.

$$CScore_{it} = \frac{EPS_{it}}{P_{it}} = \beta_0 + \beta_1 M_{it} + \\ + \beta_2 RET_{it} + \beta_3 \times M_{it} \times RET_{it} + \varepsilon_{it}. \quad (1)$$

To control the influence of other factors on the change range of corporate tax burden, the selection of control variables in this paper refers to the research of Liang [7], Gan et al. [9], and Hu & Wu [18], including:

- *Lev*: It is expressed by the ratio of the total debt to the total assets at the end of the period.
- *Zm*: It is expressed by the enterprise's total assets at the end of the year divided by the current operating income.
- *Rm*: It is expressed by the ratio of employees to operating income (million RMB).
- *Roa*: It is expressed by the ratio of the net profit of the enterprise to the asset size at the end of the year.
- *Bl*: The difference between the enterprise sales revenue and sales cost is divided by the sales revenue.
- *Size*: The representation of the natural logarithm of the asset size at the end of the period.
- *Cz*: It is expressed by the budgeted provincial fiscal revenue ratio to the budgeted provincial and central fiscal revenue.

At the same time, the grouping variables of this paper are considered as follows: the change of tax burden stickiness of enterprises with different ownership types and industry types is different, so the test of distinguishing ownership and industry is carried out.

Among them, the ownership (*Owner*) is 0 on behalf of private enterprises, one on behalf of state-owned enterprises; industry (*Line*) 0 represents the service industry, 1 represents the high-tech manufacturing industry, and 2 represents the non-high-tech manufacturing industry [38].

The high-tech manufacturing industry includes pharmaceutical, metal, general equipment, transportation, electrical machinery, available equipment, and computer and electronic instrument manufacturing.

3.3. Analytical Methods

Based on the research of Sun & Liu [39], Model (2) is constructed to test the existence of corporate tax burden stickiness during tax cuts and fee cuts:

$$Ln\_tax_{it} = \alpha_0 + \alpha_1 Ln\_turn_{it} + \\ + \alpha_2 \times D_{it} \times Ln\_turn_{it} + \alpha_3 \times \\ \times \sum Contronl_{it} + \sum line + \sum year + \varepsilon_{it}. \quad (2)$$

Where I denote the individual, *t* denotes time; when $\alpha_2 < 0$, enterprises have tax burden stickiness, and the greater the absolute value, the stronger the stickiness. If the operating income rises, $D = 0$, the tax burden increases by α_1 percentage points for every one percentage point increase in operating income; if operating income declines, $D = 1$; for every one percentage point reduction in operating income, the tax burden decreases by $\alpha_1 + \alpha_2$ percentage points.

Model (3) is constructed to examine the relationship between tax-cut policies and corporate tax burden stickiness:

$$\begin{gathered} Ln\_tax_{it} = \alpha_0 + \alpha_1 Ln\_turn_{it} + \alpha_2 \times \\ \times D_{it} \times Ln\_turn_{it} + \alpha_3 \times D_{it} \times Ln\_turn_{it} \times \\ \times Policy_{it} + \alpha_4 \times Policy_{it} + \alpha_5 \times \\ \times \sum Contronl_{it} + \sum line + \sum year + \varepsilon_{it}. \end{gathered} \tag{3}$$

Among them, when $\alpha_3 < 0$, the tax-cut policies increase the tax burden stickiness of enterprises.

Model (4) Investigate the relationship between tax-cut policies, accounting conservatism, and corporate tax burden stickiness:

$$\begin{gathered} Ln\_tax_{it} = \alpha_0 + \alpha_1 Ln\_turn_{it} + \alpha_2 \times \\ \times D_{it} \times Ln\_turn_{it} + \alpha_3 \times D_{it} \times Ln\_turn_{it} \times \\ \times Policy_{it} + \alpha_4 \times D_{it} \times Ln\_turn_{it} \times \\ \times Policy_{it} \times Score_{it} + \alpha_5 \times Policy_{it} + \alpha_6 \times \\ \times CScore_{it} + \alpha_7 \times \sum Contronl_{it} + \\ + \sum line + \sum year + \varepsilon_{it}. \end{gathered} \tag{4}$$

Among them, when $\alpha_4 < 0$, the tax-cut policies increase enterprises' tax burden stickiness by reducing their accounting conservatism.

4. Results

Column (1) of Table 1 is a general regression result. It can be seen that the regression coefficient α_1 of *Ln_turn* is 0.634, which is significantly positive, indicating that when the business income scale expands by 1%, the total tax burden of enterprises increases by 0.634%. However, α_2 is significantly negative, with a value of −0.553, indicating that when the business income of enterprises decreases by 1%, the total tax burden decreases by only 0.081 % (α_1 % + α_2 %).

Column (2) shows the regression results of fixed effects. Considering that different industries and times may cause different changes in corporate tax burden, the industry effect and time effect are controlled, and the regression results are presented as Column (3). The significance and symbols of the regression coefficients α_1 and α_2 remain unchanged. It is not difficult to find that during the period of a fee reduction and fee reduction, the adjustment of tax burden cost with income fluctuation is hindered, and the stickiness of corporate tax burden exists objectively. Secondly, from the perspective of control variables, based on the regression results from (1) to (3), it is clear that the coefficient of gross margin on *Bl* is significantly positive. The coefficient of *Zm* is significantly negative, indicating that the smaller the density of capital resources and the greater the gross margin on sales, the heavier the tax burden of enterprises, and the remaining control variables are not significant.

Columns (4) to (6) of Table 1 describe the phased differences in the stickiness of corporate tax burden under the three stages of tax reduction and fee reduction.

First, Column (4) reflects the tax burden stickiness in the 2008–2015 structural tax reduction stage. The value of α_1 is 0.636, which has specific statistical significance. Whenever the scale of operating income expands by 1%, the total tax burden of enterprises increases by 0.636%. However, the α_2 coefficient is significantly negative, with a value of -0.586. In the case of the existence of tax burden stickiness, when the performance of enterprises declines, the space for the decline of the total tax burden of enterprises is compressed to 0.05%, and the tax burden of enterprises is still not reduced.

Secondly, Column (5) describes the tax burden stickiness in the stage of business-to-vat reform in 2016–2017. The positive value of α_1 is 0.685. When the scale of operating income increases by 1%, the total tax burden of enterprises increases by 0.685%. At this time, α_2 is no longer significant, and the stickiness of the corporate tax burden no longer exists. This shows that the business-to-vat reform explicitly alleviates the pain of the corporate tax burden.

Thirdly, Column (6) is the tax burden stickiness of comprehensive tax reduction and fee reduction from 2018 to 2019, α_2 is significant, and the value is −0.780. When business volume declines, enterprises do not reduce tax burden costs but increase tax burden costs, but the increase is less than the tax burden costs when business volume rises. It shows that the stickiness of the corporate tax burden is the strongest among the three periods of tax and fee reduction (Table 1).

Column (1) of Table 2 shows the full-time test results of tax burden stickiness under the influence of tax-cut policies. Columns (2) to (4) analyze the results of corporate tax burden stickiness under the impact of tax-cut policies during structural tax reduction, comprehensive tax reduction, and fee reduction.

It can be seen from Column (1) that α_1 is significantly positive, and the value is negative and statistically significant, α_2 (the coefficient of the interaction term *Ln_turn* ×*D*) is significantly negative, and α_3 (the coefficient of the interaction term *Ln_turn* ×*D* ×*Policy*) is significantly harmful. It shows that the tax-cut policies have effectively increased the tax burden stickiness of enterprises.

It can be found in columns (2) to (4) from Column (2), without the influence of structural tax-cut policies, a greater degree of stickiness of the tax burden on enterprises. Under the influence of structural tax-cut policies, the tax burden on enterprises is stickier.

From Column (3), implementing the comprehensive policy of replacing business tax with VAT has dramatically alleviated the stickiness of the corporate tax burden.

Table 1

Analysis of the tax burden stickiness effect of enterprises

Variable name	(1) normal regression	(2) fixed effects regression	(3) double fixed effect	(4) structural tax cuts	(5) business-to-vat reform	(6) comprehensive tax reduction and fee reduction
Ln_turn	0.634*** (50.47)	0.636*** (17.37)	0.627*** (16.89)	0.636*** (42.36)	0.685*** (22.49)	0.464*** (11.75)
Ln_turn×D	−0.553*** (−19.12)	−0.606*** (−7.82)	−0.614*** (−7.70)	−0.586*** (−16.84)	−0.043 (−0.56)	−0.780*** (−9.61)
Zm	−0.004*** (−4.64)	−0.003* (−1.71)	−0.003* (−1.67)	−0.002* (−1.74)	−0.004** (−2.30)	−0.007** (−2.43)
Roa	0.055*** (4.07)	0.050 (1.33)	0.052 (1.42)	0.045*** (3.26)	0.497*** (3.51)	0.269* (1.71)
Bl	0.269*** (9.47)	0.675*** (6.30)	0.679*** (6.38)	0.298*** (8.45)	0.100 (1.35)	0.299*** (4.57)
Rm	0.007*** (3.14)	0.008* (1.65)	0.007 (1.49)	0.005** (2.07)	0.005 (0.70)	−0.036*** (−2.82)
Lev	0.004 (0.74)	−0.001 (−0.10)	0.003 (0.51)	0.003 (0.68)	0.137* (1.88)	−0.096** (−1.96)
Size	0.021*** (5.69)	0.021 (1.51)	0.062*** (3.36)	0.024*** (5.07)	−0.003 (−0.29)	0.051*** (5.26)
Cz	0.001 (0.01)	−0.456 (−1.23)	0.180 (0.35)	0.262 (1.48)	−0.088 (−0.31)	−0.579* (−1.69)
Constant	−0.365*** (−7.29)	−0.4252** (−2.56)	−0.958*** (−4.10)	−0.404*** (−6.30)	−0.026 (−0.19)	−0.651*** (−4.60)
Observations	16128	16128	16128	10752	2688	2688
Industry fixed effect	No	No	Yes	Yes	Yes	Yes
Time fixed effect	No	No	Yes	Yes	Yes	Yes
Adjusted R^2	0.151	0.151	0.156	0.163	0.220	0.093

Notes: Significant at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. T value in parentheses.

From Column (4), the policy of comprehensive tax reduction and fee reduction will significantly increase the tax burden stickiness of enterprises. The possible reason is that in the face of different types of tax reduction policies, the impact on the behavior of enterprises is different, and the choice of accounting conservatism of enterprises is also different. The tax-cut policies of income tax are more likely to reduce the accounting conservatism of enterprises. It is easier to increase the tax burden stickiness of enterprises by increasing the optimistic expectations of enterprise management, increasing the difficulty of adjusting resource costs and increasing the information asymmetry of the principal-agent layer (Table 2).

To study more fully, the central policies of the three stages of tax reduction and fee reduction period are sorted out in Table 3. Structural tax increases under certain circumstances and conditions during the structural tax reduction period.

The tax burden of enterprises also changes structurally with the policy. During the period of the business-to-vat reform, the reduction of the tax burden is distributed according to the bargaining power of enterprises. During the comprehensive tax reduction and fee reduction period, the corporate tax burden change

Table 2

Analysis of tax-cut policies and enterprise tax burden stickiness effect

Variable name	(1) main regression	(2) structural tax cuts	(3) business-to-vat reform	(4) comprehensive tax reduction and fee reduction
Ln_turn	0.630*** (49.40)	0.636*** (42.41)	0.690*** (22.61)	0.464*** (11.78)
Ln_turn×D	–0.305*** (–3.95)	–0.371*** (–4.27)	–0.557*** (–2.72)	–0.385** (–1.97)
Ln_turn×D×Policy	–2.041*** (–3.57)	–2.048*** (–2.69)	4.242*** (2.76)	–3.721** (–2.28)
Policy	–0.406 (–0.79)	–0.246 (–1.46)	0.208 (0.59)	–0.211 (–0.61)
Zm	–0.005*** (–4.97)	–0.002* (–1.85)	–0.004*** (–2.58)	–0.008*** (–2.59)
Roa	0.056*** (4.15)	0.047*** (3.38)	0.507*** (3.58)	0.269* (1.71)
Bl	0.276*** (9.71)	0.303*** (8.45)	0.125* (1.68)	0.316*** (4.76)
Rm	0.007*** (3.24)	0.005** (2.15)	0.006 (0.85)	–0.037*** (–2.93)
Lev	0.004 (0.83)	0.003 (0.64)	0.146** (2.00)	–0.096** (–1.96)
Size	0.027*** (7.13)	0.024*** (5.03)	–0.002 (–0.21)	0.049*** (5.05)
Cz	0.306 (0.61)	0.254 (1.43)	–0.034 (–0.12)	–0.606* (–1.77)
Constant	–0.407*** (–7.67)	–0.386*** (–5.80)	–0.098 (–0.70)	–0.627*** (–4.43)
Observations	16128	10752	2688	2688
Industry fixed effect	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.155	0.044	0.048	0.036

Notes: Significant at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. T value in parentheses.

needs further investigation. The focus of tax arrangements in different tax and fee reduction periods is different. Compared with the transfer of turnover tax burden, the bearer of direct tax is enterprises.

The tax base of enterprise income tax is often affected by the subjective decision-making strategy of enterprises, which will cause the sticky effect of the tax burden (Table 3).

A full-time and phased regression analysis was conducted to test whether the macro tax-cut policies affect the tax burden stickiness of enterprises by reducing the accounting conservatism of enterprises. The results are shown in columns (1) to (4) of Table 4.

To verify the difference in the effect of different taxes on the tax-cut policies on the tax burden stickiness of enterprises according to the reduction of accounting conservatism, the test of distinguishing taxes is carried out. The results are summarized in columns (5) and (6) of Table 4.

Firstly, the empirical results from Column (1) show that the coefficient α_1 is significantly positive, α_2 (the coefficient of $Ln\_turn \times D$), α_3 (the coefficient of $Ln\_turn \times D \times Policy$), and α_4 (the coefficient of $Ln\_turn \times D \times Policy \times Score$) are significantly negative. It shows that after the implementation of the macro tax-cut policies, micro-enterprises have made a pre-judgment on the changes in the credit market and have chosen to reduce the accounting conservatism of enterprises, which has promoted the increase of optimistic expectations of enterprise management, the increase of the cost of adjusting resources and the deepening of the contradiction between principal-agent, thus deepening the asymmetry between the changes in tax risk cost, tax service cost, financial tax cost, and tax direct cost and business volume, increasing corporate tax burden stickiness.

Secondly, from the analysis results of columns (2) to (4), the structural tax-cut policies can also significantly strengthen the tax rigidity of enterprises through the reduction of accounting conservatism of enterprises. The coefficient of α_2 is significantly negative, and the coefficient of α_3 is positive. It passes the 5% significance level test, and the coefficient of α_4 is not statistically significant, indicating that implementing the comprehensive policy of replacing business tax with VAT has alleviated the pressure of enterprises' higher tax burden rigidity.

The comprehensive policy of replacing business tax with VAT significantly reduces enterprises' tax burden pain. In the stage of comprehensive tax reduction and fee reduction, the regression coefficients α_2, α_3 and α_4 are significantly negative, and α_3 and α_4 are the most significant absolute values of the three stages,

Table 3

Main policies in three phases

Phase name	The period	Types of taxes	Main policies
Structural tax cuts	2008–2015	Enterprise income tax	Unified domestic and foreign enterprise income tax; corporate income tax rate adjusted to 25%
		Tariff	Cut tariff rates on more than 730 imported goods
		VAT	Pilot scope of some industries
		Administrative fees	253 cancellations in 2012; 347 cancellations and exemptions in 2013; 99 cancellations, exemptions, or suspensions in 2015
Business-to-vat reform	2016–2017	VAT	Business-to-vat reform
		Administrative fees	18 exemptions in 2016; 43 cancellations, suspensions, or exemptions in 2017
Comprehensive tax reduction and fee reduction	2018–hitherto	Individual income tax	Individual income tax reform
		VAT	The tax rate was adjusted from 17% to 13%; the tax rate was adjusted from 11% to 9%

indicating that the comprehensive tax-cut policies can significantly affect the tendency of enterprises to choose to underestimate liabilities and overestimate assets. By reducing the accounting conservatism of enterprises, to obtain more financing, the management of enterprises is overoptimistic and unwilling to adjust costs, the supervision of shareholders on management is weakened, and the tax burden stickiness is increased. Again, from the regression results of Column (5) income tax and Column (6) VAT.

On the one hand, the tax-cut policies have effectively reduced the quality of corporate accounting information reports, reduced the requirements of corporate accounting conservatism, and increased the stickiness of the corporate income tax burden.

Table 4

Analysis of the tax-cut policies, accounting conservatism, and corporate tax burden stickiness effect

Variable name	(1)	(2)	(3)	(4)	(5)	(6)
	main regression	structural tax cuts	business-to-vat reform	comprehensive tax reduction and fee reduction	enterprise income tax	VAT
Ln_turn	0.627*** (49.27)	0.633*** (42.26)	0.690*** (22.60)	0.461*** (11.80)	0.311*** (23.57)	−0.338*** (−21.10)
Ln_turn×D	−0.467*** (−6.36)	−0.299*** (−3.43)	−0.508** (−2.28)	−0.476** (−2.44)	−0.344*** (−4.52)	0.277*** (2.99)
Policy	−0.123 (−0.88)	−0.261 (−1.55)	0.186 (0.52)	−0.161 (−0.47)	−0.149 (−1.03)	0.021 (0.12)
Ln_turn×D×Policy	−1.710*** (−2.68)	−3.630*** (−4.57)	4.053** (2.57)	−4.143** (−2.55)	−1.655** (−2.51)	−1.825** (−2.27)
CScore	0.005 (1.46)	0.005 (1.23)	−0.012 (−0.51)	0.018 (1.54)	0.006* (1.69)	0.002 (0.37)
Ln_turn×D×Policy×Score	−3.449*** (−8.12)	−3.520*** (−7.03)	0.647 (0.56)	−7.778*** (−5.66)	−1.560*** (−3.54)	1.548*** (2.89)
Zm	−0.004*** (−4.47)	−0.002* (−1.81)	−0.004** (−2.54)	−0.009*** (−2.86)	0.004*** (3.91)	0.001 (0.90)
Roa	0.061*** (4.55)	0.054*** (3.93)	0.508*** (3.59)	0.230 (1.47)	0.019 (1.32)	0.012 (0.69)
Bl	0.281*** (9.74)	0.296*** (8.27)	0.124* (1.66)	0.309*** (4.68)	−0.140*** (−4.68)	−0.160*** (−4.41)
Rm	0.005** (2.29)	0.004 (1.50)	0.006 (0.85)	−0.032** (−2.49)	0.002 (0.62)	−0.005* (−1.75)
Lev	0.002 (0.54)	0.002 (0.52)	0.146** (2.00)	−0.133*** (−2.74)	0.003 (0.60)	0.008 (1.42)
Size	0.025*** (6.48)	0.022*** (4.59)	−0.002 (−0.18)	0.054*** (5.54)	−0.047*** (−11.95)	−0.013*** (−2.77)
Cz	0.035 (0.25)	0.239 (1.35)	−0.026 (−0.09)	−0.644* (−1.89)	0.130 (0.91)	0.287* (1.65)
Constant	−0.385*** (−7.05)	−0.352*** (−5.30)	−0.102 (−0.73)	−0.670*** (−4.74)	0.596*** (10.53)	0.161** (2.34)
Observations	16128	10752	2688	2688	16128	16128
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.156	0.167	0.223	0.103	0.103	0.046

Notes: Significant at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. T value in parentheses.

On the other hand, under the impact of tax-cut policies, the tax burden stickiness of VAT disappears. This may be because the corporate income tax base is more subjective, and the reduction of accounting conservatism under the tax-cut policies has a more significant impact on the decision-making of corporate income tax burden, a greater degree of stickiness of the tax burden on enterprises (Table 4).

To distinguish ownership types and industries, listed companies are divided into six sample groups: private enterprises, state-owned enterprises, service industries, high-tech manufacturing industries, and non-high-tech manufacturing industries. The results are summarized in columns (1) to (5) of Table 5.

From the perspective of ownership types, from the regression coefficient α_2 of columns (1) and (2), the tax burden stickiness of state-owned enterprises is more robust than that of non-state-owned enterprises, which may be due to the agency problems within state-owned enterprises and the self-interest of management. From the regression coefficient α_3, the value of state-owned enterprises is positive, and the value of private enterprises is negative, indicating that the tax-cut policies significantly inhibit the tax burden stickiness of state-owned enterprises, but increases the tax burden stickiness of private enterprises.

The possible reason is that the tax-cut policies increase the optimistic expectations of the management of non-state-owned enterprises, which in turn increases the related tax burden costs, thereby increasing the tax burden stickiness of private enterprises; from the regression coefficient α_4, it is significantly negative, indicating that both state-owned enterprises and private enterprises tax reduction policies have prompted enterprises to make decisions to reduce accounting conservatism, which in turn has increased the optimistic expectations of enterprise management, increased the difficulty of adjustment costs and reduced the supervision of shareholders, increased the tax burden stickiness of enterprises, and private enterprises have a more vital subjective willingness to reduce accounting conservatism.

This may be based on the fact that private enterprises believe that tax reduction policies can improve enterprises' financing environment, reduce enterprises' financing costs, reduce the quality of their accounting information report, and to an unavoidable extent, damage the interests of creditors. Out of doubt about the authenticity of corporate financial information, creditors will further reduce investment, and the financing environment faced by enterprises will deteriorate.

Due to the increase of management's optimistic expectations, the difficulty of adjustment costs, and the increase of agency conflicts brought by tax reduction policies, the stickiness of the corporate tax burden will eventually increase.

Firstly, the coefficient α_2 of the interaction term $Ln\_turn \times D$ is significantly negative, indicating tax burden stickiness in the service, high-tech, and non-high-tech manufacturing industries. The tax burden stickiness of the non-high-tech manufacturing industry is the largest, and the stickiness of the high-tech manufacturing industry is the smallest. The cost management level of the non-high-tech manufacturing industry is low, and the efficiency of internal resource allocation could be better than that of the high-tech manufacturing industry.

Secondly, as long as the coefficient α_3 of the interaction term $Ln\_turn \times D \times Policy$ of the non-high-tech manufacturing industry is significantly negative, it shows that the tax reduction and fee reduction policy has significantly increased the tax burden stickiness of enterprises. It may be because when there are no tax-cut policies, the financing problem of the non-high-tech manufacturing industry is more serious. The tax-cut policies increase the optimistic expectation of the non-high-tech manufacturing industry to improve financing problems.

Thirdly, the coefficient α_4 of the interaction term $Ln\_turn \times D \times Policy \times Score$ is significantly harmful. The absolute value of the manufacturing industry is greater than that of the service industry. The value of the high-tech manufacturing industry is greater than that of the non-high-tech manufacturing industry, indicating that the high-tech manufacturing industry is facing the impact of tax reduction policies and reducing the quality of accounting information.

The possible reason is that the capital-intensive high-tech manufacturing industry has less competition, the choice of accounting policy robustness is more comprehensive, and the high-tech manufacturing industry is booming. Managers are more optimistic about the market prospects in the face of the country's large-scale tax cuts and profit concession policies. Even in the face of declining performance, the optimistic attitude of managers of enterprises will still make enterprises reduce costs and not reduce costs to a lesser extent, resulting in tax burden stickiness (Table 5).

Table 5

Heterogeneity analysis of the tax-cut policies, accounting conservatism, and corporate tax burden stickiness

Variable name	(1) private enterprises	(2) state-owned enterprises	(3) service industries	(4) high-tech manufacturing industry	(5) non-high-tech manufacturing industry
Ln_turn	0.624*** (34.06)	0.628*** (35.04)	0.656*** (29.89)	0.544*** (17.11)	0.637*** (37.24)
Ln_turn×D	−0.267*** (−2.62)	−0.841*** (−7.59)	−0.447*** (−2.62)	−0.370** (−1.96)	−0.497*** (−5.13)
Policy	−0.031 (−0.13)	−0.045 (−0.25)	0.120 (0.50)	−0.724** (−2.03)	−0.034 (−0.18)
Ln_turn×D×Policy	−4.700*** (−5.43)	3.636*** (3.67)	−0.404 (−0.26)	−1.780 (−0.90)	−1.697** (−2.14)
CScore	0.004 (0.56)	0.007 (1.64)	−0.012 (−1.22)	0.028 (1.11)	0.006 (1.61)
Ln_turn×D×Policy×Score	−4.453*** (−7.64)	−1.983*** (−3.10)	−2.540*** (−2.79)	−5.069*** (−4.42)	−2.842*** (−5.21)
Zm	−0.003** (−2.52)	−0.006*** (−4.39)	−0.004*** (−3.09)	−0.001 (−0.43)	−0.005*** (−3.41)
Roa	0.055*** (3.29)	0.061** (2.46)	0.001 (0.07)	0.087*** (4.29)	0.191*** (4.18)
Bl	0.205*** (4.59)	0.348*** (9.06)	0.309*** (7.27)	0.199*** (3.17)	0.305*** (6.74)
Rm	0.004 (1.25)	0.005* (1.65)	−0.003 (−0.61)	0.005 (0.99)	0.007** (2.39)
Lev	0.004 (0.65)	−0.001 (−0.13)	0.007 (1.29)	−0.003 (−0.29)	0.006 (0.52)
Size	0.032*** (4.84)	0.022*** (4.46)	0.017*** (2.67)	0.039*** (3.50)	0.024*** (4.68)
Cz	−0.152 (−0.59)	0.180 (1.11)	0.024 (0.11)	0.592 (1.53)	−0.081 (−0.44)
Constant	−0.446*** (−4.76)	−0.375*** (−5.42)	−0.299*** (−3.30)	−0.495*** (−3.19)	−0.368*** (−5.09)
Observations	6792	9336	3371	2811	9946
Industry fixed effect	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.171	0.144	0.138	0.210	0.155

Notes: Significant at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. T value in parentheses.

This paper has carried out the following stability tests: one is to replace the explained variable; second, change the time dimension; third, change the regression method.

Column (1) in Table 6 describes the calculation method for replacing the core explained variable. Referring to the study of Gan et al. [4], it is mentioned that the calculation method of the tax burden is to pay various tax burdens-return the tax burden received. The regression coefficient α_1 is significantly positive, and the coefficients α_2, α_3, and α_4 are significantly negative, indicating that by relaxing the accounting conservatism of enterprises, the tax-cut policies enhance the tax burden of enterprises. The degree of pain is very robust.

The description of Column (2) in Table 6 is a test method to narrow the time dimension. The sample data from

Table 6

Stability test of tax-cut policies, accounting conservatism, and corporate tax burden stickiness

Names of variables	(1) replace the explained variable	(2) change the time dimension	(3) change the regression method
Ln_turn	0.229*** (15.66)	0.626*** (47.09)	0.677*** (82.51)
Ln_turn×D	–0.326*** (–3.86)	–0.460*** (–5.97)	–0.495*** (–10.46)
Policy	–0.174 (–1.08)	–0.132 (–0.86)	–0.041 (–0.45)
Ln_turn×D×Policy	–1.718** (–2.34)	–1.770*** (–2.65)	–0.144 (–0.35)
CScore	0.005 (1.33)	0.005 (1.39)	0.004* (1.93)
Ln_turn×D×Policy×Score	–2.300*** (–4.71)	–3.464*** (–7.80)	–1.754*** (–6.40)
Zm	0.003*** (2.77)	–0.005*** (–4.64)	–0.002*** (–3.00)
Roa	0.021 (1.33)	0.095*** (5.58)	0.035*** (4.03)
Bl	–0.052 (–1.57)	0.309*** (9.81)	0.069*** (3.72)
Rm	–0.002 (–0.97)	0.006** (2.35)	0.001 (0.45)
Lev	–0.001 (–0.19)	0.010* (1.73)	0.004 (1.27)
Size	–0.043*** (–9.89)	0.027*** (6.39)	0.005* (1.82)
Cz	0.232 (1.46)	0.048 (0.32)	0.036 (0.40)
Constant	0.531*** (8.46)	–0.438*** (–7.28)	–0.069** (–1.97)
Observations	16128	14784	16128
Industry fixed effect	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Adjusted R^2	0.087	0.157	–

Notes: Significant at *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. T value in parentheses.

2009 to 2018 are selected. Under the impact of tax reduction policies, by reducing the reporting quality of accounting information, corporate tax burden stickiness is still widespread in China's listed companies. The results of this study are pretty robust.

Column (3) in Table 6 shows the test results of changing the regression method. To avoid the median regression being carried out to interfere with outliers in the empirical analysis, it can be seen that the coefficient of α_1 is positive and statistically significant (Table 6).

The regression coefficients of α_2, α_3, and α_4 are negative and pass the significance test, which confirms that the tax-cut policies can effectively enhance the stickiness of corporate tax burden. In summary, the empirical results of this paper are very robust.

5. Discussion

The discussion section of this study presents essential findings on the relationship between tax-cut policies, accounting conservatism, and corporate tax burden stickiness. Our results verify the research hypothesis that tax-cut policies increase corporate tax burden stickiness through decreased accounting conservatism.

Specifically, our findings suggest that macro tax-cut policies weaken accounting conservatism in micro-enterprises, leading to various costs such as increased tax risk, service, financial, direct, and business volume asymmetry, ultimately contributing to the increased stickiness of the corporate tax burden. Structural and comprehensive tax-cut policies can significantly reinforce the tax rigidity of enterprises during the differentiation stage by decreasing accounting conservatism. It is also worth noting that VAT replacing business tax significantly inhibits tax burden stickiness.

Furthermore, we find that tax-cut policies reduce the quality of corporate accounting information reporting, which leads to an increase in corporate income tax burden stickiness while having no impact on VAT's tax burden stickiness. Tax-cut policies decrease the accounting conservatism of both state-owned and private enterprises, with private enterprises being more willing to reduce their accounting conservatism.

Finally, we observe that the high-tech manufacturing industry experiences the most significant reduction in accounting information quality, which affects tax burden stickiness under the influence of tax-cut policies.

Our study highlights that tax cost embodies enterprise resource input, occupation, and consumption, closely relating to enterprise management decision-making, management cost level, and market risk judgment ability. As such, enterprises must establish a long-term dynamic tax cost management mechanism that classifies and controls corporate tax costs based on different criteria, adjusts costs promptly according to the market environment, and enhances the ability to resist risks in a circular economy.

This paper contributes to the literature on corporate tax burden stickiness in three main ways.

Firstly, we adopt a novel perspective by investigating enterprises' overall tax burden stickiness, analyzing, and comparing the stickiness of value-added and income tax.

Secondly, our study considers various stages of tax reduction policies, including structural tax reduction, VAT reform, and sweeping tax cuts and fee reductions. This leads to a comprehensive understanding of corporate tax burden stickiness.

Lastly, we identify the transmission mechanism between macro-level tax reduction policies and micro-level enterprise tax burden stickiness. This contributes to a better understanding the interaction between macroeconomic policy and micro-enterprise behavior.

6. Conclusions

This study explores the relationship between tax-cut policies, accounting conservatism, and corporate tax burden stickiness using data from listed enterprises between 2008 and 2019.

Our results verify the research hypothesis that tax-cut policies increase corporate tax burden stickiness through decreased accounting conservatism.

The research concludes that a reduction in accounting conservatism caused by macro tax-cut policies results in an increased stickiness of the corporate tax burden. Structural and comprehensive tax-cut policies can enhance the tax rigidity of enterprises during the differentiation stage.

Furthermore, it found that tax-cut policies negatively affect the quality of corporate accounting information reporting. Therefore, enterprises should establish a long-term dynamic tax cost management mechanism to mitigate risks.

The study recommends increasing transparent enterprise information construction, such as accounting conservatism, to suppress tax burden stickiness due to macroeconomic policies.

Using comparative studies, future research could investigate the impact of different tax systems and government regulations on tax burden stickiness.

In addition, researchers could use other measures of accounting conservatism, such as earnings smoothing, to explore further the relationship between tax-cut policies, accounting conservatism, and corporate tax burden stickiness.

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Modeling the Economic Impact of Value Added Tax Reforms in Nigeria

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ABSTRACT
The purpose of this study is to verify the response of economic services to changes in value-added tax legislation. This research looked at all economic activities, including agriculture, transportation, communication, entertainment, construction, manufacturing, and financial services, among others. Nonetheless, the VAT policy amendment is intended to improve economic activity and provide funds for the government to carry out social obligations. However, it is critical to provide the government with empirical data to help guide these amendments as needed. The study employs ARDL and ECM to investigate both the long- and short-term effects of VAT reform on economic productivity enhancement. The data used in this study ranges from 1994, when VAT was fully implemented in Nigeria, to 2022. The use of these data allows for a thorough examination of the economic impact of VAT reform. The findings indicate that in the long run, VAT has a positive and significant impact on economic services, but in the short run, the findings show that VAT has an intangible impact on economic activities. The implication is that the economic service response to VAT reformation can only be tangible and positive in the long run when businesses are able to adjust to policy changes. The study also reveals that inflation is harmful to the economy in both the long and short run. As a result, the study suggests that policymakers keep an eye on inflation before raising or lowering the VAT rate in order to avoid a massive economic collapse.

KEYWORDS
VAT, economic activities, inflation, legislation amendment, tax policy reform

JEL E31, E61, E62

УДК 336.228

Моделирование экономических последствий реформ налога на добавленную стоимость в Нигерии

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АННОТАЦИЯ
Целью исследования является оценка влияния изменений законодательства по налогу на добавленную стоимость на основные экономические процессы в Нигерии. Рассматривалось влияние реформ НДС на все виды экономической деятельности, включая сельское хозяйство, транспорт, связь, развлечения, строительство, производство и финансовые услуги. Изменения налоговой политики в отношении НДС призваны улучшить экономическую активность и обеспечить дополнительные средства правительству для выполнения социальных обязательств. В процессе таких реформ крайне важно предоставить правительству эмпирические данные, позволяющие оценить результативность данных реформ. В исследовании используются модели ARDL и ECM для изучения как долгосрочного, так и краткосрочного влияния реформ НДС на экономические показатели в стране. Данные, используемые в исследовании, варьируются от 1994 г., когда НДС начал применяться в Нигерии, до 2022 г. Использование этих данных позволяет тщательно изучить экономические последствия проводимых

реформ в сфере НДС. Результаты исследования показывают, что в долгосрочной перспективе НДС оказывает положительное и существенное влияние на экономические процессы в стране. В краткосрочной перспективе результаты показывают, что НДС оказывает несущественное влияние на экономическую деятельность. Обосновывается, что реакция экономики на реформу НДС может быть ощутимой и положительной только в долгосрочной перспективе, когда предприятия смогут приспособиться к изменениям в сфере НДС. Исследование также показывает, что инфляция вредна для экономики как в долгосрочной, так и в краткосрочной перспективе. Исследование обосновывает, что политики должны мониторить уровень инфляции, прежде чем повышать или понижать ставку НДС, чтобы избежать экономического коллапса.

КЛЮЧЕВЫЕ СЛОВА
НДС, экономическая деятельность, инфляция, изменение законодательства, реформа налоговой политики

1. Introduction

Tax policy amendments is the way the state receives and manages tax payments to suit the prevailing economic realities. Tax policy changes have objectives: many aims to lower the administration's tax burden on citizens, while others are aimed at rendering the tax structure a little more innovative. Others strive to standardize the tax system with the goal of making it more comprehensible and answerable to the people.

Tax reform became necessary in Nigeria because of the complexity of the country's tax system, which [1] described as extremely complicated, deformable, unproductive, unequal, and biased. Furthermore, the nation was reliant on duties on imported and exported goods, with no chances of earning income through consumer taxes such as VAT.

The nation's reliance on tax contributions associated with international economic relations had resulted in a highly volatile total income. Besides that, Nigeria's taxable income is really very limited, whereas the tax rate is extremely elevated.

Tax policy modification is a multidimensional and continuously emerging occurrence in all economies' tax system. Clause 30 of the Finance Act 2020 highlights the use of taxpayer identification number as a precondition for creating an account with a bank, which could reduce evasion and avoidance of taxes and thus enhance the compliance rate of tax paying citizens in the country [2]. Relevant provision of the Finance Act also invalidated the part four of the old VAT Act, by raising VAT rate from 5% to 7.5% in the order to boost income and close the state's budget shortfall.

The tax on commodities and services, also known as Value Added Tax, is imposed on the economic benefit that occurs from every buying and selling. It is an implied tax collected from an individual other than the service user who carries the sales taxes expense.

A value added tax (VAT) is a form of taxation that is charged to products and services purchased by any service user, corporations, or persons. VAT is also known as a tax on expenditures that is charged at each phase of the payment but is ultimately incurred by the end user of such products or services [3].

In 1954, a French economics expert named Maurice Laure devised Value Added Tax as a sort of indirect tax and the concept was initially launched in France on April 10, 1954. Ever since, numerous advanced nations have adopted VAT as a type of national sales tax in their economic systems [4]. VAT has been discovered to be a treasure trove in certain regions in the past couple of decades.

Considering their experiences in industrialized regions, funding agencies, particularly the International Monetary Fund, have consistently advocated for this type of tax in emerging countries. Demi et al. [5] posit it that fiscal and economic legislative changes have a consequential effect on companies' financial performance, deliver less earnings to households, decrease social assistance, and cause societal disparities to emerge, among other things.

The idea of VAT as a solution is based on the fact that it can generate considerable income because non – compliance is incredibly hard and the platform is broad [6]. A further justification for proposing VAT is the perception that it can be used to close the gap between rich and poor.

Gordon & Nielsen [7] are positive about the efficacy and fairness of VAT, which has received huge backing in later research [8–10] among others. Considering the mismatch arising from commercial operations between advanced and developing nations, Moore [11] posited that too much export obligations may deter domestic manufacturing, while exorbitant import taxes may dissuade imports. In quite an initiative to tackle this issue, research [12; 13] affirmed that the wealth inequality broadens in poor economies as reform efforts become more stringent. Authorities must keep researching all mechanism of redistributing funds and enhancing publics' well-being, even though various taxes are imposed in Nigeria, the value-added tax continues to remain clearly different and has long been a recurring theme in legal review and public dialogue [14; 15].

The *purpose* of this study is to verify the response of economic services to changes in value-added tax legislation. The study specifically seeks to determine the consequences of VAT and inflation on economic services in an emerging economy.

Economic services in Nigeria comprises agricultural activities, construction of roads and bridges, tourism and entertainment, transport and communication, manufacturing, and financial services among others. However, the question is: do consumption tax and rising prices of goods and services affect economic services in the country? To pursue the main objective of this study, the following specific *objectives* are identified: (1) To determine the economic impact of value-added tax in Nigeria; (2) To establish the degree at which inflation affects economic activities in Nigeria.

The following null *hypotheses* are stated:

$H0_1$: VAT does not have significant economic impact in Nigeria.

$H0_2$: Inflation does not have substantial economic effect in Nigeria.

Article structure. The study is divided into 5 sections which includes the introduction that states the background to this research, literature review, research approach, results emanating from the data analysis and the concluding remarks.

2. Literature review

2.1. Conceptual review

Tax reform is critical to increasing competitive strength through more cost-effective investment strategies, which ultimately result from the reduction or remediation of malfeasance, corrupt practices, and transaction processing incoherence, which previously characterize and create awareness of the restructuring when it is implemented [16].

According to the [17], substantial tax arrangement reform efforts have happened in a variety of industrialized nations, including Canada, France, Germany, Japan, Spain, the United Kingdom, and the United States, as well as emerging nations, including Eastern European countries, Russia, China, and other emerging markets. Germany, for comparison purposes, integrated a new tax initiative in 2000 that formalized the system for collecting taxes, resulting in a significant increase in revenue collection. The importance of tax law changes across both advanced and emerging nations worldwide is the lessening or elimination of budget deficits through acceptable taxation system revamping to draw increased earnings or to achieve better revenue flexibility or lightness of the taxation system [6]. Tax structure amendment is thus a purposeful strategy for increasing cash flow, increasing productivity, and promoting fairness [18].

According to [19], taxation cannot attain macroeconomic objectives, necessitating tax re-engineering and restructure perspectives in the form they appear originally. Thus, tax policy changes are merely a set of initiatives launched by the governments to improve tax revenue collection and the entire system of taxation. Reduced wealth creation is the result of poor taxation policy and ineffective tax system, and even the little that is produced is worn down by the great and powerful dirty fingers of pragmatism and bribery.

Furthermore, to the use of revenue mobilization policy changes to tackle the problem of perennially lesser government income, as proposed by [20,21], it was contended that an effective and successful tax administration legislation is a prospective facilitator for instantaneous amplification of an unfair tax system of government and self-interested propensity. The idea is not new, as Nigeria has implemented several tax legislative changes.

The various tax changes had the goal to increase the base of taxes, minimize the financial strain on taxpaying citizens, rebuild ratepayer sense of trust in the taxation system, and encourage conformity and taxpayers' voluntary compliance. Overall, the ultimate objective of tax policy amendment is to encourage greater government revenue gathering to carry out social obligations [22].

Value added tax, also known as the tax on products and services, is billed on the economic output that tends to result out of each buying and selling. It is a kind of hidden tax that is assessed to products and services for the value created at each step-in manufacturing and delivery [14]. VAT is an implicit tax paid from a party other than the participant who holds the expense associated with the tax.

The origins of VAT in Nigeria are traceable back to a systematic review on consumption taxes led by Dr. Sylvester Ugoh in November 1991. Following that, a review panel chaired by Mr. Emmanuel Ijewere was formed to carry out a detailed investigation and provide suggestions. Value added tax was successfully added in Nigeria's tax structure following the outcome of the investigations, in 1993 by the VAT Act No. 102 of 1993 as a potential substitute for the sales tax that had previously been in process under Federal government Legislated decree No. 7 of 1986 but was prescribed by the states including Federal Capital Territory [3].

Value added tax is imposed on goods when value is added at a manufacturing phase and at completion of the sale, or a wide-ranging tax levied at numerous different manufacturing phases, with tax payments on factors of production recognized against tax payments on yield [4].

Thus, the sum of value added tax paid by the consumer is the price for the good less any previously taxed expenses of the components that make up the item. Numerous VAT frameworks have a base rate, special percentages for only certain products and services, and deferral position for such business activities or items and services [4].

2.2. Theoretical review

This research is based on the optimal taxation theory proposed by ethical humanist John Stuart Mill in 1871. According to [23], the goal of legislation in a normal ideal tax assessment is to maximize people's benefits, which is estimated using a social welfare model that is dependent only on the social assistance thresholds of people in the community.

Ramsey advanced optimal taxation in 1927 by introducing a principle for ideal primary commodities levies. Ramsey [24] observed that a rational agent looking to generate a specific amount of fiscal revenue through commodity taxes should levy such tax payments in opposition to the reflective consumer's demand flexibility for the good, with commodities experiencing relatively inelastic taxed more heavily.

Newbery & Stern [25] utilized best possible tax overhaul model to investigate the tax structural reforms using a regulatory regime. According to [25], the optimized income tax framework stresses how important it is to measure the influence of tax policy modification and assess both its administrative expenses and its implications for public social assistance.

The principal drawback to this strategy is that it requires a large amount of data, which is challenging to get in emerging regions [22]. Furthermore, optimized tax system remarkable success tax administration, which does not arise in Nigeria or several other emerging economies [22]. The premise of this hypothesis is the belief that a decent tax system ought to be capable to encourage a functional community by reaching the highest sum of joy for the largest number of residents as a yardstick for taxes [26].

A VAT revenue growth achieved by widening the framework with very few exclusions and/or attaining a somewhat more homogeneous rack rate with lesser discounted rates could be more developmental furthering than earnings achieved by raising the basic rate, in determining the value to most of the taxable consumption, given that the latter increase is almost certain to negate the productivity improvements [27].

Onaolapo et al. [28] submit that when more items and services are levied, the government has the potential to collect sufficient funds to cope with the difficulties of her discretionary spending regarding the delivery of social and economic infrastructure and the operational expenses of the authorities.

Generally, tax reforms are a critical approach to controlling a state's financial configuration. The fact that several nations' tax administrations do not function optimally and/or misrepresent the primary aim of tax legislation [29] is an underlying confirmation of organizational botch.

2.3. Empirical review

Oriakhi & Ahuru [22] studied the effect of tax policy changes on tax earnings in Nigeria from 1981 to 2011. The study established a long-term relationship between tax legislative change and total federal revenue. Direction of causality demonstrated that customs and excise obligations, as well as real worth tax, granger induced amount of tax revenue. Ultimately, the research found that tax amendment, by strengthening the system of taxation and lowering the tax liability, increased the government's capacity for raising so much income.

Omesi & Nzor [6] investigated tax changes in Nigeria in terms of value added tax. It emphasized the causes for the substitution of value-added taxes for sales tax, the annual role of value-added taxes to the country's earnings base and disclosed that the implementation of value-added tax was intended to support advancement at the lower ranked of leadership. The article also confirmed that Nigeria has the minimum values added tax rate among nations.

By analyzing the impact of tax reforms on Nigerian future prosperity from 2000 to 2015, Herbert et al. [16] demonstrated that tax changes are a future direction of a nation's economic structural reforms and management. The research implemented an evolved statistical analysis dimensional framework to evaluate how to determine the extent tax reforms promote financial prosperity. The results proved, among many other things that VAT reform efforts had a good association with future prosperity, but the influence was minimal.

Ezenwafor [30] examined the effects of the value-added tax on Nigerian trade and industry progression from 2004 to 2019. At the 5-percentage threshold for importance, the researcher reported that the value added tax had a notable adverse effect on the gross domestic product per head of population in Nigeria.

Orisadare & Fasoye [15] used the price index for consumer goods as a lower limit to look at the impact of VAT on Nigeria's economic expansion between 1994 and 2020. A Tolerance Var Model method was used, and the findings confirmed that a VAT far above 10% predefined threshold harms the economic system, whereas a VAT below the 7.59 percent threshold level does not cause economic damage, but rather improves people's well-being. It is therefore recommended that the Nigerian economy maintain the lower VAT threshold in order to mitigate the impact of rapidly increasing Consumer prices on inhabitants.

Odu [31] examined the effects of VAT on raising revenue and the growth of the Nigerian economy from 1994 to 2018. The research determined that VAT had a considerable influence on all taxes collected with a two-year latency and that it progressively tried to explain modifications in the overall revenue from taxes over time. The research additionally discovered that Goods and services tax had a major adverse impact on Economic output with a one-year time delay. The VAT pattern had a positive and statistically significant impact, denoting that VAT grew over the years.

Omodero & Eriabie [8] investigated how much VAT earnings affect manufacturing industry output. The said investigation examined the causal consequence of VAT earnings on manufacturing efficiency in the Nigerian economy using data from 2010 to 2021. The response variable was production outcome, and the explanatory variables were shipping VAT, household VAT, and total VAT receipts. Pairwise Granger Causality Evaluations were used in the study, which revealed that local VAT yields and combine VAT gathering had beneficial and substantial direct causal consequences on industrial output. The study also measured the relationships between the study objects, and the findings demonstrated that there is a strong connection between the research variables. The outcome of the study led to a conclusion that VAT is a potent stimulus in the nation's industry attractiveness.

Lalarukh & Chowdhury [4] examined the connection between VAT and Productivity growth in Bangladesh as well as how VAT made a significant contribution to the economic expansion of the nation from 1991 to 2012. The Johansen co-integration approach was used to assess the connection. In keeping with the study, the value added tax had a beneficial effect on gross domestic product and was able to contribute to the economic expansion of the nation.

Simionescu & Albu [32] investigated the effect of the standard VAT rate on productivity expansion in five Central and Eastern European countries between 1995 and 2015. The research showed that the VAT rate had a beneficial impact on growth in the economy. For both productivity expansion and the VAT percentage, there was a bilateral Causal relation. The study disclosed that it was only in Hungary the Bayesian existing models demonstrated an advantageous implication of VAT on Economic output. Once VAT rates went up, other nations' Output growth rates fell in the near term.

Chan et al. [33] investigated the effect of public expenditure quality on economic expansion in 115 countries with a value-added tax structure. According to the research, the VAT scheme was identified as improving the overall impact of effectual government spending on growing the economy, and the VAT platform's moderating effects has been further reinforced by the democratic standards and the regulatory resilience of the authorities.

Gashi et al. [34] investigated the impact of the taxation system on Kosovo's economic progress from 2007 to 2015. The findings indicate that a great deal of tax contributions, together with VAT, had a productive effect on growing the economy.

Semenova [35] discovered that a 2% VAT rate increase imposed a huge strain on smaller firms. It was anticipated that as the tax burden increased, some businesses might well close because of a scarcity of finances, and investment opportunities in the Russian economy would decline. According to the study, a relatively high VAT rate might indeed compel overseas investment to consider leaving Russia.

Suna et al. [9] used the distributional autoregressive lag technique to assess the influence of indirect and direct taxation on economic progress in Turkey in order to determine the efficacy of taxes as a critical tool of policy decisions in an economic system. The findings from the investigations indicated that indirect taxes had an optimistic and significant effect on the growth of the economy, while direct taxes had a substantial and adverse effect. With the expansion of national production transmission, conventional market data could perhaps clearly describe the true extent to which trade occurs in a geographical area.

Sui et al. [36] sought to unveil the dynamic nature of serious trade along the "Belt and Road" by constructing a value-added trade route of "Belt and Road" nations and attempting to compare it to the trade system. When they compared the trade route to the VAT channel, they discovered that the concentration of the VAT channel is significantly smaller than that of the trading route. Although the expansion of local economic magnitude and bilateral trade pacts will benefit both commerce and VAT, the study established that the financial shortfalls and population discrepancies among "Belt and Road" countries will prevent provincial commercial relations.

Hameed et al. [37] investigated the benefits and drawbacks of VAT on Small and medium enterprises (SMSs), finding that the detrimental consequences were more predominant.

Zhang et al. [10] reviewed the 2016 VAT distribution restructure to analyze the effect of revenue sharing on economic challenges and offer an alternate strategy for recovering the VAT sharing ratio. The investigation discovered that while the VAT sharing transformation ameliorated a number of the directional budget deficits induced by the legislative change of substituting corporate taxes with Value – added tax, it exacerbated lateral macroeconomic deficits and broadened provincial budgetary discrepancies.

Mitusova [38] noted, among other VAT issues, the challenges of unauthorized VAT reimbursement in the export of wood products connected with the adoption of new approaches by taxpaying citizens to minimize tax obligations and the complexity of the type of contractual arrangements in Russia. According to [39], VAT decrease is a vital platform for cultivating new dynamics for industrial prosperity which has had a substantial effect on regional fiscal pressure. Using the 2018–2019 VAT rate change in China as a case in point, their study used an Econometric model to determine the effect of the VAT decrease strategy on local fiscal stress in China in the context of the COVID-19 deadly virus. The findings demonstrated that local fiscal tension accelerated by 27.08%, from 0.342 to 0.435.

Sarwar et al. [40] investigated the impact of VAT and Vision 2030 on the Saudi economy. To test this, they examined how economic transition influenced the roles of labour, assets, price of crude oil, financial deepening, and trade openness in economic progress. Based on the vector error correction approach, the effect of labour was bad after VAT, but the influence of finance and capital expansion was considerable. Crude prices coefficients are important and detrimental for both positive and adverse shocks. Budgetary growth and commercial liberalization revealed different outcomes; supply shocks have produced negative coefficients. Trade liberalization, on the other hand, had a major beneficial correction factor after Vision 2030.

Andrejovska & Helcmanovska [41] looked at the associations between identified macroeconomic indicators and VAT rates in 28 European states from 2004 to 2018. The findings indicate that a 1% upsurge in the basic VAT rate might cause a decline in each year increments when juxtaposed with the actual value systems of annual incremental steps for randomly chosen macroeconomic factors. In the end, this could have a detrimental effect on the economy in the near term by slowing growth.

The goal of tax policy reforms is to improve the social welfare of individuals in a country. Thus, the entire essence of VAT policy transformation is expected to improve general economic conditions in emerging economies such as Nigeria.

2.4. Elaboration of the problem

As we have shown the works of [6; 8; 15; 30] partially pursued this goal but were inconclusive as to the effect of VAT reform on general economic activities in both the short and long term. In the context of other economies, the works of [33–38], for example, expressed the extent to which VAT implementation affected government spending, economic growth, foreign investment, provincial commercial relations, SMEs, exportation, and fiscal equilibrium. In this study, we model the economic impact of VAT reform in Nigeria in both the long and short term.

This study fills a gap by examining the impact of VAT policy changes on general economic activities to determine their effectiveness in improving economic activities, which leads to a betterment in public social well-being.

3. Methodology

For empirical estimation, the model was established as follows:

$$LogESVt = \alpha_0 + \alpha_1 LogVATt + \\ + \alpha_2 LogINFt + \varepsilon t. \quad (1)$$

LogESV, also known as economic services, is the model's response variable, LogVAT is the value added tax, LogINF is inflation, α_0 is the numerator, α_1 is the co-integrating matrix to be anticipated, and εt is the traditional random error.

All data on relevant factors are given in billions of local currencies before conversion to log form. However, inflation was gathered in percentage form.

The ARDL model is used in econometrics to calibrate the longstanding relationship between two or more parameters premised on stationarity metrics. To determine the short- and long-run interplay of VAT, inflation, and economic service, the ARDL bound-testing method recommended by [42] and [43] has been used.

The ARDL bound-testing method has been chosen over other analytical techniques by scholars such as [44; 45], because it allows factors to be static at varying degrees [I(0), I(1)] and regression coefficients to have divergent appropriate lag sizes when using the traditional co-integration operation [43].

The following hypothesis is proposed to verify the occurrence of co-integration between the variables included in the model:

H_0: $b_{1i} = b_{2i} = b_{3i} = 0$ (There is no long-term relationship in these series).

H_1: $b_{1i} \neq b_{2i} \neq b_{3i} \neq 0$ (There is long-term relationship in these series).

(Where i = 1, 2, 3).

Therefore, the specification for bound test include:

$$LogESV_t = \alpha_{01} + b_{11} LogESV_{t-I} + \\ + b_{21} LogVAT_{t-I} + b_{31} LogINF_{t-1} + \\ + \sum_i^p = 1\alpha_{1i} \Delta LogESV_{t-i} + \sum_i^q = \\ = 1\alpha_{2i} \Delta LogVAT_{t-I} + \sum_i^q = \\ = 1\alpha_{3i} \Delta LogINF_{t-i} + e_{1t}. \quad (2)$$

Long-run model specification is highlighted below:

$$LogESV_t \to = \to \alpha_{01} + b_{11} LogESV_{t-I} + \\ + b_{21} LogVAT_{t-I} + b_{31} LogINF_{t-1} + e_{it} \quad (3)$$

$$LogESV\, C\, LogESV(-1) LogVAT(-1) LogINF(-1)$$

Error correction model (ECM) specification:

$$\Delta LogESVt = \alpha_0 + \sum_i^p = 1\alpha_{1i} \Delta LogESV_{t-i} + \\ + \sum_i^g = 1\alpha_{2i} \Delta LogVAT_{t-i} + \sum_i^g = \\ = 1\alpha_{3i} \Delta LogINF_{t-i} + \lambda ECM_{t-1} + e_t \quad (4)$$

$$d(LogESV)C\, d(LogESV(-1)) d(LogVAT(-1)) \\ d(LogINF(-1)) ECM(-1)$$

Table 1 provides details of all the variables applied in this study. The economic service is shown as LogESV, while the explanatory variables which are value added tax and inflation are shown as LogVAT and LogINF respectively.

4. Results

Table 2 depicts the model's data description, which includes mean, median, minimum, maximum, standard deviation, skewness, kurtosis, and Jarque-Bera test values. The skewness and kurtosis values indicate that the dataset does not have any skewed value issues or problems. Because the Jarque-Bera value is inconsequential

Table 1

Variable Information

Variable Code	Description	Measurement	Transformation	Source
LogESV	Economic Service	Billions of Naira	Logarithm form	Central Bank of Nigeria
LogVAT	Value Added Tax	Billions of Naira	Logarithm form	Federal Inland Revenue Service
LogINF	Inflation rate	Percentage	Logarithm form	World Development Indicator

Source: Research output, 2023.

which prove that all of the variables are evenly dispersed.

Table 2 shows that VAT is positively and strongly related to economic services and is not harmful to them because it is not felt due to its indirect phenomenon. However, as shown in Table 2, inflation is always detrimental to economic activity and has no positive relationship with it.

The unit root result for the factors used in this investigation is shown in Table 3. We used the conventional Augmented Dickey Fuller and Phillip Peron methods, and the results are the same, implying that LogESV is stationary at first difference or order one (1). LogVAT and LogINF are also established to be stationary at level or order zero. These findings influenced the use of ARDL because it is the most applicable and useful technique based on the unit root test results.

It is observed that in Table 4, VAT has a considerable affirmative influence on economic services while inflation has been shown as have a destructive effect at 10% level of significance. However, at lag 2, inflation becomes more detrimental to economic activities at 1% degree of relevance. Although these results come from the unrestricted ARDL result, but it quickly tells us that inflation is not a good omen to the economic situation and no matter how much VAT contributes to the economy, inflation diffuses the immense benefits.

Table 2

Descriptive Statistics

Index	ESV	VAT	INF
Mean	2.007	2.254	1.121
Median	2.307	2.460	1.093
Maximum	2.750	3.213	1.862
Minimum	0.592	0.702	0.732
Std. Dev.	0.676	0.701	0.249
Skewness	–0.845	–0.624	1.361
Kurtosis	2.451	2.239	3.161
Jarque-Bera	3.682	2.492	14.09
Probability	0.159	0.288	0.087
Sum	56.20	63.10	31.40
Sum Sq. Dev.	12.35	13.25	1.686
Observations	28	28	28
Correlation analysis			
ESV	1.000		
VAT	0.955	1.000	
INF	–0.465	–0.431	1.000

Source: Authors' calculation, 2023.

Table 3

Unit Root Calculation

Variable	ADF T-Stat	Critical value @ 5%	P-Value	Order of Integration	PP T-Stat	Critical value @ 5%	P-Value	Order of Integration
LogESV	–6.32	–2.98	0.00	1(1)	–6.32	–2.98	0.00	1(1)
LogVAT	–5.57	–2.98	0.00	1(0)	–4.05	–2.98	0.00	1(0)
LogINF	–4.82	–2.98	0.00	1(0)	–4.66	–2.98	0.00	1(0)

Source: Authors' calculation, 2023.

The study used ADF and PP unit root tests to ascertain data stationarity, and the outcomes of both testing methods are shown in Table 3. Given that some parameters were I(0) and the other is I(1), the results reinforce the application of the ARDL bounds assessment [42]. Both tests showed that the ESV factor was distinction static, while the VAT and inflation indicators were level stationary. Based on this, a bound test must be performed to confirm the co-integration type and ensure that the required lag length is preferred.

As a result, Table 5 shows that the F-statistic value is 5.113, which is greater than both the lower bound of 3.79 at the critical value of 5% and the upper bound of 4.85 at the critical value of 5%. On this basis, we conclude that long run co-integration exists, as supported by [42; 45][1].

Having established the long run relationship, the test is carried out and the long run result is displayed in Table 6. The results of the short run are reflected in Table 7.

[1] https://davegiles.blogspot.com/2013/06/ardl-models-part-ii-bounds-tests.html

Table 4

Unbound ARDL results

Variable	Coefficient	Std. Error	t-Statistic	P-value
LOGESV (–1)	–0.009	0.191	–0.049	0.962
LOGVAT	**2.116**	**0.845**	**2.504**	**0.023****
LOGVAT (–1)	–0.928	1.191	–0.779	0.447
LOGVAT (–2)	1.565	1.189	1.316	0.206
LOGVAT (–3)	–1.726	0.859	–2.008	0.062*
LOGINF	**–0.511**	**0.285**	**–1.789**	**0.092***
LOGINF (–1)	–0.074	0.262	–0.283	0.781
LOGINF (–2)	–0.777	0.228	–3.404	0.004**
C	0.911	0.425	2.141	0.048

Notes: R-squared = 0.93; Adjusted R-squared = 0.89; S.E. of regression = 0.17; F-statistic = 27.65; P-value (F-stat) = 0.00; Durbin-Watson stat = 2.07; ** represents significant level at 5%; * Represents significant level at 10%; Research output, 2023.

Table 5

ARDL Bounds Test

F-statistic value	Critical values, %	I(0)	I(1)
5.113	10	3.17	4.14
	5	3.79	4.85
	2.5	4.41	5.52
	1	5.15	6.36

Source: Authors' calculation, 2023.

Table 6

Long run result (Dependent variable: LogESV)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.645	0.289	2.234	0.035
LOGESV (–1)	0.319	0.193	1.654	0.112
LOGVAT (–1)	0.509	0.187	2.721	0.012***
LOGINF (–1)	–0.309	0.173	–1.786	0.087**

Notes. R-squared = 0.91; Adjusted R-squared = 0.90; S.E. of regression = 0.19; F-statistic = 82.24; P-value (F-stat) = 0.00; Durbin-Watson stat = 2.23; *** represents significant level at 1%; **Represents significant level at 10%; Research output, 2023.

5. Discussion

The result of the long run test performed is shown displayed in Table 6. From Table 6, VAT has positive *t*-statistics of 2.721 and p-value of 0.012 which is less than 0.05. On the contrary, inflation has a negative t-statistics of –1.786 and a p-value of 0.087 adjudged significant at 10% level of significance. The information provided in Table 6 suggests that VAT has a significant positive effect on economic activities, but inflation is very harmful to economic services. The positive and significant effect of VAT on economic services confirms the strong and positive relationship established in Table 2 as well as the unstructured ARDL result in Table 4.

The null hypothesis that VAT does not a significant influence on economic services in the long run is rejected. Thus, the findings of [4; 8; 16; 31–33] support this outcome but there is a disparity between this result and the findings of [30; 35; 41]. At 10% level of significance, inflation hurts the economy. Here, the null hypothesis is not rejected.

Following the other information provided, we established from the Durbin-Watson result that there is no autocorrelation, and the predictor variables jointly affect the economic services using F-statistics and the p-value shown in Table 6. There is also a confirmation through the standard error of regression of 0.19 that our prediction is without error.

As a result, as shown in Table 7, in the short run, VAT has a negligible positive effect on economic services while inflation is insignificantly negative. ECM (–1) has a –4.290 hurtful t-statistic, a 0.000 p-value, and a statistically relevant coefficient of –1.343. It affirms that if the numerous factors veer away from the synchronization target level by 1% in the short term, they will revert back to adjustment by approximately 100% on annual basis. That is, the return to equilibrium is 100% guaranteed in the event of any disequilibrium.

The cumulative sum of recursive graph (Figure 1) depicts the robustness of the study's model by showing the blue line between the frontiers of the red dotted lines which implies that at 5% level of significance the model is stable.

The cumulative sum of squares graph (Figure 2) provides a confirmation that Figure 1 is correct and that the model ap-

Table 7

Short run result (Dependent variable: LogESV)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	–0.001	0.062	–0.020	0.984
D(LOGESV (–1))	0.527	0.242	2.183	0.041**
D(LOGVAT (–1))	0.366	0.566	0.647	0.524
D(LOGINF (–1))	–0.015	0.179	–0.085	0.933
ECM (–1)	–1.343	0.313	–4.290	0.000

Notes. R-squared = 0.50; Adjusted R-squared = 0.41; S.E. of regression = 0.18; F-statistic = 5.35; P-value (F-stat) = 0.00; Durbin-Watson stat = 2.00; ** represents significant level at 5%; Research output, 2023.

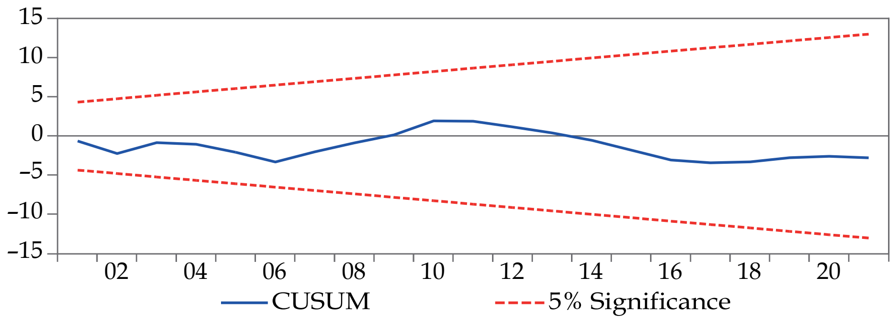

Figure 1. **Cumulative sum of recursive graph**

plied in this study is free from structural breaks.

Figure 3 endorses that the recursive coefficients estimates are correct, and the models are free from bias. This is confirmed by the blue lines not exceeding the red dotted lines.

The normality check confirms that all datasets used in this study have a uniform distribution. The Kurtosis is approximately 3, and that is the benchmark, and most importantly, the p-value of the Jarque-Beta is 0.25, which is greater than the 0.05 level of relevance (Figure 4, Table 8).

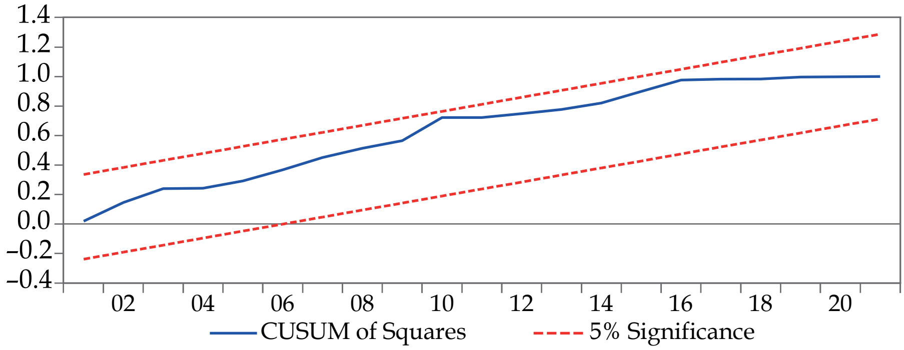

***Figure* 2. Cumulative sum of squares graph**

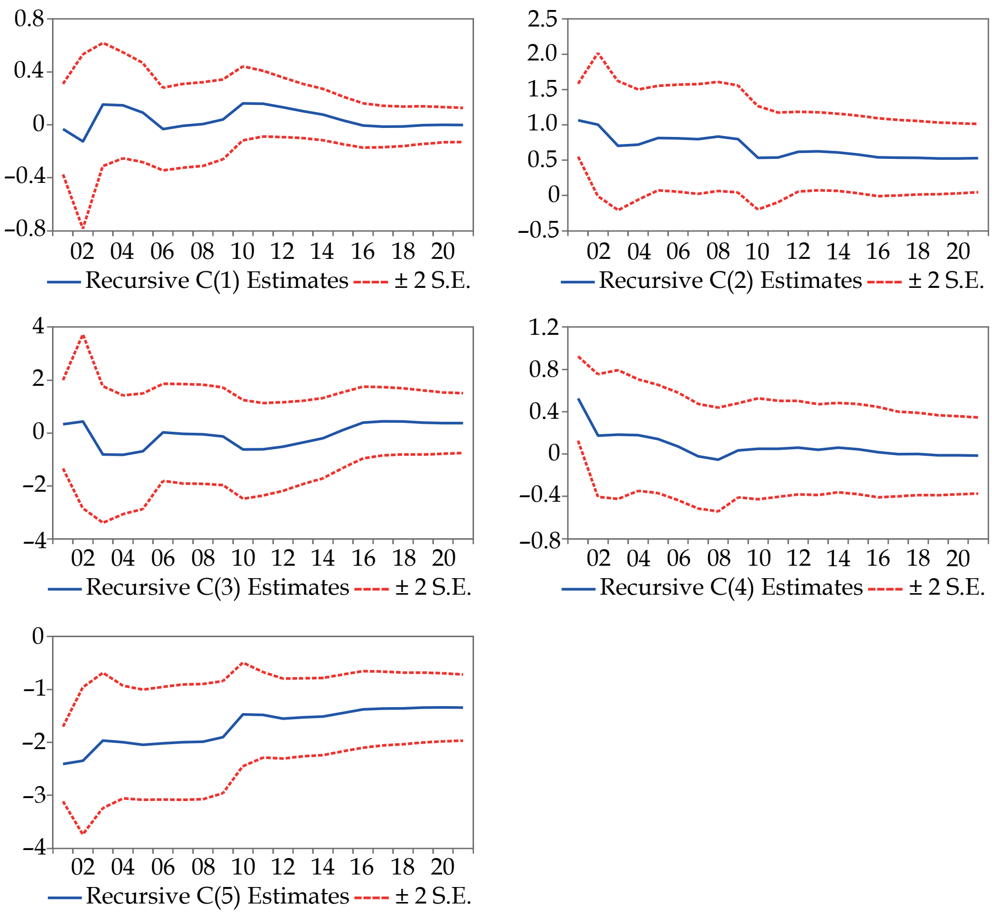

***Figure* 3. Recursive coefficients**

The skewness is also fairly and positively skewed. All of these are indicators that the datasets are appropriate and correctly apportioned.

The structural rigidity verification shown in Figures 1–3 demonstrate that the model we have developed is reliable and free of structural flaws. We also tested for data sharing normal function in Figure 4, and the final outcome reaffirms that there is no problem with dataset, as indicated by the Jarque-Bera p-value of 0.255. A further examination of multi-collinearity proves that predictors are not interdependent.

6. Conclusion

The study concludes that VAT is coherent with commercial development in the long term because it has a major and beneficial effect on all economic services, but there is no impact in the short run.

The study also shows that inflation is hurtful to economic activities in both the short and long term. Although in the short term, if appears immaterial but over time it depresses businesses and reduces purchasing power of households and enterprises.

Therefore, the outcome of this study confirms that VAT has a beneficial and positive economic impact in the long run but not in the short run while inflation is detrimental to the economy at both ends.

Thus, $H0_1$ is declined while we do not reject $H0_2$. The optimal taxation theory used in this research is supported by this result which shows that when VAT reform is optimally applied, in the long run, it tends to benefit both the government and the entire economy.

The policy recommendation is that VAT reform be reviewed on a regular basis to avoid a short-term zero effect. When the VAT rate remains stable, both producers and consumers are unaffected. However, an increase in VAT rates raises the cost of

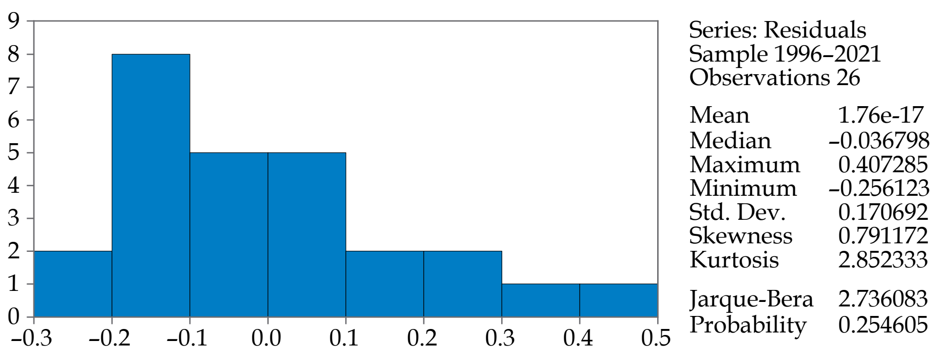

***Figure* 4. Normality test confirmation**

Table 8

Further Robustness test

Type of test	Statistic	P-value
Autocorrelation/Serial Correlation LM Test	0.001	0.971
Heteroskedasticity Test	1.696	0.187
Ramsey RESET Test	1.963	0.176
Normal distribution check (Jarque-Bera)	2.736	0.255
Multi-collinearity test	Coefficient	VIF
LogESV	0.058	2.475
LogVAT	0.320	1.050
LogINF	0.032	1.009

Source: Author's calculation, 2023.

goods and services, which may cause consumers to abandon certain goods and services, such as luxury goods and services, reducing the output of manufacturers of such economic goods and services.

In this study, the negative impact of inflation is also worth noting. As a result, before raising the VAT rate, the government should consider the impact of inflation, as increases in both economic forces (inflation and VAT rates) will harm the country's economic system.

This research looked at all economic activities, including agriculture, transportation, communication, entertainment, construction, manufacturing, and financial services, among others. The Central Bank publication enabled the collection of statistics for all economic activities. According to the study, future research in this area may need to break down these economic activities and apply a segment of choice rather than the entire economic activities as used in the current work.

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VAT Revenue and Economic Growth in the Middle East and North Africa Region: Evidence from Panel Data Analysis

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ABSTRACT

The Middle East and North Africa (MENA) region countries are characterized by a great diversification in the level of political, economic, and socio-political principles in the world. This diversity applies also to their tax regime, particularly VAT. Taxes are the primary source of funding for the government and public expenditures by generating considerable revenue to fund the national product. MENA region countries, like any other country with a population that typically keeps increasing throughout time, tend to boost their economic growth to ensure higher living standards, higher real income, and innovation. This study examines the impact of important drivers of MENA countries that affects GDP growth, based on a large sample of 14 countries from 2010–2020, information collected from unit cross-sections (country), and over time. Then, panel regression is the appropriate statistical method to analyze two-dimensional data, through a fixed effect panel data analysis. The sample of countries has been chosen based on pre-established criteria reflecting the availability of data for the study period. Collected data have been analyzed using the software STATA version 17. The findings obtained prove a positive significant VAT impact on economic growth for the sample of MENA region countries. This study helps policymakers in assessing and reviewing their tax policy related to VAT to maximize their source of revenue generated by this tax. The findings of this study supported that the unemployment rate and CPI decrease GDP growth, whereas VAT leads to an increase of economic growth in this region**.** This proves the importance of VAT tax in raising government revenue.

KEYWORDS

Middle East and North Africa, Value added tax, GDP growth, unemployment, consumer price index

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Поступления от НДС и экономический рост в регионе Ближнего Востока и Северной Африки: данные панельного анализа

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АННОТАЦИЯ

Страны региона Ближнего Востока и Северной Африки (MENA) характеризуются большой диверсификацией уровня политических, экономических и социально-политических принципов в мире. Это разнообразие относится также к вопросам налогообложения, в частности к НДС. Налоги являются основным источником финансирования государственных и государственных расходов, генерируя значительные доходы для финансирования национального продукта. Страны региона MENA, как и любые другие страны с продолжающимся в течение времени ростом населения, как правило, стремятся стимулировать свой экономический рост, чтобы обеспечить более высокий уровень жизни, более высокие реальные доходы и инновации. В данном исследовании изучается влияние важных факторов для стран MENA, влияющих на рост ВВП, на основе большой выборки из 14 стран в период с 2010 по 2020 гг., а также информации, собранной по срезам единиц (страны) на протяжении данного периода времени. Нами использовалась панельная регрессия, которая явилась подходящим статистическим методом для анализа двумерных данных с помощью анализа панельных данных с фиксированным эффектом. Выборка стран была осуществлена на основе заранее установленных критериев, отражающих наличие данных за исследуемый период. Собранные данные были проанализированы с помощью программного обеспечения STATA (версия 17). Полученные результаты доказывают положительное существенное влияние НДС на экономический рост для выборки стран региона MENA. Данное исследование поможет политикам оценить и пересмотреть свою налоговую политику, связанную с НДС, чтобы максимизировать выгоды, полученные от использования этого налога. Результаты этого исследования подтвердили, что уровень безработицы и индекс потребительских цен снижают рост ВВП, тогда как НДС приводит к увеличению экономического роста в регионе MENA. Это доказывает важность налога на добавленную стоимость для увеличения государственных доходов.

КЛЮЧЕВЫЕ СЛОВА
страны региона Ближнего Востока и Северной Африки, налог на добавленную стоимость, рост ВВП, безработица, индекс потребительских цен

1. Introduction

In the last few decades, the most important drivers of economic growth have been extensively studied. in this regard, Economic growth's relationship with the unemployment rate, consumer price index (CPI), and Value Added Tax (VAT) in developing countries specifically the Middle East and North Africa (MENA) region has been a topic that academics are interested in [1–4]. This is due to the reason that the MENA region has direct effect of oil resources on their economic changes and crucial socialist transformation over the past two hundred years [5]. Particularly, it is known for its progressive economic and political transformations and its prime geographical location for access to international markets [6].

Governments in the MENA countries are supposed to actively participate in attaining sustainable economic growth. Numerous nations in the area, particularly those that are part of the Gulf Cooperation Council (GCC), have vast oil reserves. Because many countries can rely disproportionately on oil money to maintain government revenue levels and create limited tax bases, this character has an impact on the tax system [7].

As a result, the tax structures of many countries in this region are not resilient, and they run the danger of being disproportionately impacted by shocks to the global oil market, like the COVID pandemic and economic crisis. Many economists believe that one of the most important variables influencing a nation's growth is tax revenue. It has offered years of service to emerging nations with a predictable and stable fiscal climate to support economic growth and pay for the necessary social and physical infrastructure [8].

Although prior literature suggests that controlling CPI, VAT, and unemployment rate plays an important role in GDP growth (e.g., [9–12]), the effects, mechanism of actions of these drivers toward GDP growth have not been well studied. To the best of our knowledge, no studies so far have dealt with the impact of important drivers of MENA's economic growth.

The purpose of this study is to evaluate the impact of CPI, VAT, and unemployment rates on the economic growth of this region for the period 2010–2020 by utilizing a panel regression analysis for a sample of 14 countries of the MENA region.

Therefore, the paper examines the following three hypotheses:

H1: Increasing the consumer price index leads to a decrease in the economic growth of MENA countries.

H2: Increasing the VAT leads to an increase in the economic growth of MENA countries

H3: Increasing the unemployment rate leads to a decrease in the economic growth of MENA countries.

This study adds to the body of literature in two folds. First, it identifies the effects of GDP growth drivers in the MENA region. Second, it provides crucial policy for practical implications in the investment concepts of these countries.

The paper is organized as follow: section 2 sets out a literature review related to the relationship and effects of each of the independent variables (UR, CPI and VAT) on the dependent variable (GDP), section 3 designates the methodology applied, section 4 analyzes the simulation results, section 5 discusses the finding and alignment with other studies, while section 6 concludes.

2. Literature review

2.1. The effect of the consumer price index on economic growth

All expenditures are affected by inflation, including company costs, lending prices, living expenses, government bonds, and corporate bond rates, which have an influence on each country's total economy [2; 13].

Regulating inflation is a task of utmost significance to stabilize economies in the Middle East and North African (MENA) nations. These countries need to have strong economic and investment-friendly policies to generate sustainable and substantially enhanced economic growth [14].

The nexus between CPI and economic growth is a controversial concept. While some studies such as Mundell [15] and Tobin [16] found that inflation might indefinitely increase economic growth, few researchers such as Eggoh & Khan [17] and Umaru & Zubairu [18] asserted a non-linear relationship between inflation and economic growth, majority of the literature state a negative relationship between inflation and economic growth. For example, Boujelbene [4] examined the relationship between economic growth and inflation by including the role of political stability in MENA countries. They discovered that there was still a two-way link between the CPI and the underground economy and that there was a one-way association among inflation and economic growth and the informal economy and growth.

Yet, maintaining political stability diminishes the inflation coefficient of the shadow economy. Hossin [11] stated a significant positive relationship between long-run GDP and to Gross Domestic Product Deflator (GDPD) in Bangladesh. However, if the inflation rate rises well above the threshold inflation level, inflation will adversely affect the economic growth of the country. The CPI and economic growth were shown to be negatively correlated by the monetarist theory and Stockman's (1981) model [19]. They underline that rising inflation results in fewer stable levels of well-being. The authors also noted that money is a component of capital and discovered a link between steady production levels and CPI that was unfavorable.

In a sample of over 100 countries from 1960 to 1990, Barro [20] indicated if a country's characteristics are held constant, such as fertility rate, and education level, there would be a significant negative relationship between CPI and economic growth. In the long term, this decline may affect people's living standards.

Moreover, Bruno & Easterly [21] used inflation data for 26 countries in the world experiencing inflation crises to test the determinants of economic growth. The authors indicated a negative correlation between CPI and economic growth when inflation is above a threshold. Furthermore, they argue that pre-crisis economic growth can be overcome if an inflationary crisis can keep inflation in check.

In Pakistan, inflation and unemployment were analyzed in relation to economic growth by Shahid [22], who found that political stability and a good educational system had a significant impact on lowering unemployment and boosting economic growth.

Erbaykal & Okuyan [23] stated no causality relationship between CPI to economic growth, a causality relationship has been found between economic growth to inflation. In certain South Asian nations, including India, Bangladesh, India, Sri Lanka, and Pakistan, Mallik & Chowdhury [12] investigate the link between CPI and both short- and long-term economic growth. Rather than the short-term, this circumstance has had a detrimental impact on the dynamics of long-term economic growth. In conclusion, we test the following hypothesis based on the literature review, monetarist theory, and Stockman's work [19].

H1: Increasing the consumer price index leads to a decrease in the economic growth of MENA countries.

2.2. The effect of VAT on the economic growth of MENA countries

According to Daniel et al. [24], taxes are a major source of income for governments, and the amount of taxes collected in each nation varies according to its economic, demographic, political, and institutional conditions. Reduced taxes enable businesses to increase their income or cut their pricing [25].

Value Added Tax (VAT) is another type of indirect tax that is applied to the value added at every stage of manufacturing. Being a crucial instrument in fiscal policy in every country, it is sometimes known as a "goods and services" tax [10]. Each person is required to rate and accumulate while purchasing most goods and services since VAT is a significant source of revenue for the nation's budget. The VAT principle then connects to the registered payer supplier [26].

The tax system is a mechanism for a levying authority of the government to compulsorily collect money. Taxation is an accounting regulation [27]. The degree to which distinctive regulations, which often come from specific political and legal systems, are followed varies among accounting systems in the MENA area.

According to the neoclassical theory of economic growth, short-term economic equilibrium can be achieved with more labor and capital, while technology is an exogenous factor that significantly affects the overall performance of the economy [28].

Jalata [29] discovered that VAT significantly increased the economic growth of Ethiopia. According to Hajdúchová et al. [30], the Slovak Republic's value-added tax sales increased from the years 1993 to 2015; nonetheless, sales from other types of taxes were larger than the VAT revenue [31].

Similar to this, some taxes, according to Stoilova [32], contribute to economic growth in Europe. The author concluded that tax revenue may increase GDP, but that production taxes, together with import taxes, were beneficial for the economy while value-added taxes were detrimental.

According to Bansal & Alfardan [33], the short-term effects of VAT are detrimental to Bahrain since they increase inflation and discourage foreign investment. Though and, over the long term, as public debt declines in addition to a 2% increase in GDP, the effect of VAT on economic growth turns out to be positive. Moreover, VAT can have an indirect effect on the economy, as Lan et al. [34] noted that in China, replacing company taxes with value-added taxes will stimulate companies to invest in R&D, modernize industries, and eventually spur economic growth.

Emmanuel [35] examined the effects of VAT on economic growth and total tax revenue in Nigeria and stated that VAT has a significant effect on GDP and also on total tax revenue. VAT stability thereby gave MENA countries a predictable and stable financial environment to spur their economic progress for many years [36]. The goods and services sector currently receives the most consideration under the general tax structure in the MENA area, accounting for 39.23% of all tax revenue, followed by the income, profit, and capital gains sector at 23.83% [1].

The level and range of VAT rates in MENA are within the bounds of accepted worldwide practice, with the exception of standard rates in the European Union (EU), which are ordinarily higher than the highest MENA rate of 20 percent in Morocco [37]. Therefore, we assume that an increase in value-added tax would lead to a significant increase in economic growth in MENA countries and hypothesize as below:

H2: *Increasing the VAT leads to an increase in the economic growth of MENA countries.*

2.3. The effect of the unemployment rate on the economic growth of MENA countries

Unemployment occurs when labor costs (wages) exceed final earnings for any reason. Unemployment remains an issue globally, and unemployment rates vary in each country. The unemployment rate is therefore viewed as a function of population growth [9]. Due to the critical role of the unemployment rate on the GDP and economic growth, the literature is replete with studies that reflect the relationship between unemployment and economic growth.

The nexus between the unemployment rate and GDP in the economy has been controversial and research in this area is vague and associated with different results. Okun [38] is the pioneer of this association and describes the link between short-term movements of real GDP and changes in unemployment. Okun's (1962) law [38] states the negative correlation between economic growth and unemployment. When GDP is growing rapidly, unemployment will fall, when growth is very low or negative, unemployment will rise consequently, and when growth is at potential, unemployment will remain flat.

In a similar line, several research (such as Niebuhr [39] and Sadiku et al. [40]) confirm the validity of the relationship between output and unemployment rate by applying Okun's law [38].

Real economic growth and unemployment typically have an inverse connection, according to studies like Huang & Yeh [41] analysis. Nevertheless, the degree of this correlation differs depending on the sample and location studied. According to Evans [42], unemployment and inflation hurt GDP because foreign debt, GDP, and unemployment are non-stationary and integrated at the first-order difference.

Chand et al. [43] determined whether the GDP of India is in charge of a 48% of unemployment rate with a strong inverse relationship. Li & Liu [44] examined the relationship between the unemployment rate, economic growth, and inflation in China. The authors revealed that unemployment impact negatively on GDP whereas inflation affects growth positively in China.

The MENA area has a diverse range of economies, each with its own labor markets and economic frameworks, though there are notable economic distinctions between the region's oil- and non-oil-producing nations. Therefore, unemployment with its financial and social implications is one of the most issues going through MENA countries [3]. Therefore, we complement prior literature in this attitude and develop the following hypothesis:

H3: Increasing the unemployment rate leads to a decrease in the economic growth of MENA countries.

3. Methodology

3.1. Sample and Data Collection

The paper includes 14 countries of the MENA region (United Arab Emirates, Turkey, Saudi Arabia, Palestine, Morocco, Malta, Lebanon, Jordan, Israel, Georgia, Cyprus, Azerbaijan, Armenia, and Afghanistan), a sample for which data is available over the study period.

The study has included a total of 11 years, from 2010 to 2020. The total number of observations in this grouping is 14 states for 11 years, a total of 154 observations. The study covers annual data for the period 2010–2020, retrieved from the World Bank database.

3.2. Empirical Model

Panel data analysis allows for the evaluation of both state and temporal differences. Panel regression is often known as longitudinal data or cross-sectional data. Taking data into a Panel enables us to have more data, which improves accuracy [45]. With regards to the variables of this study; GDP growth is the dependent variable, and the independent variables are VAT revenue, unemployment rate, and CPI.

Since it enables us to take into account the unobserved heterogeneous changes in the dependent variable that are peculiar to numerous countries, this study adopts the fixed effects (FE) model as its model specification. By generating various estimates for each cross-section unit (country), all the intercepts in this estimation varied across cross-section units.

A modeling approach called panel regression, often known as longitudinal data or cross-sectional data, is tailored to panel data [46]. In econometrics, where the statistical units are behaviorally provided in panel data to be evaluated over time, a longitudinal approach is used, and the applicability of this modeling strategy is widespread. In the context of this study, a cross-sectional analysis of secondary data collected from 2010 to 2020 was done while considering the presence of 14 countries, four variables, and 154 observations.

The econometric model used in this study has the subsequent form:

$$GDP_{it} = B_0 + B_1 VAT_{it} + + B_2 UR_{it} + B_3 CPI_{it} + \varepsilon_{it}, \quad (1)$$

where B_0, B_1, B_2 and B_3 are coefficients; i – indices for the cross-sectional countries which include 14 countries of MENA; t – are indices time/period (2010–2020); GDP_{it} – Gross Domestic Product; VAT_{it} – Value-added tax revenues; UR_{it} – Unemployment Rate; CPI_{it} – Consumer Price Index; ε_{it} – error term.

Based on the above-cited equation, we examine the sign, magnitude, and significance of coefficients B_1, B_2, and B_3. For instance, we expect positive signs and high significance of the VAT revenue variable and a negative and significant impact on the unemployment rate and consumer price index. The error term represents the effect of omitted variables that are unusual to both the individual periods and time periods.

Furthermore, the analysis determines the coefficient of correlation (r), the coefficient of determination (R^2), the *F-statistics*, the *Hausman test*, and the *P-value* in establishing the appropriateness of the selected model (fixed or random effect). And, in defining the probability values of different independent variables in relation to the dependent variable, if the p-values results are below 0.05 significance level using the 2-tailed test, then the relationship is established between the independent and dependent variables.

4. Results

4.1. Descriptive Statistics and Correlation Matrix

In this section, a summary of the key characteristics of the study's data, and descriptive statistics present the variables in the simplest possible terms has been provided. Continuous data contains percentages, frequencies, averages/means, and standard deviations. Contrarily, correlation assesses the intensity of a relationship or association between two variables. Additionally, correlation analysis is an important technique for anticipating the possibility of multi-collinearity. The results of the descriptive analysis and correlation analysis are summarized in Tables 1 and 2.

As shown in the above table, there are 154 observations in the study composed of 14 countries.

GDP growth ranges from –25.9% to 14.4% and averages 2.80%. Minimum values were revealed on the independent UR, 1.64; CPI,1; VAT Revenue, 0.310943. Moreover, evaluation of the maximum values provided the following: UR, 26.26; CPI, 263.22; VAT Revenue, 5700.

Results from Table 2 revealed the correlations of the study constructs, without excluding the influence of other variables, Pearson's correlation coefficient evaluates the relationship between two variables

(Dependent and Independent). The table shows a low correlation between the dependent and each of the independent variables, since (r) is less than 0.5, which means the absence of multicollinearity between independent variables.

4.2. Results of Panel Regression

The panel regression version 17 was used in this study to determine the impact of VAT revenue on GDP growth. The random-effects model and the fixed-effects model establish the individual relationships between independent variables on dependent variables. To find out which of the model is most appropriate, the Hausman test was run, and the results showed a p-value of 0.000 < 0.05, which means that the use of the Fixed effects model is suitable.

Tables 3, 4 and 5 illustrate, respectively, the results of the random-effects model, fixed effect and Hausman test respectively. The regression determines the individual relationships between independent variables (VAT revenue, unemployment rate, and CPI) on the dependent variable (GDP growth).

As shown in Table 6, there are fourteen groups or countries with a total number of 154 observations and with the data collected from 2010 to 2020. Results showed that 39.76% of the changes or variability of the dependent variable (GDP growth) can be explained by the independent variables included in the model, namely: Consumer price index, VAT revenue, and unemployment rate.

Furthermore, the model used is suitable with a p-value of 0.000 which is less than the 0.05 level of significance. From the outcome, it was revealed that all independent variables significantly impact the dependent variable (GDP growth). CPI has a negative (t = –3.72) and significant impact (p = 0.000) on economic growth. Which means that an increase in inflation rate will lower economic growth.

Table 1

Descriptive Statistics of Study Variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
GDP Growth	154	–25.9	14.4	2.801948	4.579386
UR	154	1.64	26.26	10.58034	5.921048
CPI	154	1	263.2236	117.1829	25.81475
VAT Revenue	154	0.310943	5700	438.1649	1276.384

Table 2

Correlation Matrix of the Study Variables

	Constructs	GDP	VATR	UR	CPI
GDP	Pearson Correlation	1	–0.188	–0.0085	–0.2768
	Sig. (2-tailed)		0.019*	0.2916	0.005**
	N	154	154	154	154
VATR	Pearson Correlation	–0.188	1	–0.0308	0.1065
	Sig. (2-tailed)	0.019*		0.3429	0.83429
	N	154	154	154	154
UR	Pearson Correlation	–0.0085	–0.0308	1	0.0769
	Sig. (2-tailed)	0.2916	0.3429		0.3429
	N	154	154	154	154
CPI	Pearson Correlation	–0.2768	0.1065	0.0769	1
	Sig. (2-tailed)	0.005**	0.83429	0.3429	
	N	154	154	154	154

Notes: ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

Table 3

Panel Regression- Random effects – Result

Random-effects GLS regression			Number of obs		=	154
Group variable: C_ID			Number of groups		=	14
R -squared:			Obs per group:			
within	= 0.1654		min		=	11
Between	= 0.0676		avg		=	11
Overall	= 0.1066		max		=	11
			Wald chi2(3)		=	18.87
corr(u_i, X)	= 0 (assumed)		Prob > chi2		=	0.0003

GDP Growth	Coefficient	std. err.	z	P > | z |	[95% conf. interval]	
vat Revenue Billion	0.007329	0.000301	–1.82	0.068	–0.0011397	0.0000414
UR	–0.0661089	0.064343	–1.03	0.304	–0.1922179	0.0600001
CPI	–0.0494674	0.013983	–3.54	0.000	–0.0768741	–0.0220606
_cons	9.53875	1.756491	5.43	0.000	6.096091	12.98141
sigma_u	0.51774419					
sigma_e	3.7562372					
rho	0.0186445	(Fraction of variance due to u i)				

Table 4

Panel Regression- Fixed Effect- Result

Fixed-effects (within) regression			Number of obs		=	154
Group variable: C_ID			Number of groups		=	14
R -squared:			Obs per group:			
within	= 0.3112		min		=	11
Between	= 0.4341		avg		=	11
Overall	= 0.0108		max		=	11
			F(3,137)		=	20.63
corr (u_i, X)	= -0.9659		Prob > F		=	0

GDP Growth	Coefficient	std. err.	z	P > | z |	[95% conf. interval]	
vat Revenue Billion	0.007329	0.0019023	3.85	0.000	0.0035673	0.0110908
UR	–0.6187928	0.1680608	–3.68	0.000	–0.9511215	–0.2864641
CPI	–0.05513	0.0148125	–3.72	0.000	–0.0844207	–0.0258393
_cons	12.59797	2.534033	4.97	0.000	7.587092	17.60884
sigma_u	11.380133					
sigma_e	3.7562372					
rho	0.90175716	(Fraction of variance due to u i)				
F test that all u_i=0: F(13, 137) = 5.08				Prob > F = 0.0000		

However, VAT revenue has a positive (t = 3.85) and significant impact on GDP growth (p = 0.000). this implies that an expansion of VAT revenue will contribute significantly to the improvement of economic growth. The unemployment rate has a negative (t = –3.68) and significant impact (p = 0.000), a high percentage of unemployment rate is harmful to economic growth.

5. Discussion

The findings of this study provide valuable insights into the relationship between VAT revenue and economic growth in the MENA region. The results indicate a positive impact of VAT on economic growth in the sample of 14 countries analysed.

Based on these findings, *H1* is supported since CPI has a negative and

Table 5

Hausman test fixed Random effects

	__Coefficients__			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	Std. err.
VATRev~n	0.007329	–0.0005491	0.0078782	0.0018783
UR	–0.6187928	–0.0661089	–0.5526839	0.1552562
CPI	–0.05513	–0.0494674	–0.0056626	0.0048864
b = Consistent under H0 and Ha; obtained from xtreg				
B = Inconsistent under Ha, efficient under H0; obtained from xtreg				
Test of H0: Difference in coefficients not systematic				
chi2(3)	=	(b-B)϶[(V_b-V_B)^(–1)](b-B)		
	=	447.67		
Prob > chi2		0.000		

Table 6

Linear Regression Fixed effect specification Result

Fixed-effects (within) regression	Number of obs	=	154
Group variable: C_ID	No. of categories	=	14
	F(3, 137)	=	20.63
	Prob > F	=	0.000
	R -squared	=	0.3976
	Adj R -squared	=	0.3272
	Root MSE	=	3.7562

GDP Growth	Coefficient	std. err.	z	$P > \|z\|$	[95% conf. interval]	
vat Revenue Billion	0.007329	0.001902	3.85	0.000	0.0035673	0.0110908
UR	–0.6187928	0.168061	–3.68	0.000	–0.9511215	0.2864641
CPI	–0.05513	0.014813	–3.72	0.000	–0.0844207	–0.0258393
_cons	12.59797	2.534033	4.97	0.000	7.587092	17.60884
F test of absorbed indicator: F(13, 137) = 5.079				Prob > F = 0.0000		

significant impact on economic growth which is aligned with previous studies [4; 19]. Studies have found that high inflation is associated with a fall in economic growth measured by GDP. For 26 countries that had periods of high-level inflation, their GDP per capita was low-down [21].

H2 also accepted that there is a significant impact of VAT revenue on economic growth in the MENA region. These results are comparable to previously published papers (e.g. [33–35]).

Furthermore, *H3* is assumed, so the unemployment rate negatively impacts the economic growth in the MENA region. The results aligns with the study of Li & Liu [44], Huang & Yeh [41] and Chand et al. [43].

Policymakers in the MENA region can use the results of this study to assess and review their tax policies related to VAT to maximize their revenue sources generated by this tax.

However, there are some limitations to this study.

First, the sample size includes only 14 countries from the MENA region. Therefore, the results may not be generalizable to other regions or countries.

Additionally, the study only looks at the impact of VAT on economic growth and does not consider other types of taxes, such as corporate tax and income tax.

Future research could expand on this study by including other types of taxes, direct and indirect, to assess which type contribute more to economic growth.

Despite these limitations, this study provides valuable insights into the impact of VAT on economic growth in the MENA region. The findings of this study can be used by policymakers to assess and review their tax policies related to VAT to maximize their revenue sources generated by this tax.

6. Conclusion

Governments use the value-added tax, commonly referred to as consumption tax, as a tool to raise money to assist the national economy. In comparison to other regions, the MENA region depends more on taxes on goods and services, as an essential tax source. There is also a far lower reliance on other taxes, like income, capital gain, and social security taxes.

This study analyzed the effects of CPI, VAT, and the unemployment rate of GDP growth of 14 MENA countries in the period of 2010–2020 through panel data analysis. The findings of this study supported that the unemployment rate and CPI decrease GDP growth, whereas VAT leads to an increase of economic growth in this region**.** This proves the importance of VAT tax in raising government revenue.

The MENA nations will need to develop stronger tax capacities in the future to handle crises like the pandemic and rising debt levels. There is potential for those nations to raise more tax revenue and simultaneously address the rising inequality in the region, which is projected to get worse due to the pandemic, by raising their income taxes (and lowering their consumption taxes). The International Monetary Fund (2022) minutes that by passing more progressive taxes with fewer exemptions, governments may be able to meet existing expenditure goals and build more equitable societies.

The countries in the MENA area have some of the most different political, economic, and socio-political philosophies in the world. It is one of the most diverse regions in the world. Due to this variability, a smaller selection of countries must be considered when generalizing tax reform across the area.

In this study, we have been limited to a sample of 14 countries, given the difficulty in obtaining complete VAT tax revenue data in all countries of the region over the study period.

Future research will examine the impact of other types of taxes, within the government tax reform program for all countries members.

Moreover, using Difference-in-Difference (DID) estimation technique can be used to estimate the effect of a certain intervention or treatment, which can be in our context, a change in tax policy or large-scale tax program implementation.

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Determinants of Ethical Decision-Making: A Study on the Role of the Professionalism of Members of the Indonesian Association of Tax Consultants

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ABSTRACT
This study aims to examine and analyze the direct influence among Machiavellian Traits, Perceptions of Ethics and Social Responsibility, and Risk Preference on Tax Consultant Ethical Decision Making. The novelty of this research is to use of the professionalism of tax consultants as members of the profession as a moderating variable. It is expected that the professionalism of the tax consultant can limit the occurrence of unethical decision making by tax consultant. The respondents were all tax consultants registered with the Indonesian Tax Consultants Association for the Pekanbaru region. Data analysis techniques in this study using Structural Equation Modeling – Partial Least Square (SEM-PLS) Smart-PLS Software version 4.0. This study found that Machiavellian traits, ethical perceptions and social responsibility, and risk preferences have an influence on the ethical decision-making of tax consultants. This study also found that professionalism moderates the effect of Machiavellian Traits, Perceptions of Ethics and Social Responsibility, and Risk Preference on Ethical Decision Making. This study offers theoretical and practical implications for strengthening attitudes that always prioritize ethics in every decision-making. Ethical decision making can be done by reducing Machiavellian traits, considering ethics and social responsibility, and always considering the risks that will be faced because of the decisions to be taken. The value of the study provides an academic contribution regarding the effect of Machiavellian traits, ethical perception, and social responsibility, and also risk preference, and the moderating role of professionalism in reducing unethical decision making.

KEYWORDS
Machiavellian Traits, ethical perception and social responsibility, preference risk, ethical decision-making, tax consultant

JEL A19, D91, M49

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Детерминанты принятия этических решений: исследование роли профессионализма членов Индонезийской ассоциации налоговых консультантов

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АННОТАЦИЯ
Данное исследование направлено на изучение и анализ прямого влияния макиавеллиевских черт в поведении налоговых консультантов, восприятия ими этики и социальной ответственности, а также предпочтения риска на принятие этических решений. Новизна исследования заключается в использовании профессионализма налоговых консультантов как представителей данной профес-

сии в качестве модерирующей переменной. Ожидается, что профессионализм налогового консультанта может ограничить возникновение неэтичного принятия решений в сфере налогообложения. Все респонденты были налоговыми консультантами, зарегистрированными в Индонезийской ассоциации налоговых консультантов по региону Пеканбару. Данные, полученные в результате анкетирования, обрабатывались посредством моделирования структурных уравнений – метода наименьшего квадрата (SEM-PLS) Smart-PLS версии 4.0. Данное исследование показало, что макиавеллиевские черты в поведении налоговых консультантов, этические представления и социальная ответственность, а также предпочтения в отношении риска влияют на принятие налоговыми консультантами этических решений. Это исследование также показало, что профессионализм смягчает влияние макиавеллиевских черт, восприятия этики и социальной ответственности, а также предпочтения риска на принятие этических решений. Это исследование предлагает теоретические и практические выводы для укрепления взглядов, которые всегда отдают приоритет этике при принятии каждого решения. Принятие этических решений может быть достигнуто путем уменьшения макиавеллиевских черт, учета этики и социальной ответственности и всегда учитывая риски, с которыми придется столкнуться в результате принимаемых решений. Ценность исследования заключается в академическом вкладе в изучение влияния макиавеллиевских черт, этического восприятия и социальной ответственности, а также предпочтения риска и сдерживающей роли профессионализма в снижении неэтичного принятия решений.

КЛЮЧЕВЫЕ СЛОВА

макиавеллиевские черты, этическое восприятие и социальная ответственность, риск предпочтения, принятие этических решений, налоговый консультант

1. Introduction

In Indonesia, the role of tax as state revenue is vital because most of the sources of state revenue come from the taxation sector. This is consistent with the tax function as budgetary, meaning that in financing state expenditures, the government uses financial revenues originating from the tax sector, both for routine and development expenditures. The tax system applied in Indonesia is self-assessment, in which the government gives full responsibility to taxpayers to calculate and report their tax burden by what is stipulated in the law, follow all existing procedures, and pay accordingly.

Astika et al. [1] state that the taxation system in Indonesia has high complexity, many applicable tax rules, and changes frequently, making it increasingly difficult for taxpayers to follow the development of tax regulations to fulfill their tax obligations. This will motivate taxpayers to choose an alternative to using a tax consultant to assist them in implementing their tax rights and obligations.

A consultant is a person who provides tax consulting services to taxpayers in the context of exercising their tax rights and obligations so that they are by tax laws and regulations (PMK No.111/PMK.03/2014). Therefore in carrying out his work, besides having to have qualified tax knowledge, a tax consultant should be guided by his professional code of ethics, in order to provide good service to his clients. The code of ethics contains guidelines and signs that must be obeyed by tax consultants, so that every decision they make is an ethical decision.

Klepper et al. [2] mention that tax consultants have two roles in a tax system, namely as government agents (enforcers) and advocates for their clients (exploiters). Because of this role, sometimes when carrying out their duties, tax consultants experience dilemmas in making decisions. Of course, it is highly expected that tax consultants always consider ethical factors when making decisions related to their work. This will certainly help clients to be able to properly enforce their tax obligations, in accordance with applicable tax regulations.

Currently, there are still many tax consultants who do not consider ethics in making decisions related to their work. This can be seen from the many cases of tax violations committed by taxpayers, which involve their tax consultants. In the latest news, the Directorate General (DG) of Taxes of the Ministry of Finance investigated six companies and one tax consultant who had links to the assets of a former tax official.

Ethical decision-making can be influenced by both individual and situational factors [3; 4]. The individual factor is moral intensity consisting of awareness, intensity, judgment, and behavior [5]. While the situational factors are a code of ethics, ethical culture, rewards and sanctions, and opportunity [4]. Machiavellian nature is also one of the factors that influence the ethical decision-making of tax consultants in providing recommendations to their clients. Machiavellian nature is a process in which the manipulator gets more types of rewards than he gets without manipulating, while other people have fewer [6].

Perception of ethics and social responsibility are also factors that influence ethical decision-making by tax consultants. Individuals who have the perception that their every action must be guided by their professional ethics, and feel they have a high social responsibility, then every decision they make is an ethical decision.

Risk preference is also thought to be one of the factors that influence ethical decision-making by tax consultants. Individuals who dare to face risks will tend to dare to ignore the ethics that should be guided by them in making decisions regarding the work they are responsible for. Conversely, individuals who do not dare to take risks tend to adhere to professional ethics, resulting in more ethical decisions.

Another factor influencing ethical decisions by tax consultants is professionalism. Professionalism is the extent to which a person adheres to the characteristics of a profession [7]. The concept of modern professionalism in doing a job was developed by [8] and is related to two important aspects, namely the structural aspect and the attitude aspect. Structural aspects of its characteristics are part of the formation of training venues, the formation of professional associations, and the establishment of a code of ethics. Professionalism can encourage individuals to take ethical actions [9].

Despite the large number of studies that have been documented on individual attitudes in carrying out ethical decision-making, this study investigates individual ethical decision-making, particularly in tax consultants. Therefore, this paper contributes to filling the gaps in the management accounting literature, particularly regarding individual behavior decision-making.

This study aims to investigates and analyze the influence of Machiavellian Traits, Perceptions of Ethics and Social Responsibility, and Risk Preference on Tax Consultant Ethical Decision Making. This study also wants to investigate and analyze the moderating role of professionalism.

The research hypotheses are as follows:

H1: Machiavellian influences the ethical decision-making of tax consultants.

H2: Ethical Perceptions and social responsibility influence the ethical decision-making of tax consultants.

H3: Risk preference influences the ethical decision-making of tax consultants.

H4: Professionalism Moderates the effect of Machiavellian traits on tax consultant ethical decision-making.

H5: Professionalism moderates the effect of ethical perceptions and social responsibility on ethical decision-making.

H6: Professionalism moderates the effect of Risk preference on the ethical decision-making of tax consultants.

Article structure. The following sections will present a literature review that describes the theoretical framework of the hypothesis that was built. Next will discuss about research methods, discussions, and conclusions.

2. Literature Review

According to [10], Ethical decision-making is a process carried out by individuals using their rationale to determine whether a particular issue is right or wrong. Ethical decision-making must meet several conditions and criteria, namely: (1) considerations about right and wrong, (2) influenced by norms, situations, beliefs, character, and social environment, (3) welfare or consequentialism (Well-of Ness or Consequentialism), (4) Rights, duties, or Deontology, (5) Fairness or Justice, (6) virtue expectations or virtue ethics [6].

Jones [5] defined an ethical decision as a decision that is legally and ethically acceptable in the wider community. On the other hand, unethical decisions are decisions that are legally or ethically unacceptable in the wider society.

Tax consultants in Indonesia are consultants who are registered with tax consultant associations sheltered by the government. Each tax consultant association has its code of ethics, which is a guideline that must be obeyed by each member in carrying out their work when assisting taxpayers who become their clients[1].

Jones [5] mentions that there are four stages of the ethical decision-making process which consist of: (1) recognition of ethical issues (ethical awareness/recognizing), (2) formation of ethical judgment (ethical judgment development), (3) establishing ethical intent, and (4) involvement in ethical behavior (engaged ethical behavior). Jones also revealed that people will act differently on ethical issues in terms that are systematically related to the characteristics of the issue itself, then stated that certain characteristics of the ethical issue itself are important determinants of the ethical decision-making process.

Professionalism is defined as something that requires special intelligence to carry out. Professional, namely a set of skills required to carry out a job that is carried out efficiently and effectively with a high level of expertise to achieve maximum work goals. The concept of modern professionalism in doing a job was developed by [8] and is related to two important aspects, namely the structural aspect and the attitude aspect.

Hall [8] suggests that the image of someone who is a professional in a profession is reflected in the five dimensions of professionalism, namely dedication to the profession, social obligations, independence, belief in the profession, and relationships with fellow professionals.

2.1. Machiavellian and Ethical Decission-Making

Machiavellianism is defined as a process in which the manipulator gets more types of rewards than he gets without manipulating, while others get less [6].

Machiavellianism is also interpreted as an aggressive nature, a tendency to influence and control other people which involves manipulation and unethical actions to achieve their personal goals [11].

Richmond [12] describes individuals with Machiavellian personalities as personalities who lack affection in personal relationships, ignore conventional morality, and show low ideological commitment. Therefore, if a tax consultant has a very machiavellian character, then he tends to ignore his professional ethics if he feels that he gets more profitable private benefits. He also tends to want to help his clients to carry out manipulation actions, if the rewards given satisfy him. Thus, the tax consultant will be willing to make unethical decisions regarding his work.

Findings from [13; 14] also show that people who have high Machiavellian traits have more tendencies for unethical behavior in various businesses, including avoiding taxes by fraudulently exaggerating deductions and engaging in aggressive behavior.

H1: *Machiavellian influences the ethical decision-making of tax consultants*.

2.2. Ethical Perceptions and Social Responsibility and Ethical Decision-Making

Perception is the essence of moral judgment [15], meanwhile, ethics is defined as a normative judgment about what behavior is proper or what should be done, a set of rules of behavior, moral codes, and ways of looking at life that can ultimately be directed [16; 17].

Singhapakdi et al. [18] developed the main concept of preserved ethics and

[1] IKPI. Code of Ethics Commission. In: AD ART Code of Ethics of the Indonesian Tax Consultants Association. 2015.

social responsibility, and developed an instrument to measure this concept in marketing and business ethics. Individuals who have ethical perceptions will be able to distinguish between ethical decisions and unethical decisions. Ethical considerations that exist in him will encourage tax consultants to always be guided by their professional ethics in every job they do in assisting their clients. Thus, the decision he takes will be ethical.

Previous studies have found that perceptions of ethics and social responsibility are influenced by cultural differences, ethical orientation, and demographic characteristics [19]. The results of other studies also prove that ethical perception factors and social responsibility influence the ethical decision-making process when faced with ethical problems [20].

H2: Ethical Perceptions and social responsibility influence the ethical decision-making of tax consultants.

2.3. Risk Preference and Ethical Decision Making

Risk is a decision characteristic that is defined as the existence of uncertainty about a potentially significant or disappointing decision to be realized [21; 22].

Decision makers who like challenges and involve risks are more likely to take risky actions than those who don't. Personal experiences or beliefs about risk drive preferences can be identified in the way decision-makers assess and react to risk [23].

Tax consultants have a goal to provide the best results for clients, but these goals will be balanced with the long-term goals of their work, and still must consider the risks and rewards that can be obtained from all decisions taken [24]. Kadous & Magro [24] state that tax consultants face a high risk of making unethical decisions.

Doyle et al. [25] state that there are differences in the recommendations given by tax consultants who have high-risk and low-risk preferences. Tax consultants who are more willing to violate tax regulations and are willing to take risks tend to provide more aggressive tax avoidance recommendations [19].

Risk preference is also thought to be one of the factors that influence ethical decision-making by tax consultants. Risk is a decision characteristic that is defined as the presence of uncertainty about a potentially significant or disappointing decision to make [26].

Personal experiences or beliefs about the preferences of risk drivers can be identified in the way decision-makers assess and react to risk [23].

According to [25], there are differences in the recommendations given by tax consultants who have high-risk and low-risk preferences. Tax consultants who have a high-risk preference tend to be more courageous in making decisions that ignore ethics. Conversely, tax consultants who have a low-risk preference tend to be guided by ethics when making decisions, because they do not want to take risks.

The findings of [27] found that tax consultants who are more willing to violate tax regulations and are willing to take risks tend to provide more aggressive tax avoidance recommendations.

H3: *Risk preference influences the ethical decision-making of tax consultants.*

2.4. The Moderating Role of Professionalism

Machiavellianism is defined as a process in which the manipulator gets more types of rewards than he gets without manipulating, while others get less [6].

Based on the views put forward by [11; 12] regarding individual Machiavellian traits, tax consultants who have Machiavellian traits will be aggressive, tend to influence and control others, and are willing to manipulate, and take unethical actions. Thus, it can be concluded that to achieve his interests, a tax consultant will be willing to violate his professional ethics. This is also because the tax consultant with his Machiavellian nature will lack affection in personal relationships, ignore conventional morality, and show low ideological commitment [12].

Another findings by [13; 14] found that people with high Machiavellian traits are more likely to engage in unethical behavior in a variety of businesses, including avoiding taxes by fraudulently exaggerating deductions and engaging in aggressive behavior.

According to [7], professionalism is a picture of the extent to which a person adheres to the characteristics of a profession. Another opinion put forward by Arens & Loebbecke [2], professionalism is an individual's responsibility to behave more and not just comply with laws and community regulations. which exists. A Tax Consultant is a professional party that provides tax consulting services to taxpayers in the context of exercising their tax rights and obligations by tax laws and regulations. In carrying out their duties, tax consultants have ethical guidelines that must be obeyed.

Therefore, in carrying out their duties, tax consultants will comply with the professional code of ethics established by the Tax Consultants Association, in every decision-making related to their job responsibilities. The professionalism possessed by tax consultants is believed to reduce the role of Machiavellian traits in reducing unethical decision-making by tax consultants.

H4: *Professionalism Moderates the effect of Machiavellian traits on tax consultant ethical decision-making*.

Ethical perception is the essence of normative moral judgments about the behavior that should be done. Consultants who perceive that ethics and social responsibility are important things that must be considered when making decisions will carry out their professional services by relevant technical requirements and professional standards. In addition, they will also act consistently with the reputation of their profession. This action will also be followed by avoiding actions that can damage the reputation of the profession. When providing services to clients, they will also work according to a set code of ethics.

The professionalism of a tax consultant will create a tax consultant who, in carrying out his duties, will always use all his knowledge, skills, and experience. They will also be consistent in sticking to the profession as a consultant even if they get offers of other jobs with greater rewards. Professional tax consultants will always try to maintain the good name of their profession. Always try to put the client first in carrying out tasks, always believe in the ability and decisions taken, and provide advice and recommendations on tax findings and reviews, not under pressure from clients.

H5: *Professionalism moderates the effect of ethical perceptions and social responsibility on ethical decision-making.*

Risk preference is an individual characteristic that influences the individual's behavior [28]. Tax consultants have the characteristic of preferring to avoid risks and will be more compliant, so they will always consider ethics when making decisions. When faced with a conflict between law and conscience, they prefer to follow their conscience in making risky decisions. But if the tax consultant likes risk, then he will dare to ignore ethics when making decisions, to achieve his desires. Willing to assist consumers/clients in tax evasion Accept client requests to assist engineering in tax reports with rewards or big prizes. But the professionalism of the tax consultant can affect the influence of the risk-loving nature of the tax consultant in decision-making. The more professional he is, the less willing he is to make unethical decisions, even though he likes risks

H6: *Professionalism moderates the effect of Risk preference on the ethical decision-making of tax consultants.*

3. Methodology

3.1. Population and Sample

The population in this study were tax consultants registered with the Indonesian Tax Consultants Association of Pekanbaru, totaling 91 people, and all populations were used as samples. Data collection was carried out by distributing questionnaires to the 91 respondents. From the questionnaires distributed, 65 respondents returned, so the data that could be processed was 65.

3.2. Variables Measuring

Ethical Decision Making is measured using the provisions and criteria from [16]. Machiavellian traits are measured using the attitude characteristics of [6; 11; 12].

The indicators for measuring the Machiavellian trait variables are affection, ego, manipulation, and aggression. Ethical Perceptions and Social Responsibility are measured using by using a modified instrument from [16; 17; 29].

Risk preference is measured using indicators from [17; 29], and is measured using a Likert scale from one to five. Professionalism is measured using the instrument from [8]. All respondents' responses in this research were assessed using a five-point Likert scale with answers ranging from 1 (strongly disagree) to 5 (strongly agree).

The Table 1 shows the measurement of the variables used. The distribution of questionnaires is shown in Table 2.

Table 1

Variables Measurement

Variables	Indicators	Scale Ethical decission Making (Y)
Ethical decission Making (Y)	1. A consideration of right and wrong. 2. Influenced by norms, situations, beliefs, character, and social environment. 3. Welfare or consequentialism. 4. Rights, obligations, or morals. 5. Equality or fairness [10; 16]	Ordinal
Machiavellian (X1)	1. Affect. 2. Selfishness. 3. Manipulative. 4. Aggressive [6; 11; 12]	Ordinal
Ethical perception and Social responsibility (X2)	1. Responsibility. 2. Community interests. 3. Integrity. 4. Objectivity and Independence. 5. Scope and nature of services. 6. Confidentiality and prudence [6; 16; 20; 25]	Ordinal
Risk Preference (X3)	1. Costs as a risk of sanctions arising from the recommendations given. 2. Reputation of the tax consultant. 3. The relationship between the tax consultant and the client [24; 29]	Ordinal
Professionalism (Z)	1. Devotion to the profession. 2. Social obligations. 3. Independence. 4. Confidence in professional regulations. 5. Relationship among professions [8]	Ordinal

Sourced: Prepared by author 2023.

Table 2

Distribution of Questionnaires

No.	Information	Amount	Percentage
1.	Questionnaires distributed	91	100
2.	Responded Questionaire	65	71.42
3.	Questionnaires cannot be processed	0	0
4.	Questionnaires be processed	65	71.42

Sourced: Prepared by author 2023.

3.3. Data Analysis Method

This study uses data analysis methods using Structural Equation Modelling – Partial Least Square (SEM-PLS) using Smart-PLS Software version 4.0 PLS is a component or variant-based SEM equation model.

Partial Least Square (PLS) is part of SEM PLS is a powerful analytical method because it doesn't require many assumptions, and the sample size can be small or large. PLS-SEM itself uses software such as Smarts, WarpPLS, PLS-Graph, and Visual Graph.

4. Result

4.1. Descriptives Statistics

Descriptive statistics include descriptions and interpretation of the mean, minimum, maxi mother, and standard deviation. The statistical description describes the data analysis based on the respondents' answers to the proposed questionnaire. Based on the test results it was found that the value Standard deviation for each variable is lower than the average value. This the results show the data is quite good. The Table 3 shows the minimum, maximum, average, and standard deviation values.

4.2. Outer Model Test Result

The following data presents the results of descriptive statistics, and the data in the Table 4 is the outer model and the convergent validity.

According to [30; 31] for early-stage research, the development of a measurement scale for a loading value of 0.5 to 0.6 is considered sufficient [32]. The value of the outer model between indicators and variables meets convergent validity because all items in the indicator have a loading factor value above 0.50.

Thus, each indicator can be said to be valid. Another measure of convergent validity is to look at the AVE (Average Variance Extracted) value.

According to [32; 33] the AVE square root is also used for convergent evaluation, the criterion that must be met is the AVE square root value > 0.50. Based on Table 3, the five variables have met convergent validity.

To determine the discriminant validity of the measurement model used Fornell-Larcker. Table 5 below shows that the diagonal is greater than the correlation between constructs, so it can be said that the discriminant validity is good [30].

4.3. Inner Model Test Result

To find out how much the role of each independent variable on the dependent variable can be seen from the data in Table 6 below. The R-Square value of Ethical Decision Making is 0.655. This indicates that the influence of Machiavellian Traits, Perceptions of Ethics and Social Responsibility, Risk Preference, and Professionalism on ethical decision-making is 65.5%, and the rest may be influenced by other variables not examined in this study (Figure 1).

Table 3

Min, Max, Mean, Std Deviation

Variables	N	Min	Max	Mean	Std dev
Machiavellian (X1)	65	1	3	1.9019	0.8858
Ethical perception	65	1	5	4.3282	0.8593
Social reponsibility	65	1	5	2.1815	1.,1453
Risk preference	65	3	5	3.8308	0.6018
Professionalism	65	1	5	3.7580	1.1678

Source: Prepared by author 2023.

Table 4

Convergent Validity and Reliability

Variables	Items	Loadings	Cronbach's α	CR	AVE
Ethical decision-making	EDM1	0.878	0.934	1.012	0.794
	EDM2	0.910			
	EDM2	0.950			
	EDM4	0.800			
	EDM5	0.911			
Machiavellian Traits	MT1	0.947	0.976	0.979	0.855
	MT2	0.862			
	MT3	0.922			
	MT4	0.883			
	MT5	0.933			
	MT6	0.931			
	MT7	0.947			
	MT8	0.967			
Ethical perception and social responsibility	ES1	0.757	0.941	0.945	0.608
	ES2	0.835			
	ES3	0.831			
	ES4	0.775			
	ES5	0.776			
	ES6	0.874			
	ES7	0.753			
	ES8	0.739			
	ES9	0.753			
	ES10	0.771			
	ES11	0.729			
	ES12	0.754			
Risk preference	RP1	0.778	0.858	0.868	0.639
	RP2	0.725			
	RP3	0.758			
	RP4	0.864			
	RP5	0.861			
Professionalism	P1	0.894	0.974	1.012	0.793
	P2	0.855			
	P3	0.930			
	P4	0.933			
	P5	0.933			
	P6	0.881			
	P7	0.905			
	P8	0.841			
	P9	0.879			
	P10	0.816			
	P11	0.922			

Source: Prepared by the author 2023.

4.4. Hypotheses Test Result

The results in Table 7 and Figure 1 revealed that the Beta coefficient value of the Machiavellian trait is –0.410 and shows a negative direction with a p-value level of 0.000, which is < 0.05), so the hypothesis is accepted. Based on the test results, it can be said that the first hypothesis can be accepted.

The results of testing the second hypothesis indicate that there is a positive directional influence between ethical perceptions and social responsibility on tax consultants' ethical decision-making. This is indicated by a significant p-value of 0.000 which means it is smaller than 0.005 (0.000 < 0.05) with a coefficient value of 0.435. Thus, the second hypothesis is accepted.

Hypothesis 3 aims to examine the effect of risk preference on tax consultants' ethical decision-making. The results of testing the third hypothesis have a beta coefficient of -0.283, and a p-value of 0.005 (0.005 < 0.05), so hypothesis 3 is accepted.

Tabel 5

Fornell-Larcker

	Y	X2	X3	Z	XI
Ethical decision-making	**0.891**				
Ethical perception and social responsibility	0.429	**0.780**			
Risk preference	–0.584	–0.285	**0.799**		
Professionalism	0.254	0.159	–0.228	**0.891**	
Machiavellian traits	–0.517	–0.149	0.389	0.145	**0.924**

Source: Prepared by author 2023.

Table 6

Inner Model – R-Square (R^2)

Structure Model	R Square	R Square Adjusted
Ethical decision-making	0.655	0.613

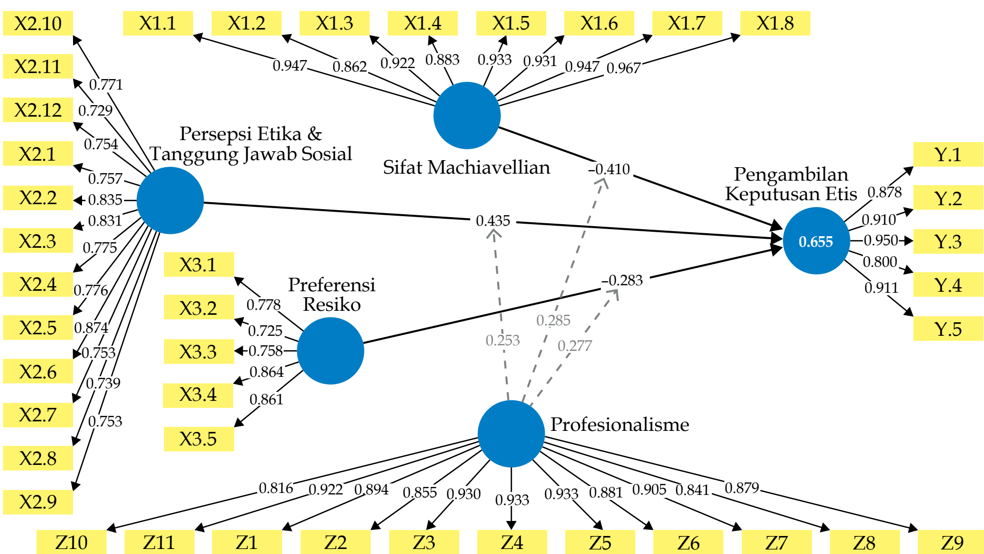

Figure 1. **Path coefficient**

Source: Prepared by the author 2023

Table 7

Path Coefficients (Mean, STDEV, T-Values)

	β	Mean	(STDEV)	T statistick (|O/STDEV|)	P values
Machiavellian Traits → Ethical decision-making	–0.410	–0.391	0.094	4.383	0.000
Ethical perception and social responsibility → Ethical decision- making	0.435	0.432	0.113	3.833	0.000
Risk- preference → Ethical decision-making s	–0.283	–0,278	0.102	2,780	0.005
Professionalism x Machiavellian traits → Ethical decision- making	0.285	0.266	0.108	2.640	0.008
Professionalism x Ethical perception and social responsibility → Ethical decision-making	0.253	0.243	0.099	2.553	0.011
Professionalism x Risk preference → Ethical decision- making	0.277	0.237	0,104	2.674	0.008

Source: Prepared by the author 2023.

The results of the fourth hypothesis test have a positive coefficient value of 0.285 and are signed with a p-value level of 0.008 (0.008 < 0.05). These results can be interpreted to mean that there is an interaction between Professionalism and Machiavellian traits in the ethical decision-making of tax consultants.

The results of testing the fifth hypothesis have a positive coefficient value of 0.253 and are signed with a p-value level of 0.011 (0.011 < 0.05), and H5 is supported. With these data, it can be concluded that there is an interaction of professionalism and perceptions of ethics and social responsibility toward the ethical decision-making of tax consultants. The more professional a tax consultant is, and the better his perception of the ethics and social responsibilities he has to carry out, the more ethically guided he will be when making decisions [34; 35].

Hypothesis 6 aims to examine the moderating role of professionalism in the influence of risk preferences on the ethical decision-making of tax consultants. The positive beta coefficient value (0.277), and the p-value of 0.008 (0.008 < 0.05) indicate that there is an interaction between professionalism and risk preference for ethical decision-making by tax consultants.

5. Discussion

5.1. The Effect of Machiavellian on Ethical Decission Making

The first hypothesis stated that Machiavellian trais affect ethical decission making, the test resul accept the first hypotheses. This study tests the effect of Machiavellian traits using indicators of affective, ego, manipulative, and aggressive attitudes in tax consultant ethical decision-making. The finding of first hipothesis indicate that in carrying out their duties, a tax consultant with high Machiavellian traits tends to be manipulative and makes aggressive decisions that tend to be unethical. However, a tax consultant with a low level of Machiavellian nature will tend to make ethical decisions in every job by providing ethical advice and recommendations to taxpayers on the results of their tax reviews.

This result in line with [11; 13; 14] who found that the higher a person's Machiavellian trait, the more unethical the tax consultant's decision-making will be Conversely, the less Machiavellian a tax consultant is, the more he will consider ethics when making decisions, among other things, he will provide good advice and recommendations to taxpayers who become consultant clients. High Machiavellian traits will tend to act independently and are more likely to behave unethically.

This is because people with Machiavellian traits will be more aggressive, and have a tendency to influence and control others by involving manipulation and unethical actions to achieve personal goals [11].

5.2. The Effect of Ethical Perception and Social Responsibility on Ethical Decission Making

The findings of second hypothesis test was accepted, which means, the ethical perception and social responsibility of the tax consultant will influence the ethical decision-making that will be carried out. The results of this test are in line with the findings of [14; 18; 20].

These results are by the theory of cognitive moral development where a person in deciding will follow the rule of law and society which consists of social, legal, and religious systems intending to maintain the welfare of society. Perceptions of high ethics and social responsibility will make tax consultants more ethical in making decisions such as tax advice and recommendations.

he tax consultant profession that provides services to clients must be able to convince clients that they provide services that are accountable, with integrity, and objective.

This finding is in line with [14; 18; 36] who found that perceived ethical and social responsibility factors influence the ethical decision-making process. This shows that people who have perceptions of the importance of ethics and social responsibility will always use ethics and pay attention to the social environment in making decisions so that decisions taken will be more ethical.

5.3. The Effect of Risk Preference on Ethical Decission Making

The measurement of risk preference uses three indicators, namely: cost as a risk of sanctions arising from the recommendations given; the Reputation of the tax consultant, and; the relationship between the tax consultant and the client [29; 24].

The third hypothesis test results which showed that risk preferences in ethical decision-making through the three indicators show a negative and significant effect on ethical decision-making by tax consultants indicating that risk preference considerations will improve ethical decision-making [36; 37].

Tax consultants who do not like risk will refuse to help clients to evade taxes in a way that ignores ethics. For example, refusing to agree with clients to engineer tax reports, even with big rewards.

These findings indicate that tax consultants who consider risk preferences will make more ethical decisions, as a preventive action against the cost of risk of sanctions in the future. Besides that, the tax consultant will maintain a professional reputation for relationships with clients, by refusing to help clients carry out tax obligations that are not in accordance with applicable regulations, even though they are given adequate compensation.

This finding is in line with [36; 37] were also found that risk preference has a negative and significant influence on ethical decision-making by tax consultants. These findings indicate that the decisions taken will be more ethical if the job risk is smaller, and vice versa for jobs that are more risky.

5.4. The Moderating Role of Professionalism

Based on the fourth hipothesys test result it can be concluded that the professionalism of the tax consultant moderates the influence of Machiavellian traits on the ethical decision-making of a tax consultant. The more professional the tax consultant, the more ethical the decisions he makes, even though he has a Machiavellian nature. This research is in line with the findings of [34; 35], who also found that professionalism has a positive and significant influence on auditor ethical decision-making. The attitude of professionalism possessed by a person will affect his performance so it also influences decision-making based on ethics in assignments. The more professional the tax consultant is, the more ethical the decisions are taken by the tax consultant in carrying out their duties.

In addition, a professional tax consultant will carry out professional work as a form of dedication, always prioritizing social interests, prioritizing independence without any pressure from other parties in making decisions, always adhering to the rules and standards of the professional code of ethics and maintaining good name, reputation, and relationships. colleagues in the profession [8]. So that a tax consultant who has these criteria will have a low Machiavellian nature and make decisions ethically.

The fifth hypothesis test result indivated that he more professional a tax consultant is, and the better his perception of the ethics and social responsibilities he has to carry out, the more ethically guided he will be when making decisions [34; 35; 38].

The test result of sixth hypothesis indicated that the high professionalism of a tax consultant can weaken the negative effect of risk preference on the ethical decision-making of a tax consultant. Consideration of the risk preferences of the tax consultant when making decisions will lead to ethical decisions, and the professionalism of the tax consultant will further enhance the ethical considerations of the tax consultant when making decisions.

This research is in line with [37] who found that risk preference has a negative and significant influence on ethical decision-making by tax consultants. However, [36] show that risk preference has a negative and insignificant effect on ethical decision-making by tax consultants.

6. Conclusion

The purpose of this research is to investigate whether Machiavellian nature, ethical perceptions and social responsibility, and risk preference affect the ethical decision making of tax consulting. This study also wants to investigate the moderating role of their professionalism. the results of the study show that both Machiavellian, ethical perceptions and social responsibility, and risk preference influence ethical decision making of tax consulting. The results also found that the professionalism of the tax consultant acts as a moderating variable.

The results of this study have implications for the practice of developing the tax consultant profession, to improve the ethics of tax consultants who are members of their professional associations. Tax consultant professional organizations can facilitate and cultivate so that they always act with professional ethics, especially in aiding clients. Associations, where tax consultants take shelter, must also act firmly under the code of ethics they set, to provide learning to cultivate ethics in every decision-making.

Thus, the Machiavellian nature of each tax consultant can be limited, always realizing that ethical considerations and social responsibility, as well as risk preferences in decision-making, are things that greatly affect how ethical the decisions made are. The professionalism of the tax consultant is also an important thing that can reduce the occurrence of decision-making that ignores ethics.

Although this study makes a major contribution to the development of a body of knowledge, its findings have limitations. First, the research sample only consisted of tax consultants in one association, whereas in Indonesia four tax consultant associations are recognized by the government.

In addition, data collection using a questionnaire only comes from one source, namely employees' responses to the variables in this study which show a single source bias. Another limitation is the low response rate because this research took place at a time when tax consultants were at their peak, chasing the annual tax reporting deadline. Further research is suggested to further expand the research sample, and choose a time when the tax consultant is not being rushed by the annual tax reporting deadline.

In addition, the R-Square value of the influence of Machiavellian traits, ethical perceptions, risk preferences, and professionalism on ethical decision-making is 0.65, which indicates that the influence of these variables on ethical decision-making is only 65%, and other variables influence the rest. Therefore, future researchers should consider other factors that are likely to affect the level of ethical decision-making by individuals.

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Determinants of Behavior of Payers of Personal Income Tax: An Empirical Study from Indian Context

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ABSTRACT

Tax can be imagined as a contribution by citizens to the elected government to carry out its functioning smoothly. Tax compliance is a problem that has existed for as long as taxes. Paying taxes is always a difficult process because it has a direct impact on the taxpayer's residual income. As a result, everyone tries to avoid tax by tax management and tax evasion which is against the law. Tax evasion is among the main issues that the developing nations have been facing. Broader empirical research regarding individual income tax compliance behavior is scant in India. The present study aimed at exploring the determinants of taxpayer's behavior in meeting personal tax obligation and examining the interrelationship between the factors and their contribution towards tax compliance from Indian context. The study is based on primary data collected through structure questionnaire from 1068 sample respondents covering nine districts of Odisha, a State of India by following stratified random sampling method. The exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) identify three major factors i.e., economic, institutional, and social factors of tax compliance. Structural equation model has been adopted to achieve our objectives. It is evident from the results that variables under economic and institutional factors have a significant carry compared to variables under social factors. This also indicates about concern of individuals regarding their disposable income. Therefore, government should think of lowering tax rates and simultaneously keep on simplifying the tax compliance procedures and strengthen and expedite tax audit system.

KEYWORDS

tax compliance, individual taxpayer, income tax, individual behavior, India

JEL C38, G41, H24

УДК 336.228

Детерминанты поведения плательщиков налога на доходы физических лиц: эмпирическое исследование в индийском контексте

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АННОТАЦИЯ

Налог можно представить как вклад граждан в избранное правительство, чтобы оно бесперебойно функционировало. Соблюдение налогового законодательства – это проблема, которая существует столько же, сколько и налоги. Уплата налогов всегда является сложным процессом, поскольку напрямую влияет на остаточный доход налогоплательщика. В результате все пытаются избежать уплаты налогов путем управления налогами и уклонения от уплаты налогов, что противоречит закону. Уклонение от уплаты налогов является одной из основных проблем, с которыми сталкиваются развивающиеся страны. Более широкие эмпирические исследования в отношении соблюдения налогового законодательства отдельными лицами в Индии скудны. Данное исследование направлено на изучение факторов, определяющих поведение налогоплательщика при выполнении личных налоговых обязательств, а также на изучение взаимосвязи между факторами и их вкладом в соблюдение налогового законодательства в индийском контексте. Исследование основано на первичных данных, собранных с помощью структурного вопросника от 1068 респондентов, охватывающих девять районов Одиши (штат Индии), с использованием метода стратифицированной случайной выборки. Исследовательский факторный анализ (EFA) и подтверждающий факторный анализ (CFA) определяют три основных фактора, т.е. экономические, институциональные и социальные факторы соблюдения налогового законодательства. Для достижения наших целей была принята модель структурного уравнения. Из результатов видно, что переменные, относящиеся к экономическим и институциональным факторам, имеют значительный перекос по сравнению с переменными, связанными с социальными факторами. Это также свидетельствует об озабоченности граждан своими располагаемыми доходами. Поэтому правительству следует задуматься о снижении налоговых ставок и одновременно продолжить упрощение процедур соблюдения налогового законодательства, а также укрепить и усовершенствовать систему налогового контроля в Индии.

КЛЮЧЕВЫЕ СЛОВА
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1. Introduction

Government's ability in effective and efficient policy formulation and its implementation is key to socio-economic development. Over a period, especially since economic liberalization in 1991, role of Indian government has increased in this regard. Apart from government's traditional role in providing basic amenities such as health, education, rural development and strategic developments in defense, maintenance of law and order etc., it has increasingly percolated into other non-strategic areas.

For undertaking such activities, it requires the support of a considerable finance. This is mostly funded by way of public finance. Inability of the government to achieve the desired growth in key core areas such as education and public health that prompted it to privatize to attract capital is one of the reasons. Though there are so many areas to work upon, tax policy is one area that needs immediate attention which may turnaround the funding availability with the government.

An effective tax policy directly helps the Government in bridging the socio-economic distances or gap those exist. In fact, Article 246 of the Indian Constitution gives power to both the Union and State governments to impose tax for socio-economic development. A simple tax structure is most desirable for faster development of any economy. Tax structure must not be too high or too low and must be suiting the need of taxpayers. In this context, income tax suits all the paraphernalia of principle of taxation and thus facilitates government to achieve its socio-economic goals.

Further, imposition of tax on income helps in reducing the gap between the rich and the poor since income tax is imposed under progressive rate system in India. Reducing gap between rich and the poor makes distribution of wealth equitably across all the people.

Tax can be imagined as a contribution by citizens to the elected government to carry out its functioning smoothly. Over the years there has been a constant wrangle between the government and the citizens regarding tax rate. The government urges citizens to pay tax honestly to increase the tax compliance level. Every government derives most of its revenue from taxes, which are a mandatory levy imposed by the government without providing any direct benefit to the taxpaying public. Paying taxes is one of the constitutional obligations in exchange for fundamental privileges.

However, paying taxes is always a difficult process because it has a direct impact on the taxpayer's residual income. As a result, everyone tries to avoid tax by tax management and tax evasion which is against the law.

Evading taxes leads to economic costs, slowing down the growth of the economy and mitigating the ability of the government to furnish sufficient goods and services to the public. In other words, tax evasion is among the main issues that the developing nations have been facing.

Therefore, policy makers need to determine the causes behind tax non-compliance to carry out reforms and minimize the negative effects of evasion all around the globe. Income tax constitutes a major part of the total revenue, and the non-compliance behavior of Individual taxpayers hampers the progress of both the state and the nation. Broader empirical research regarding individual income tax compliance behavior is scant in India.

The present study focuses on exploring the determinants of income tax compliance by individual taxpayer in India and examining the interrelationship between the factors and their contribution towards tax compliance.

The following *hypotheses* have been formulated:

H_1: Economic factor significantly predicts the determinants of tax compliance.

H_2: Institutional factor significantly predicts the determinants of tax compliance.

H_3: Social factor significantly predicts the determinants of tax compliance.

H_4: Different factors of tax compliance determinants are positively correlated.

The structure of this paper is as follows. The next section explores the existing literatures relevant to the study and provides a strong theoretical background in identifying the research problems, research gap and formulating research hypotheses. The section "methodology" describes the research design, methods, variables, techniques, models, and software adopted in this study. The following section is "results and discussion" that explores the tax compliance determinants and comparative findings with existing studies followed by 'conclusion' section.

2. Review of literature

2.1. Economic Factors Studies

Tax compliance is a problem that has existed for as long as taxes. State governments all around the world are clearly characterized by their ability to identify, describe, and ultimately reduce the patterns of tax noncompliance. The concepts of tax compliance have been discussed in literature in a variety of contexts.

Smith & Stalans [1] viewed economic factors centered on the notion that tax rate should be optimum to leave a justifiable amount of disposable income in the hands of taxpayers and at the same time providing the required finance to Government.

James [2] tried to find out the relationship of tax evasion with tax compliance and how the financial condition of taxpayer and preference to risk moderate this relationship in Nigeria. His study revealed that tax evasion had a positive and significant relation with tax compliance.

Helhel & Ahmed [3] showed that low tax compliance is the result of both unfair system of tax and high tax rate as opined by the taxpayers of Yemen. Unsystematic tax auditing, restrictions on penalties and official relaxation of tax have the direct effect on decision on paying tax in time. They also found that rate of tax compliance is comparatively high for female.

Banele [4] conducted a study to analyze the noncompliance behavior of tax among SME in Zimbabwe. This non-compliance attitude of SME has created hindrances in true development of Zimbabwe economy. The use of regression technique revealed that weak follow-up plan, unplanned tax audits, increased tax rates, proper education on tax and misuse of public fund are the major causes of such non-compliance attitude of SMEs.

H_1: Economic factor significantly predicts the determinants of tax compliance.

2.2. Institutional Factors Studies

According to Azmi et al. [5] there is a negative impact of ease of use on risk of e-filing system in Malaysia.

Saravanan & Muthulakshmi [6] revealed that e-filing is an easy and time saving method of filing the return and the users of Trichy (India) are highly satisfied with this system.

Linda et al. [7] concluded that knowledge in tax and income of taxpayers have a significant impact on tax compliance.

After going through a systematic review, Mohammed et al. [8], found government should give more emphasis on non-enforcement tools to improve the taxpayers' willingness by changing the economic and social conditions and to create transparency and vertical trust within the system to increase tax compliance level.

The optimal choice of a taxpayer depends on changes in social norms and institutional environment concluded by Molodykh [9].

Kushwah et al. [10] found that while tax knowledge did not have a statistically significant relationship with tax compliance, tax penalties and electronic filing had a statistically significant impact on the corporate taxpayers' tax compliance in India.

On the contrary, Kireenko et al. [11] found in their study increase in education and awareness level among the citizen will results in favorable tax compliance as compared to tax audit. Trust to the governments and tax system will induce the citizen to comply with tax laws in Russia and Belarus.

Dey & Varma [12] examined the tax planning practices commonly adopted by the people of Twin cities of Odisha along with their awareness level and concluded that only twenty-three percentage of the sample individuals have good knowledge on tax and able to manage their own tax planning. But. Thirty four percent of the total people surveyed were found with lowest level of awareness about various investment schemes for tax planning.

Bani-Khalid [13] showed that the intentions of the SMEs in Jordan to comply with the sales tax were significantly influenced by attitude toward behavior, subjective norms, perceived behavioral control, and patriotism.

Neni & Nurul [14] revealed that tax compliance is not affected at all by tax knowledge and tax sanction, but it is affected by low awareness level. Lack of complete information has created the low level of tax compliance in the city.

Farhan et al. [15] described tax compliance as the component of theory of economies as well as sociology & psychology. The socio-psychological aspects of taxpayers need to be addressed to understand the attitudes of individuals in paying tax in time. The influence of peer group, service quality and tax moral were identified as the social and psychological factors having significant weight on tax compliance of SMEs in Jordan.

H_2: Institutional factor significantly predicts the determinants of tax compliance.

2.3. Social Factors Studies

Nicoleta [16] analyzed the factors of tax compliance with evidence collected from various countries and tried to create a model for the inclusion of tax compliance related decision variables in the scenario of Romanian country. She found that the consequence of tax incompliance is necessarily influenced by various components; broadly categorized into social, economic, and institutional.

Kamleitner et al. [17] showed that small business owners' perspectives of their tax status appear to be differentiated by three important factors. First, compared to employed taxpayers, small company owners are more likely to see possibilities to break the law. Second, they are more likely to lack relevant tax information, and third, they are more likely to encounter decision-making frameworks that treat taxes as excruciating losses.

Mascagni & Nell [18] conducted a study to investigate various issues relating to tax compliance. His study revealed that the economic factors like income level, cost of compliance, and rate of penalty are influencing the tax compliance behavior. Similarly, the social condition, attitude of taxpayer and the fairness in tax system as perceived by the taxpayer are the non-economic factors affecting tax compliance. On the contrary, high tax rate is found to be a non-significant factor influencing the tax compliance behavior. But government spending behavior as perceived by the common a man and the attitude of taxpayers have the significant influence on compliance.

Excessive taxation, relaxation in punishment, complexity of legislation, lack of transparency in taxation system were the major reasons for tax evasion or low degree of tax compliance in Greece as evidence from the study of Diakomihalis [19].

Kiow et al. [20] arrived at conclusion that the individual taxpayers' compliance behavior is influence by the transparent government mechanism that leads to ethical judgements and increases trust in tax authorities.

Jayawardane [21] looked at how psychological factors affected tax compliance choices and found that taxpayers' attitude was a key element that had a significant impact on tax compliance behavior.

Fauziati [22] discussed the issue of tax compliance in Padang of Indonesia and concluded that the tax compliance is not affected by tax knowledge. They suggested that the government should give maximum effort for tax compliance by imposing new rules of collection.

Yuniarta & Purnamawati [23] showed that business taxpayers' compliance in Bali is positively and significantly affected by karma phala (spiritual dimension) while money ethics (psychological dimension) and tax socialization (social dimension) had no significant influence on tax compliance.

Sharma & Sharma [24] found a significant relationship between tax practitioners ethics and three postulated frameworks, i.e., professional commitment, compliance cost and personality traits in north India.

H_3: Social factor significantly predicts the determinants of tax compliance.

2.4. Different Factors Studies

Deyganto [25] tried to find out the determinants of tax compliance and examined 9 selected determinants-government spending habit, fairness in taxation, tax audit, financial obstructions, changed policy, influence of peer group, tax authority and knowledge. Tax compliance was found to be affected significantly by tax audit frequency, financial obstructions and changes in government rules. All other variables have insignificant effect on tax compliance.

Damayanti [26] studied the tax compliance attitude of three hundred twenty-three taxpayers selected purposefully from Central Sava. The study showed that the desire of tax compliance is a subjective norm, and it is influenced by the perception of taxpayer on government. The intention to comply to tax takes the form of tax compliance and it originates from social obligations that is affected by the taxpayers' opinion about the government and its fairness.

Marandu et al. [27] provide thematic review of papers on tax and its compliance from the eighteen selected literatures across the world spreading over a time period of 1958 to 2012. A number of factors have been suggested by various authors affecting the tax compliance without any theoretical relevance and there by rejected by the authors for further discussion. Amongst all such factors, tax attitude, tax knowledge and tax awareness were found as the important factors affecting the compliance in general.

Rantelangi & Majid [28] discussed about the factors influencing tax evasion practice of taxpayers in East Kalimantan with one hundred participants selected with purposive sampling. The results indicated positive effect of cost of compliance on perception of tax evasion and the variables fairness in tax, knowledge of tax and tax morality have negative effect on the perception of tax avoidance practice.

Bijiga [29] described the way taxpayers have perceived about tax evasion in Bale Robe Town of Ethiopia. The study revealed that tax evasion is the result of low level of tax knowledge, and they are completely ignorant about the heavy penalty of tax evasion.

Hassan et al. [30] found that tax compliance simplicity, rather than perceptions of government spending and tax morale, has a greater impact on tax filing. Additionally, there is a strong correlation between compliance behavior, government spending, and perceptions of justice.

H_4: Different factors of tax compliance determinants are positively correlated.

3. Research Methodology

The present study is analytical in nature and uses primary data. The study is confined to the income taxpayer of Odisha, one of the states in India. Since tax rules are uniform throughout the country and the behaviour of average taxpayer is assumed to be more or less similar irrespective of States. However, since it is not feasible to collect information from all the taxpayers, we have selected nine districts of Odisha with literacy rate of more than 80% as per census 2011.

The selected nine districts are Cuttack, Balasore, Khordha, Jajpur, Puri, Bhadrak, Kendrapara, Jagatsinghpur, and Nayagarh. The research used a structured Questionnaire for collecting the data by following stratified random sampling.

The questionnaire was designed considering the information gathered from pilot study and findings of Ameyaw & Dzaka [31].

The questionnaire consists of two parts. The first part includes the demographic components of respondents while the second part includes various aspects of tax compliance. A total of 12 statements were asked covering economic, institutional, and social aspects and respondents were opined on 5-point Likert scale ranging from 1 to 5, indicating strongly agree to strongly disagree attitude.

Since the questionnaire relates to income and tax of the individual, respondents were reluctant to give their opinion resulting in non-response/incomplete response. However, a total of 1300 questionnaire were distributed in the sample domain out of which only 1068 respondents were found with complete response and constituted our sample for the study. The details of demographic components and fragment of tax compliance aspects are disclosed in Table 1 and Table 2 respectively.

The time period of data collection is confined to six months period of 2022. Statistical techniques like exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling (SEM) are used in this study. Statistical software like SPSS and AMOS are used to reach at conclusions and draw inferences. The model to be used in this study is presented in Figure 1.

It is evident from Table 1 that 22% of the respondents are of age less than 30, 38% are of the age 30–40, 28% belong to 40–50 and only 12% of the sample respondents are of age more than 50 years. A majority, 79% are male and only 21% are female. Of the respondents, 41% are employees of Govt./private organizations, 32% are into business and 27% are professionals.

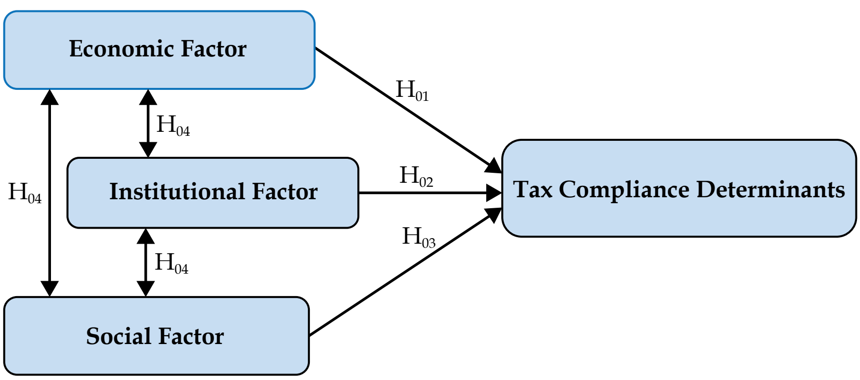

Figure 1. **Proposed Model**

Table 1

Respondents' Profile

Characteristics		Number	Percentage, %
Age	Below 30 Years	235	22
	30–40	406	38
	40–50	299	28
	Above 50	128	12
Gender	Male	844	79
	Female	224	21
Occupation	Govt./private employee	438	41
	Business	341	32
	Professional	289	27
Education	Undergraduate	117	11
	Graduate	299	28
	Postgraduate	470	44
	Professionally/Technically qualified	182	17
Income	₹ 2.50 Lakh – ₹ 5 Lakh	331	31
	₹ 5 Lakh – ₹ 7.50 Lakh	449	42
	₹ 7.50 Lakh – ₹ 10 Lakh	256	24
	₹ 10 Lakh – ₹ 12.50 Lakh	21	2
	More than ₹ 12.50 Lakh	11	1
	Total	**1068**	**100**

Source: Collected data

Only 11% are undergraduate, 28% of them are graduates, 44% are postgraduates and 17% are technically/professionally qualified. A majority (42%) of the respondents belong to the income group (₹5 Lakhs – ₹7.50 Lakhs) followed by 32% of the income group (₹2.50 Lakh – ₹5 Lakh) and 24% belonging to the income group (₹7.50 Lakh – ₹10 Lakh) and only 3% with income more than ₹10 Lakh.

4. Results

4.1. Primary Results

Table 2 illustrates the raw responses of the respondents on various determinants of tax compliance. Economic factors are coded with 'E', Institutional factors are coded with 'I' and social factors are coded with 'S'. It is prominent from the table that respondents were clear and confident in their response as Neutral responses were below 8%.

As Figure 2 illustrates, the majority respondents were either disagree or strongly disagree with the economic and institutional statements ranging between 53% to 64%. To the contrary, around 73% respondents were either agree or strongly agree with the social aspect statements.

4.2. Structural Equation Model

Laws related to income tax are amended by the Parliament when felt necessary, through Finance Act presented every year with Union Budget. This is done to keep pace with dynamicity of socio-economic parameters and changing preferences of successive Governments to allocate resources efficiently. Even though it is easier for industries and businessmen to comply with tax laws who employ professionals in the area of accounting and taxation, however it is very difficult for common men (individual taxpayer) to file return.

Table 2

Response Outline

Code	Determinants of Tax Compliance	SDA	D	N	A	SA
	Economic factors					
E1	Tax rate is too high in India	252	357	73	208	178
E2	Tax audit is not adequately carried out	273	389	69	174	163
E3	The government allocates revenue wisely	248	360	76	207	177
E4	Excess tax paid is timely refunded	228	355	87	223	175
	Institutional factors					
I1	Income tax compliance has been simplified over the period of time	225	448	36	170	189
I2	Income Tax officers should act as tax facilitators and not as tax enforcers	216	436	50	177	189
I3	Authorities have Excessive discretionary powers	207	433	51	186	191
I4	Corruption still exists in Income tax department	259	431	45	173	160
	Social factors					
S1	Income tax provisions are in favour of rich people only	83	138	62	375	410
S2	Tax payment at right time indicates the loyalty to the nation	101	140	48	364	415
S3	Tax evaders are protected by political people	96	144	63	381	384
S4	Tax evasion is a serious crime	87	155	50	355	421

Source: Collected and complied data.

Note: SDA: Strongly Disagreed; D: Disagreed; N: Neutral; A: Agreed; SA: Strongly Agreed.

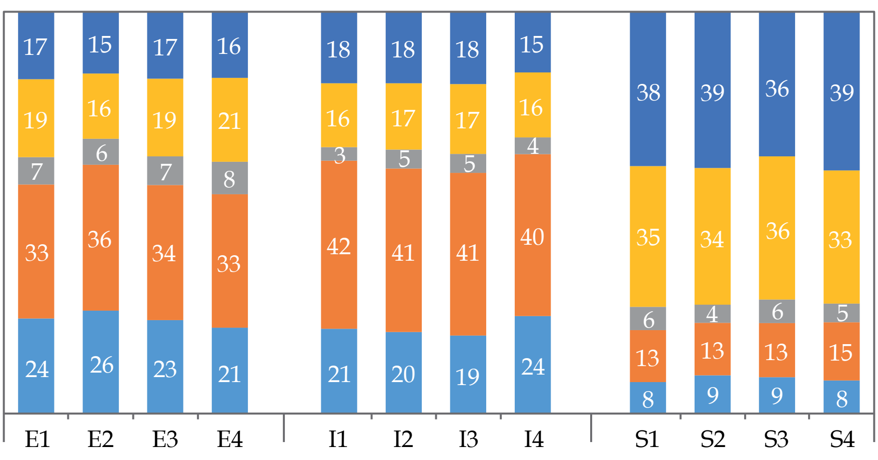

***Figure 2*. Responses to tax determinants aspects (%), where SDA – Strongly Disagreed; D – Disagreed; N – Neutral; A – Agreed; SA – Strongly Agreed**

Tax compliance is further analyzed regarding determinants of tax compliance and the aspects of tax compliance. The determinants of tax compliance are analyzed to find out their interrelationship if any by performing regression analysis using structural equation modeling (SEM). The determinants of tax compliance are further analyzed with respect to three factors-economic factor, institutional factor and social factor.

The notion of "SEM" is primarily used when the variables constituting the factor/constructs are related with each other. It is conceptualized as the graphic representation of the relationship between the latent and observed variables. In the language of SEM, the constructs are otherwise known as latent variables and the observed variables under each construct are known as the indicators.

All total twelve statements have been considered to explain three constructs of determinants of tax compliance of an individual taxpayer. Further, four observed variables relating to each latent variable have been considered to explain the construct more clearly. The observed variables symbolize various facets of latent variables-"Economic factor", "Institutional factor" and "Social factor".

4.3. Reliability and validity

Cronbach's alpha, composite reliability (CR) and convergent validity have been used to test the reliability and validity (Table 3).

The values of Alpha calculated for the constructs-"Economic factor", "Institutional factor" and "Social factor" are more than 0.60, and so there is an acceptance level of internal consistency reliability for the scale used as measuring instrument.

4.4. Convergent validity

Convergent validity is established through composite reliability (CR) and average variance explained (AVE). The value of (CR) should be more than 0.7, the value of AVE should be more than 0.50 and CR needs to be more than AVE for the data to be reliable. All values of CR, AVE meet the minimum requirement for the data to be reliable (Table 4).

Table 3

Reliability Statistics: Tax Compliance Determinants

Constructs	Reliability Statistics	
	Cronbach's Alpha	N of Items
Economic factor	0.947	4
Institutional factor	0.940	4
Social factor	0.813	4

Table 4

Validity: Tax Compliance Determinants

			Estimate	AVE	CR
X1	←	Economic_Factor	0.974	0.8167	0.915
X2	←	Economic_Factor	0.704		
X3	←	Economic_Factor	0.944		
X4	←	Economic_Factor	0.965		
X5	←	Institutional_Factor	0.918	0.8067	0.9085
X6	←	Institutional_Factor	0.993		
X7	←	Institutional_Factor	0.931		
X8	←	Institutional_Factor	0.729		
X9	←	Social_Factor	0.662	0.524	0.7435
X10	←	Social_Factor	0.779		
X11	←	Social_Factor	0.663		
X12	←	Social_Factor	0.782		

4.5. Discriminant Validity

This validity states how different constructs are different from each other and can be confirmed by comparing AVE with MSV and ASV value. From Table 5 it is clear that our data confirms all suggestive range of validity i.e., MSV < AVE, ASV < AVE, (Hair et al. [34]).

The output of the final SEM models is given in Table 6 where the range of all the indicators of model fit is suggested. Initially, all the model fit indicators are not within their suggestive range as evident from Model-I and Model-II.

Therefore, it is attempted to bring an improvement in the model through modification of indices using the covariance of variables used in the model. The process of modification thus developed three models for a good model fit. The modification index suggests the covariance of error terms e2 and e3 with the maximum index of 169.379 in first phase and the covariance of error terms e3 and e5 with the maximum index of 37.073 in second phase.

Finally, all the model fit indices are within the suggestive range in Model-III and path diagram is given below Figure 3.

In Table 7 the value of critical ratios (C.R) getting more than 1.96 is an indication of the significance of the path with 95% confidence level. Similarly, the p-value with (***) indicates that the regression weights are significant. As such, the effect of all the observed variables has significant loading on their constructs. Hence, H1, H2 and H3 are accepted. And so “Economic factor”, “Institutional factor” and “Social factor” significantly predict the tax compliance determinant.

In Table 8, the higher value of regression weight indicates a higher degree of positive impact on the variable. The regression weights of all the observed variables under the factor/construct are high and so all observed variables significantly and highly positively influence the constructs “Economic factor”, “Institutional factor”, and “Social Factor”.

Table 5

Factor correlation matrix of tax compliance determinants

	MSV	AVE	ASV	Eco. Factor	Inst. Factor	Soc. Factor
Economic_Factor	0.005	08167	0.0081	0.904	–0.106	–0.071
Economic_Factor	0.0014	0.8067	0.0063	–0.106	0.898	0.037
Institutional_Factor	0.0014	0.524	0.264	–0.071	0.037	0.724

Table 6

Model Fit Summary of Models: Tax Compliance Determinants

Variable	Value (Model-I)	Value (Model-II)	Value (Model-III)	Suggested value
Chi-square value	412.713, d.f = 51	231.209, d.f = 50	193.185, d.f = 49	
P value	0.000	0.000	0.000	“P-value > 0.05 [32]”
CMIN/DF	8.092	4.624	3.943	“Less than 5 is reasonable [33]”
GFI	0.941	0.966	0.971	“More than 0.90 [34]”
AGFI	0.910	0.947	0.954	“More than 0.90 [35]”
CFI	0.969	0.984	0.988	“More than 0.90 [36]”
RMR	0.056	0.053	0.053	“Less than 0.08 [34]”
RMSEA	0.082	0.058	0.053	“Less than 0.08 [34]”
P-CLOSE	0.000	0.035	0.285	“More than 0.05 [36]”

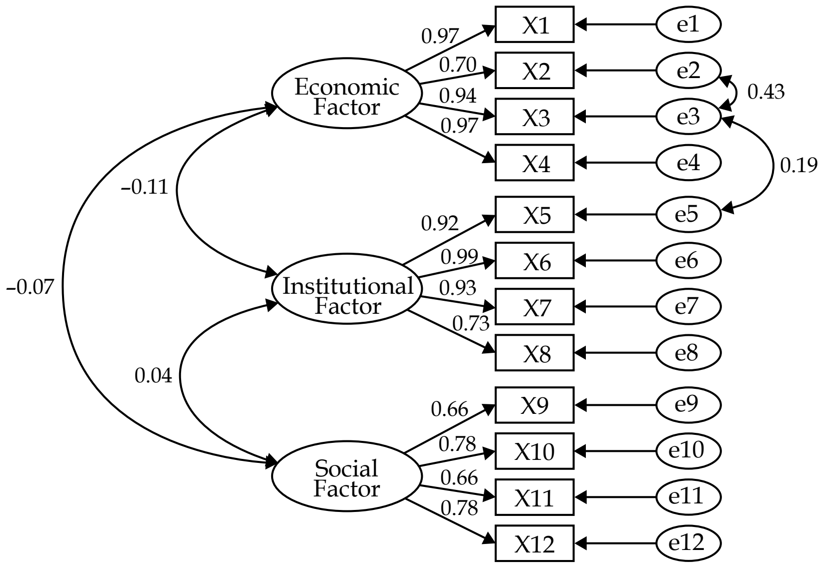

***Figure* 3. Path Diagram of Model: Tax Compliance Determinants**

Table 7

Regression Weights: Tax compliance Determinants

			Estimate	S.E.	C.R.	P
X1	←	Economic_Factor	1.000			
X2	←	Economic_Factor	0.710	0.023	30.933	***
X3	←	Economic_Factor	0.964	0.013	75.919	***
X4	←	Economic_Factor	0.976	0.011	86.617	***
X5	←	Institutional_Factor	1.000			
X6	←	Institutional_Factor	1.072	0.015	70.028	***
X7	←	Institutional_Factor	1.005	0.018	56.191	***
X8	←	Institutional_Factor	0.777	0.025	31.479	***
X9	←	Social_Factor	1.000			
X10	←	Social_Factor	1.226	0.062	19.803	***
X11	←	Social_Factor	1.026	0.058	17.767	***
X12	←	Social_Factor	1.213	0.061	19.831	***

Table 8

Standardized Regression Weights: Tax Compliance Determinants

			Estimate
X1	←	Economic_Factor	0.974
X2	←	Economic_Factor	0.704
X3	←	Economic_Factor	0.944
X4	←	Economic_Factor	0.965
X5	←	Institutional_Factor	0.918
X6	←	Institutional_Factor	0.993
X7	←	Institutional_Factor	0.931
X8	←	Institutional_Factor	0.729
X9	←	Social_Factor	0.662
X10	←	Social_Factor	0.779
X11	←	Social_Factor	0.663
X12	←	Social_Factor	0.782

Three observed variables under the construct Economic factor" have high significant loadings of value more than 0.90 and other one has loadings of more than 0.70. Similarly, three observed variables under the construct "Institutional factor" have high significant loadings of value more than 0.90 and other one has loadings of more than 0.60. The observed variables explaining the construct "Social factor" have loadings more than 0.60. "Economic factor" and "Institutional factor" carry more weightage in comparison to "Social Factor".

The covariance (Table 9) between "economic factor & institutional factor" is negative and significant as C.R is more than 1.96. The covariance between "economic factor & social factor" is negative but not significant. Similarly, the covariance between "economic factor & institutional factor" is negative and significant as C.R is more than 1.96.

The negative covariance values indicate negative correlation between the constructs "economic factor & institutional factor" and "economic factor & social factor". So, H4 is accepted for the constructs "Institutional factor and Social factor" and rejected for the relation between "economic factor & institutional factor" and "economic factor & social factor" (Table 10).

The correlation coefficient between different constructs is negative for "economic factor & institutional factor" and "economic factor & social factor" (Table 10) and positive for "institutional factor & social factor".

5. Discussion

From the above analysis, it is seen that economic factors, institutional factors, and social factors significantly predict the determinants of tax compliance. Tax rates, tax audit, timely refund of excess tax, simplification compliance procedures, tax official attitude and tax authorities power significantly predict the individual behavior while discharging the personal tax obligation. Our findings in this regard are consistent with earlier studies [1; 3; 4; 7].

The constructs institutional factor and social factor are positively related. But the constructs economic factor and institutional factor and economic factor and social factor are negatively related. The results also shows that different factors of tax compliance determinants are positively correlated.

This research is in line with research [37] that proves compliance cost negative effects level of tax compliance, while fines/penalties have positive effect.

Table 9

Covariances: Tax Compliance Determinants

			Estimate	S.E.	C.R.	P
Economic_Factor	<->	Institutional_Factor	–0.194	0.058	–3.380	***
Economic_Factor	<->	Social_Factor	–0.084	0.041	–2.069	0.039
Institutional_Factor	<->	Social_Factor	0.042	0.038	1.103	0.270
e2	<->	e3	0.206	0.018	11.410	***
e3	<->	e5	0.052	0.009	6.029	***

Table 10

Correlations: Tax Compliance Determinants

			Estimate
Economic_Factor	<->	Institutional_Factor	–0.106
Economic_Factor	<->	Social_Factor	–0.071
Institutional_Factor	<->	Social_Factor	0.037
e2	<->	e3	0.435
e3	<->	e5	0.193

Our findings are also supported by the recent initiatives undertaken by Government of India regarding direct tax reforms.

Based on the results of structural equation model, three of our hypotheses i.e., H1, H2 and H3 have been found to be statistically significant and hence all Null hypotheses have been accepted at 5% level of significance. Thus, we may infer that economical, institutional and social factors significantly predict the determinants of personal income tax compliance. However, we couldn't find enough evidence to accept H4 at 5% level of significance i.e., economic factors have negative relation with institutional and social factors while institutional factors have positive relation with social factors.

Simplification of return forms (ITR-1 also known as Sahaj, ITR-4 also known as Suvidha), introduction of new user friendly e-filing portal (e-filing 2.0), Annual Information Statement (AIS, an extended version of 26AS), E-verification of tax returns, Tax Return preparer scheme (TRP), income declaration schemes (IDS, 2016), new tax regime with low tax rates and minimum deductions, faceless assessment procedures, etc. are few exemplary reforms brought in by Government of India to bring more transparency and easy tax compliance.

6. Conclusion

The present study aimed at exploring the determinants of tax compliance by individual taxpayer and examining the interrelationship between the factors and their contribution towards tax compliance.

It is evident from the results of tax compliance determinants that variables under economic and institutional factors have a significant carry compared to variables under social factors.

In other way, this can be understood as selected variables under institutional and economic factor seem to reflect the concerned factor significantly than variables under social factor. This implies that some loopholes exist in management of taxation affairs. This also indicates about concern of individuals regarding their disposable income. Therefore, government should think of lowering tax rates and simultaneously keep on simplifying the tax compliance procedures and strengthen and expedite tax audit system.

Our findings are result of primary data collected from sample respondents over a limited time and region only which may change over a longitudinal study and hence, this result can't be generalized for all spheres.

Further studies could be expanded to include more of districts with additional variables as the present study includes only nine districts of Odisha.

The current study ignores analysis of tax aspects of individuals on the basis of different sources of income which could help in getting cue regarding the primary types and value economic activities in the state.

Also, study of income tax benefits and their relationship with consumption and investment decision of an individual could be one potential area that helps to determine the change in pattern of standard of living over a period of time in the state.

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The Impact of Perceptions of Corruption and Trust in Government on Indonesian Micro, Small and Medium Enterprises Compliance with Tax Laws

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ABSTRACT
Indonesia is a country with a relatively large level of MSMEs development. The Micro, Small, and Medium Enterprises (MSMEs) sector itself has a crucial role and is the main pillar of a country's progress. Ironically, this rapid development is not followed by the compliance of MSMEs taxpayer. Based on the survey results by the Directorate General of Taxes of the Indonesian Ministry of Finance in 2019, the contribution of MSMEs final income tax was only IDR 7.5 trillion or only around 1.1% of the total income tax revenue in the same year 711.2 trillion. Thus, it is important to explore the main factors causing (non)compliance of MSMEs in paying their taxes. This research examined the effect of perceptions of corruption and trust in the government on MSMEs' taxpayer compliance with perceived justice as a moderating variable. This study used a questionnaire survey design with hypothesis testing. The samples included MSMEs actors who had been operating for more than one year and MSMEs actors who already had a taxpayer identification number. The results uncovered that the perceptions of corruption negatively affected MSMEs' taxpayer compliance, while trust in the government positively affected MSMEs' taxpayer compliance. The perceived justice could not moderate the effect of perceptions of corruption on MSMEs' taxpayer compliance. However, the perceived justice strengthened the influence of trust in the government on MSMEs' taxpayer compliance. This study's results are additional discussion toward theory and literature related to taxpayer compliance. Specifically, this study proposes a tax compliance model by testing perceived justice as a moderation variable.

KEYWORDS
perceptions of corruption, trust in the government, perceived justice, and taxpayer compliance

JEL H22, H26

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Влияние восприятия коррупции и доверия к правительству на соблюдение микро-, малыми и средними предприятиями Индонезии налогового законодательства

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АННОТАЦИЯ
Индонезия – страна с относительно высоким уровнем развития сектора микро-, малых и средних предприятий (ММСП). Данный сектор сам по себе играет решающую роль и является главной опорой прогресса страны. К сожалению, столь быстрое развитие данного сектора не сопровождается соблюдением им

налогового законодательства. По результатам опроса, проведенного Генеральным налоговым управлением Министерства финансов Индонезии в 2019 г., вклад налога на доходы (прибыль) от данного сектора составил всего 7,5 трлн индонезийских рупий (1,1% от общих поступлений от налога на прибыль в том же году, которые составили 711,2 трлн индонезийских рупий). Соответственно, важно изучить основные факторы, вызывающие несоблюдение ММСП требований по уплате налогов. В этом исследовании изучалось влияние восприятия коррупции и доверия к правительству на соответствие налогоплательщиками сектора микро-, малых и средних предприятий восприятию справедливости как сдерживающей переменной. Мы использовали анкетирование для проверки гипотез. В выборку вошли субъекты ММСП, осуществляющие свою деятельность более одного года, и субъекты ММСП, у которых уже был идентификационный номер налогоплательщика. Результаты показали, что восприятие коррупции негативно повлияло на соблюдение ММСП требований налогового законодательства, в то время как доверие к правительству положительно повлияло на соблюдение этим сектором требований налогового законодательства. Воспринимаемая справедливость не могла смягчить влияние восприятия коррупции на соблюдение налогоплательщиками требований законодательства. Однако предполагаемая справедливость усилила влияние доверия к правительству на соблюдение требований законодательства. Результаты исследования являются дополнительным вкладом в проблематику, связанную с соблюдением налогоплательщиками требований законодательства. В частности, в исследовании предлагается модель соблюдения налогового законодательства путем проверки воспринимаемой справедливости как управляемой переменной.

КЛЮЧЕВЫЕ СЛОВА

восприятие коррупции, доверие к правительству, восприятие справедливости, соблюдение налогоплательщиками законодательства

1. Introduction

The problem of the taxpayer compliance level continues to be an issue in taxation in many countries, especially in developing ones like Indonesia [1]. Tax compliance has also become essential for personal and corporate taxation in developed and developing countries. It emphasizes the responsibility of taxpayers to report income and determines tax obligations [2].

Specifically, Indonesia has relatively developed capabilities in the taxation sector, including Micro, Small, and Medium Enterprises (MSMEs) [3].

The MSMEs sector plays a major role in supporting local economic activities with all their characteristics, which can provide many choices of economic activities that are much needed by producers, consumers, and the government [4]. MSMEs are also considered a high-risk tax compliance group [5]. In 2018, Indonesia's MSMEs were recorded at 64.2 million, and this increased by 1.98% in 2019 to 65.5 million MSMEs [6].

However, the rapid development of MSMEs is not followed by MSMEs' taxpayer compliance in reporting their tax obligations, so they do not contribute much to national income [7]. Based on data from the Directorate General of Taxes (DGT) at the Ministry of Finance of Indonesia 2019, the contribution of MSMEs' final income tax amounted to IDR 7.5 trillion, or only about 1.1% of the total income tax revenue in the same year of IDR 711.2 trillion [8]. In addition, based on DGT data, MSMEs taxpayers who made tax payments with the 0.5% final income tax scheme in 2019 were only 2.3 million of the total MSMEs actors [9].

The perception of corruption is one of the factors causing taxpayer compliance [10]. The perception of corruption has significant meaning when the principles of accountability and justice continue to erode. It will eventually indirectly impact the government's level of public trust [11]. In this case, one's perception affects compliance in carrying out payments from individual taxpayers, where the more corrupt officials and government, the higher the taxpayer's distrust in their taxes [12].

This issue is relevant in Indonesia as Transparency International publishes that Indonesia was ranked 89th out of 180 countries. This score indicates that Indonesia's corruption cases are still relatively high [13]. Departing from this, the rise of cases of tax manipulation and corruption in Indonesia might trigger people wary of paying their taxes [14].

Furthermore, research examining the relationship between perceptions of corruption and tax obligations has been conducted several times, but the results are inconclusive. While some studies deduced that corruption perceptions negatively affected taxpayer compliance [10; 15–19], in contrast, another study revealed that perceptions of corruption positively affected taxpayer compliance [20]. Moreover, empirical studies using cross-country frameworks found a negative relationship between indicators of perceptions of corruption or tax morale and tax compliance [18; 19].

Apart from perceptions of corruption, taxpayer compliance is also influenced by trust in the government. It is an essential indicator of the success of various government policies, programs, and regulations that rely on community cooperation and compliance [21; 22]. When the government can assure the trust of the taxpayers, the taxpayers become enthusiastic about fulfilling their tax obligations [23]. Some prior studies conducted [9; 17; 21] confirmed that trust in the government affected taxpayer compliance. Differently, Purnamasari, et al. [30] research revealed diverse results that trust in the government did not affect taxpayer compliance.

The inconsistency of prior results has promoted a gap that needs to be explored further. Thus, to answer this gap, the promotion of intermediary variables is needed. To do so, we examined the perception of justice towards the government as a moderator. Perceived justice is one of the factors causing taxpayer compliance since the citizens believe that when they pay taxes, they will receive adequate public service benefits compared to their contributions [31]. When taxpayers perceive the tax system as fair, neutral, and reliable, they tend to exhibit greater tax compliance behavior [32].

Also, it is important to how taxpayers view the tax system since a fair tax system will demonstrate compliance with taxpayers [23]. In short, it is related to the extent to which taxpayers perceive procedural will increase perceived inequities related to lack of regulatory clarity and thus lead to similar consequences for tax compliance [33].

Some prior studies [21; 27; 38] deduced that justice affected taxpayer compliance. Relying on the developed arguments above, we assume that when tax procedures can be carried out properly, it will weaken the impact of corruption perceptions on tax compliance and strengthen trust's effect on tax compliance.

Specifically, this study examines the factors influencing MSMEs' taxpayer compliance, namely perceptions of corruption and trust in government moderated by perceived justice, in MSMEs in Indonesia. The contribution of this study is to provide beneficial input to the Directorate General of Taxes in formulating policies related to taxation, especially to improve tax compliance by MSMEs.

Currently, the Indonesian government is focusing on developing e-tax policies to improve tax compliance. But in our opinion, this will not work optimally to increase tax compliance if the aspect of public trust in tax management is not considered. Theoretically, the research results expand the literature regarding perceptions of corruption and trust in the government on MSMEs taxpayer compliance. New insights explore the moderation role of perceptions of justice.

This study aims to address issues of corruption and tax compliance in MSMEs. We tested the effect of perceptions of corruption and trust in the government on MSMEs tax compliance with perceived of justice as a moderator.

We formulated the *research hypotheses* as follows:

H1: The perception of corruption negatively affects MSMEs' taxpayer compliance.

H2: Trust in the government positively affects MSMEs' taxpayer compliance.

H3: The perceived justice strengthens the negative influence of perceptions of corruption on MSMEs' taxpayer compliance.

H4: The perceived justice strengthens the positive influence of trust in the government on MSMEs' taxpayer compliance.

Article structure. In the next section, we presented the literature review that contains theoretical references used and the hypotheses formulated. In the following section, methodology of this study is elaborated. Next section explained the results and discussions. Lastly, conclusion section closed the paper.

2. Literature Review

2.1. Theories

Ajzen [39] proposed that the Theory of Planned Behavior (TPB) describes the relationship between a person's behavior and attitudes through three main factors: behavioral beliefs, normative beliefs, and control beliefs (behavior beliefs formed through the necessary resources or opportunities).

This theory suggests that the behavior of any individual in any situation is not a sudden consequence of an event but that every behavior is supported by many factors that will shape a person's behavior [40].

In this case, the attitude of the taxpayer to behave positively or negatively, which has been formed from the knowledge and experience of tax professionals or the experience of others, will form the intention of tax professionals to comply with the applicable tax laws and regulations [41].

Under the Theory of Planned Behavior (TPB), behavioral beliefs can form attitudes. This variable is related to an attitude, i.e., trust in the government. Meanwhile, normative beliefs can be associated with perceptions of corruption, while control beliefs can be related to the perceived justice. In addition, this theory elucidates that an individual's attitude toward a behavior is based on behavioral beliefs, which refer to the consequences of a behavior [42]. The Theory of Planned Behavior also explains that the public's desire to determine compliance or non-compliance in fulfilling their tax obligations is influenced by attitudes and environmental influences related to the formation of subjective norms in fulfilling taxpayers; thus, the theory is relevant in this study.

Meanwhile, attribution theory was first discovered by Heider [43]. This theory explains a person's behavior. Attribution theory also argues that when individuals observe someone's behavior, they want to try to determine whether it is caused by the character (internal factors) or the situation (external factors) [44].

Referring to attribution theory, a person's behavior is associated with external and internal factors, where behavior caused by external factors is the behavior of individuals who will be forced to behave because of the situation, while internal factors are behaviors believed to be under personal control [45].

According to attribution theory, tax perception influences taxpayer compliance [46]. In this respect, it indicates that perceptions of corruption and trust in the government are internal factors that can affect individual behavior in obedient behavior [47].

Moreover, at the heart of attribution theory is the assertion that people are in a position to continually attempt to explain the events they encounter [48]. Hence, attribution theory is relevant to this study since one's perception of judging others strongly influences internal and external conditions [30].

2.2. Perception of Corruption and Taxpayer Compliance

Corruption is an event currently becoming a topic regarding the perpetrators of destruction in regulation and institution through the media so that it sacrifices broader interests than analyzing social incidents, political backgrounds, and economics [49]. Corruption is a form of behavior that violates public service ethics [50].

Previous studies revealed that a country's high level of corruption would negatively impact taxpayers' attitudes and norms towards carrying out their tax obligations [10].

The research results by Tahar and Rachman [51] have proven that the perception of taxpayers regarding tax persons who commit corruption did not significantly affect taxpayer compliance.

Another study, also stated that the perception of corruption had a negative effect on taxpayer compliance [15; 16]. Based on the Theory of Planned Behavior in the normative belief section, it is said that individual beliefs in the normative expectations of others motivate them to fulfill these expectations.

H1: The perception of corruption negatively affects MSMEs' taxpayer compliance.

2.3. Trust in the Government and Taxpayer Compliance

Trust in the government manifests in taxpayers' expectations of tax officials in carrying out the tax system per applicable norms and values [23]. Trust in government seems important in any country as it not only influences the tax attitude of citizens but, more importantly, also enables the government to function more efficiently or even reduce crime rates [21].

Trust in the government affected individual voluntary tax compliance behavior in a positive direction [17]. This statement is reinforced by Arismayani et al. [52], explaining that the level of trust in the government and the law significantly affected taxpayer compliance.

Another study also mentioned the significant influence of the level of trust on MSMEs' taxpayer compliance [25]. Moreover, in attribution theory, trust is an internal factor that affects taxpayers. Attribution theory also explains that the taxpayer's perception of trust in the government is the reason that can impact taxpayers in making decisions regarding taxpayer compliance in carrying out their tax obligations.

H2: Trust in the government positively affects MSMEs' taxpayer compliance.

2.4. Perceptions of Corruption, Perceivide of Justice, and Taxpayer Compliance

The tax perceived justice argues that taxpayers will have a fair perception if the benefits provided by the government to taxpayers are in line with their contribution to the tax system. If the taxpayer gets minimal justice and feels disadvantaged, the taxpayer's perception of tax evasion may be higher. It agrees with Irawan [27] research, which stated that the perception of fairness of the taxation system could affect taxpayer compliance. Beside that, tax justice affected the perception of taxpayers about the ethics of tax evasion [35].

Another research by Hermawan et al. [53] explained that knowledge of corruption and tax justice significantly affected individual taxpayer compliance. Based on attribution theory, perceived justice is an external factor that affects taxpayers in carrying out their tax obligations. Taxpayers will comply in carrying out their tax obligations if the tax funds they have paid are not misused and tax officials behave fairly in their taxation system.

H3: The perceived justice strengthens the negative influence of perceptions of corruption on MSMEs' taxpayer compliance.

2.5. Trust in the Government, Perceivide of Justice, and Taxpayer Compliance

A fair taxation system is equal treatment for people or entities in the same economic situation (for example, having the same annual income) and providing different treatment for people or entities in different economic conditions [47]. The justice in question is where the imposition of tax rates on taxpayers is proportional to the ability to pay taxes in accordance with the benefits received. Trust in the government in tax compliance mediated by perceptions of tax justice had a positive influence [26].

Another study by Faizal et al. [29] explained that the relationship between taxpayers and the government depended on the trust and fair treatment of tax officials in terms of taxation.

It aligns with research conducted by Güzel et al. [23] that there was a positive influence between trust in the government on tax compliance through tax justice as a mediating variable.

Gobena & Van Dijke [54] also described that perception of fairness and trust in tax authorities positively affected taxpayer compliance. The effect of tax justice on tax compliance is based on the Theory of Planned Behavior in the control belief section, suggesting that personal beliefs are about the things that drive their behavior and the perception of how strongly both influence their behavior.

H4: The perceived justice strengthens the positive influence of trust in the government on MSMEs' taxpayer compliance.

In the next section, we described the methodology section which contains a description of the population, sample, data collection techniques, and data analysis techniques.

3. Methodology

Based on the above studies, this research uses two theories, namely Theory of Planned Behaviour (TPB) and attribution theory. These two theories are more relevant to be adopted in this study than others. It is because a person's perception is more reflective of a person's condition which can be influenced by internal and external conditions such as attitudes and environmental influences related to the formation of subjective norms in taxpayer compliance as described in Theory of Planned Behaviour (TPB) and attribution theory. Furthermore, the issue of taxpayer compliance is a current issue because the problem of perceived corruption is not okay in Indonesia. Based on the hypotheses developed, we formulate the research model as shown in Figure 1.

This study used primary data obtained through original sources, while the data in this study were quantitative. Data were obtained by distributing questionnaires to respondents in Yogyakarta City, Pekanbaru City, Samarinda City, Ternate City, Mataram City, and Karimun Regency, representing the major islands in Indonesia. The data analysis technique employed Partial Least Square (PLS). PLS can examine statistical problems by measuring relationship paths simultaneously [55].

In addition, the adoption of PLS is suitable in this study as it allows for a relatively small sample size and can increase the complexity of the model [56]. Hair Jr, et al. [55] revealed that the stages of using PLS consist of: (1) Model specifications; (2) Evaluation of outer models (validity and reliability); (3) Evaluation of the inner model.

The population in this study was MSMEs businesspeople in Indonesia. The sampling technique was the purposive sampling method. The sampling criteria in this study included: MSMEs actors who had been operating for more than one year and MSMEs actors who already had a taxpayer identification number (TIN).

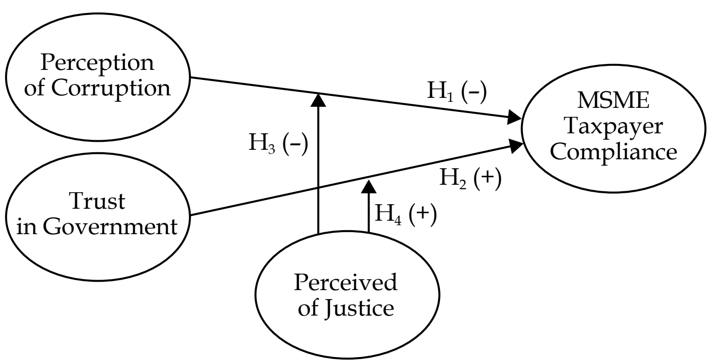

Figure 1. **Research Model**

This criterion is based on the existence of taxpayer provisions for entities that have met legality and have been operating for more than one year. Moreover, a minimum sample size is required to validate the research result's validity [57].

Memon et al. [58] recommend Power analysis to determine sample size. Based on the Power analysis calculations, it was suggested that the minimum sample size for this study is 85 MSMEs. As a total of 360 questionnaire responses were successfully collected, the sample size for this study met the recommended minimum sample size.

The research instrument was adopted from several previous studies, namely, tax compliance by Yadinta et al. [59], perceptions of corruption by Wibisono [12], trust in government by Yusuf [60], and perceptions of justice by Susanto et al. [61].

The calculation scale employed in this questionnaire was a Likert scale of 1 to 5, ranging from strongly disagree (1) to strongly agree (5).

As this research approach is a self-reported survey, there is a potential for normative bias, commonly called the Common Method Variance (CMV). One technique that is often used to detect this problem is Harman's Single Factor Test [62].

In line with this, we conducted a bias test to determine the potential for bias, error, complexity, ambiguity, and questionnaire scale format [63]. Bias is significant if one latent factor contributes more than 50% [64]. The test results show that the highest latent factor only accounts for 28.63% of the variance. Therefore, test bias did not pose a serious threat to this study.

The sample in this study were MSMEs taxpayers spread across several regions, namely the City/Regency of Pekan Baru, Yogyakarta, the Ternate, the Samarinda, Mataram, and Karimun. Questionnaires were distributed from 14 September 2021 to 16 October 2021. Of the 430 questionnaires distributed, 360 questionnaires were returned. All returned questionnaire sheets were filled in completely by the respondents. So that all questionnaires can be used for data analysis. This Respondents' characteristics is presented in Table 1, identifying gender, age, type of business, and the amount of turnover per year.

The next section presented results and discussion. In detail, it highlighted the related research findings and exposure and interpretation of the data obtained which are then connected to the foundation or theory adopted in this study. It also highlighted the positioning of this study results among existing literature.

Table 1

Statistical Data on Respondents' Characteristics

Information	Description	Number	Percentage (%)
Gender	Female	181	50.78
	Male	179	49.72
Age	20–31 years old	138	38.33
	31–41 years old	105	29.17
	42–49 years old	70	19.44
	50 years old	47	13.06
Type of business	Trading	222	61.67
	Service	79	21.94
	Manufacture	59	16.39
The amount of turnover per year	< IDR 600.000.000	286	79.44
	IDR 600.000.000 – IDR 4.800.000.000	51	14.17
	> IDR 4.800.000.000	23	6.39
	Number of respondents	360	100.00

4. Results

4.1. Measurement test

Before testing the hypothesis, it is necessary to test the validity and reliability. The validity test consists of two parts, namely convergent validity and discriminant validity. First, we assessed convergent validity to ensure the ability of indicators to measure constructs (variables). The convergent validity test evaluated the outer loading value and the Average Variance Extracted (AVE) value [55]. The outer loading value used in testing the convergent validity was more than 0.7, while the required AVE value is above 0.5, so the indicator is considered valid [65].

Table 2 shows that the loading and AVE have met the recommended values. Thus, all rules of thumb including convergent validity and reliability validity have been fulfilled.

The indicator of Discriminant Validity testing is by comparing values between constructs [66]. In Table 3, the correlation value for each construct had a higher value than the other constructs, correlation value, thus the test results deduce the discriminant validity has been established [67].

Moreover, reliability testing is then carried out by looking at the consistency between indicators. In Table 2, Cronbach's alpha (CA) of each construct had a value of more than 0.6. In addition, the value of composite reliability (CR) was more than 0.7.

Thus, all constructs met the rule of thumb, which could be said to have

Table 2

Convergent Validity and Reliability Test Results

Variable	Indicator	Loading
	Perceived of justice (AVE = 0.524; CR = 0.846; CA = 0.776)	
DK1	I believe that the income tax system in Indonesia is regulated fairly	0.776
DK2	I believe that the income tax burden is distributed fairly to every taxpayer	0.721
DK3	In general, the tax system operates under applicable tax regulations	0.710
DK4	In my opinion, the use of all funds obtained from taxes for development is carried out fairly	0.710
DK5	I believe that each type of tax paid is per the taxpayer's ability to pay	0.701
	Trust in government (AVE = 0.638; CR = 0.875; CA = 0.813)	
KKP1	I trust the government system in taxation	0.806
KKP2	I trust in the laws laid down in taxation	0.852
KKP3	I trust in tax collection used for development	0.817
KKP4	I trust in the allocation of taxes used for development	0.713
	Taxpayer compliance (AVE = 0.662; CR = 0.907; CA = 0.873)	
KWP1	I always fill out the tax payable form correctly and completely, following the actual data	0.848
KWP2	I always calculate the tax payable correctly according to the applicable regulations	0.847
KWP3	I report and pay taxes under the specified time limit	0.819
KWP4	I always pay tax according to the actual amount	0.770
KWP5	I report and pay taxes on a personal basis	0.779
	Perception of corruption (AVE = 0.631; CR = 0.836; CA = 0.707)	
PK1	I feel that the state apparatus will embezzle the taxes I have paid	0.826
PK2	I feel that the state apparatus abuses its position in tax matters to benefit certain parties	0.812
PK3	I feel reluctant to pay taxes on news of corruption committed by tax officials	0.742

Note. AVE = Average Variance Extracted; CR = Composite Reliability; CA = Cronbach's Alpha.

a high-reliability [65]. As the validity and reliability tests have been fulfilled, the hypothesis testing with the structural model test can proceed.

The measurement of structural model used the Adjusted R Square value to measure the level of variation of the change in the independent variable to the dependent variable. The higher the value of Adjusted R Square, the better the prediction model of the research model. In this study, the value of Adjusted R Square was 0.214. It signifies that taxpayer compliance was influenced by 21.4% by the independent variables, and the rest were influenced by other independent variables not examined in this study.

Furthermore, Table 4 and Figure 2 display the hypothesis testing results. Panel A shows the direct effect test results while Panel B presents the moderating effect.

Table 3

Discriminant Validity Test Results (Fornell-Larcker)

Construct	DK	KKP	KWP	PK
Perceived of Justice	0.724			
Trust in the government	0.472	0.799		
Taxpayer compliance	0.187	0.316	0.813	
Perception of corruption	–0.263	–0.347	–0.422	0.794

Table 4

Hypothesis testing results

Hypothesis	Original Sample	T-Stats	P-Values	Conclusion
Panel A. Direct Effect				
Perception of corruption taxpayer compliance	–0.366	5.370	0.000	Supported
Trust in the government taxpayer compliance	0.171	3.297	0.001	Supported
Panel B. Moderation Effect				
Perceptions of corruption* Perceived justice taxpayer compliance	0.074	0.889	0.374	Unsupported
Trust in the government* Perceived justice taxpayer compliance	0.116	2.637	0.009	Supported (Quasi Moderation)

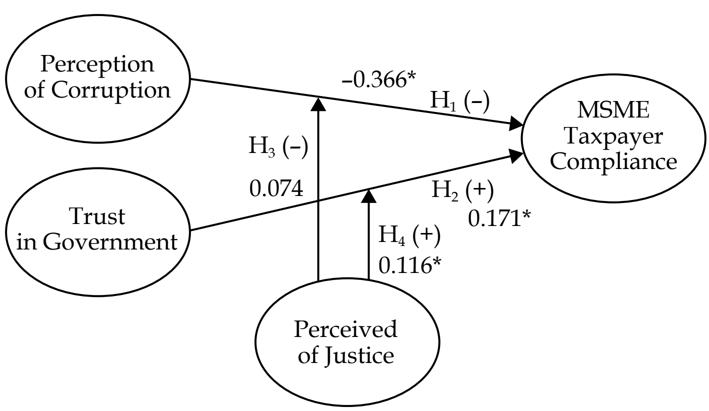

Figure 2. **Structural Model Assessment Result**

5. Discussions

5.1. Confirmation of research hypotheses

The hypothesis testing results for the corruption perception variable indicated that the perception of corruption negatively affected MSMEs taxpayer compliance. In other words, *H1* was supported. The higher the public perception of corruption in their country, the lower the taxpayer compliance. These results reinforce prior studies that a high level of corruption in a country will have a negative impact on the attitudes and norms of taxpayers in carrying out their tax obligations [10; 15; 16].

On the one hand, the result showed that trust in the government positively affected MSMEs taxpayer compliance, so *H2* was supported. Thus, it denotes that the higher the level of trust in the government towards tax officials, the higher the level of taxpayer compliance in carrying out their tax obligations. Here, trust in the government manifests taxpayers' expectations of tax officers in carrying out their duties under applicable laws and regulations.

There is also a sense of trust in the government that the taxes they have paid are not misused, creating a positive view of taxpayers in making decisions to comply with their tax obligations. Then, taxpayers will feel safe when paying taxes because they believe the tax funds paid are not misused but used for the people's benefit. All actions and attitudes of tax officials in carrying out their duties also directly influence public trust. The results of this study are in accordance with prior research [15; 17; 21], stating that trust in the government had a positive effect on MSMEs taxpayer compliance.

Furtheremore, the results for the moderating effect revealed that the perceived justice could not moderate the relationship between perceptions of corruption and taxpayer compliance; thus, *H3* was unsupported. It might happen when the taxpayers thought that even though the perceived justice in his country is high, they would still not comply with paying taxes due to too many reports of corruption committed by state officials. Here, taxpayers were worried that the tax funds they paid would be misused again by tax officials. This study's results align with Yusmanda [68] research, where tax justice playsa role as the independent variable, not a moderator.

In contrast, the results demonstrated that the perceived justice strengthened the influence of trust in the government on MSMEs' taxpayer compliance, so H4 was supported. Faizal et al. [29] have elucidated that the relationship between taxpayers and the government depends on the trust and fair treatment of tax officials in terms of taxation.

Trust in the government can also be developed if taxpayers view the government's actions or decisions as fair to them. Tax justice is certainly needed to foster taxpayers' trust in the government. If the government is fair, trust will grow by itself. It will certainly result in taxpayers being obedient in carrying out their tax obligations and increasing tax compliance.

Moreover, Widuri and Irawan [26] that the perception of fair government practices by taxpayers would increase taxpayer confidence, whereas perceived justice would correlate with trust in the government.

5.2. Practical Implication

This study's results suggest the importance of eradicating corruption and increasing public trust, given their significant impact on taxpayer compliance. In addition, the justice aspect also needs to be the center of attention of the government because of its mediation role in the relationship between public trust and tax compliance. Having that, this research can be input for practitioners, especially the Directorate General of Taxes, to formulate taxation policies that are expected to increase taxpayer compliance.

5.3. Theoretical Implication

Theoretically, the research results offer references and empirical studies in exploring the relationship between perceptions of corruption and trust in the government on taxpayer compliance by adopting perceptions of justice as a moderating variable. Furthermore, this study confirms that the perception of justice is very important to increase taxpayer compliance, in this case, MSMEs.

Thus, this study confirms the Theory of Planned Behavior regarding attitudes and beliefs, normative beliefs, and control beliefs which can then influence a person in fulfilling their tax obligations.

In addition, the study results partially confirm the premise of the attribution theory put forward by Heider [43] that perceptions of fairness are external factors that affect taxpayer compliance.

But this cannot be adopted perfectly because one of the hypotheses is not supported, where perceptions of justice do not determine the relationship between perceptions of corruption and tax compliance. However, the results of this study provide fresh insight into the role of these two theories in tax compliance studies, especially in a country with an alarming level of corruption like Indonesia.

6. Conclusions

This study examined the effect of perceptions of corruption and trust in the government on taxpayer compliance with perceived justice as a moderating variable. This research was conducted in Pekanbaru City, Yogyakarta City, Ternate City, Samarinda City, Mataram City, and Karimun Regency, Indonesia. The results concluded that the perception of corruption negatively affected MSMEs' taxpayer compliance, while trust in the government positively affected MSMEs' taxpayer compliance.

Moreover, the perceived justice could not moderate the effect of perceptions of corruption on MSMEs' taxpayer compliance. Still, it strengthened the influence of trust in the government on MSMEs' taxpayer compliance.

This study has several limitations that need to be noted for the readers.

First, the scope of the sample is relatively small, namely, only six regencies/cities in Indonesia. Therefore, readers need to be careful in generalizing research conclusions, especially in the broader context of MSMEs.

Second, this study only uses a single approach, in this case, a survey. In line with this, future research is expected to be able to conduct similar research in other areas with a wider area coverage. Furthermore, to obtain richer results, further research is expected to be able to add additional data collection methods, namely through brief interviews with MSMEs taxpayers.

This study's results suggest the importance of eradicating corruption and increasing public trust, given their significant impact on taxpayer compliance.

Theoretically, the research results offer references and empirical studies in exploring the relationship between perceptions of corruption and trust in the government on taxpayer compliance by adopting perceptions of justice as a moderating variable.

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