



## Impact of Transparency and Government Spending on Tax Ratio in ECOWAS Nations: Pre-COVID Era

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**Abstract:** Tax payment is a phenomenon of global significance irrespective of national differences, ideologies, and uniqueness. In this regard, government expenditure scrutiny and transparent reporting have emerged as an important development in social policy that could help boost tax revenue, although less questioned. Therefore, this study examined the impacts of transparency, and government spending (on health, education, and infrastructure) on tax ratio in ECOWAS nations. This study adopted ex-post facto research design. The secondary data used were collected from fifteen (15) ECOWAS countries and covered the selected pre – COVID period of 2012 to 19 (8 years). Panel data regression technique was used to estimate the data collected. The results of the analysis revealed that: transparency positively impact on tax ratio in ECOWAS nation; and government spending on Education and Infrastructure positively impact on tax ratio; while government spending on health has no significant impact on tax ratio among ECOWAS nations. This study concluded that transparency and government spending jointly impact tax ratio in ECOWAS nations. The study therefore recommended that tax authorities should embrace the principle of informational, participatory, and accountability transparency to facilitate a tax system capable of closing tax gap.

**Keywords:** ECOWAS; Government Spending; Tax Ratio; Transparency

### Introduction

Tax payment and revenue generation policy are worldwide phenomenon regardless of national disparities, ideologie, or uniqueness. Researchers, scholars, and policymakers around the world have long been interested in maximizing tax ratios and reducing tax boycott. Similarly, the news has been filled with stories about individuals and corporations failing to pay their fair share of the compulsory tax levy (Sebhat & Mohammed, 2019).

To address the issue of tax boycott, it is indeed necessary to have a basic grasp of the elements that influence people's decisions to pay or avoid taxes. Taxpayers nowadays demand more information that promotes tax transparency; they want the government to be more open about the taxes paid by them (Ofurum, Amaefule, Okonya, & Amaefule, 2018). Fadjar (2018) further highlights that the need for government operations to be trustworthy and transparent is becoming more pronounced.

Transparency is a quality of governments, corporate bodies, and individuals in which information, guides, goals, processes, and

activities are clearly disclosed (Transparency International, 2020). Government transparency can be seen as the provision of data and information about its operations, management, and policies, that is, clear information on what it is doing and how it is doing it. In general, a government is transparent when citizens can comprehend their whole tax burden and how it is used effectively.

Tax dodging is a serious problem in the ECOWAS region. Taxpayers fail to report all of their tax liabilities, resulting in lower revenue for the government and impeding the optimal implementation of social welfare policies. Despite the fact that noncompliance by taxpayers is a persistent and growing global problem, numerous indicators imply that poorer countries are the hardest hit. According to the Organisation for Economic Co-operation and Development (OECD), taxes account for only 24% of GDP in developing nations, compared to 45 percent in affluent countries. Furthermore, for more than a decade, most African countries' yearly tax to GDP ratios have been moving between a tight band of 5 to 10%. As a result, the necessity for African countries to enhance their tax ratio has

become a topic of discussion among policymakers.

Based on the best knowledge of the researchers, no study has leveraged on the dual power of effective public spending and openness in boosting tax ratio. The novelty of this study is therefore because it intertwines transparency and government spending with tax ratio using a composite tax model. Furthermore, the study filled a geographical gap by attempting to close tax gap in ECOWAS based on the assessment of transparency and government spending.

The broad objective of this study is to examine the impact of transparency and government spending on tax ratio in ECOWAS nations in pre - COVID era; while the specific objectives were to: investigate the impact of transparency on tax ratio in ECOWAS nations; assess the effect of government spending on infrastructures on tax ratio in ECOWAS nations; investigate the influence of government spending on education on tax ratio in ECOWAS nations; and evaluate the impact of government spending on health on tax ratio in ECOWAS nations.

This study's originality is based on the intertwining of transparency and government expenditures with tax ratios among ECOWAS countries and as a result, by combining transparency and government spending, this study contributes to the research knowledge on compliance behavior in general. The outcomes of this study will comprehensively give a new dimension to the understanding of the underlying causes of compliance. This research will also provide results that will assist the government in developing initiatives to improve the tax ratio. As a result, the study has the potential to not only add to the research literature, but also to aid regulators (government) in crafting effective tax legislation that will raise tax ratios. Conducting this research will also benefit ECOWAS communities by revealing their current situation in terms of the relationship between transparency, government spending, and tax ratio.

The scope of this study covered the entire countries that form ECOWAS (Nigeria, Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea Bissau, Ivory Coast, Liberia, Mali, Niger, Senegal, Sierra Leone, and Togo). The data for the study were obtained from the fifteen (15) nations studied for pre COVID era from 2012 to 2019. 2012 was picked as the start year because the older version of the Transparency Index was not comparable across time until 2012 (Gründler & Potrafke, 2019) and 2019 as end year was due to the impact of COVID being felt from 2020. It was discovered that government expenditure on health specifically may not follow normal trend due to the effect of COVID-19.

## **Literature Review**

Taxes are societal contributions (Fadjar, 2018). In this view, they reflect a government-imposed obligation on individuals or assets to provide public services and improve citizens' quality of life socioeconomically (Ocheni, 2017). Tax is a significant and valuable instrument used to attain welfare, political, and economic goals, according to Gurdal, Aydin, and Inal (2020). The tax ratio is defined and conceptualized as the responsiveness of tax revenue to overall GDP (Maweje & Munyambonera, 2016).

Tax ratio, on the other hand, describes the extent to which a region's tax resources have been accumulated (Maneerat & Fazal, 2020). The West African Monetary Agency (WAMA), which conducted a tax yield study in the Economic Community of West African States, agreed with this concept (ECOWAS). According to Langford and Ohlenburg (2015), the right amount of generated revenue that a state may realistically get at a certain point in time, based on the strengths of its economy compared to its GDP, is the tax ratio. That is, the total amount of tax income a region may generate as a result of its economic structure. As a result, a country with a low tax collection rate is more likely to have a low tax revenue ratio over time.

In the ECOWAS community, taxes are imposed either directly or indirectly. Direct

taxes are levied on a taxpayer's wages, profits, or other profits. Individuals pay personal income taxes, which vary by member country (Akpu & Ohaka, 2017). For example, Mali has a 20% personal income tax rate, Ghana has a 25% personal income tax rate, Gambia has a 30% personal income tax rate and Sierra Leone has a 35% personal income tax rate, among others.

Companies' Income Tax also varies among nations. In Nigeria, corporate income tax is 30%, Ivory Coast 25%, Guinea is 35%, Liberia is 25%, Cape Verde is 20%, Burkina Faso 28% among others (OECD, 2020). Petroleum profit tax which is taxed on the earnings of companies that engage in upstream drilling, boiling, production, and transportation of crude oil also varies; Liberia's tax rate on oil revenues is 30%, Ghana's is 17.5% and Nigeria's is 50% (IMF, 2018). Indirect taxes are taxes on items (ware), consulting services, and tools. They are paid as part of the sales price/cost of the items, services, or tools, as the case may be, rather than as taxes (Onalapo, Aworemi, & Ajala, 2013). They are imposed on goods or services prior to their delivery to the final consumer, client, or owner. Value Added Tax (VAT) and Customs Duties are two examples of the indirect tax.

Furthermore, there are a number of factors that could account for Africa's low tax ratio. One of them is low tax morale (Ali, 2014) which can be explained in part by inadequate government investments in infrastructure that is supportive of economic growth (Mawejje, 2013). The other is the public's belief that widespread corruption and misuse of public resources have hampered the delivery of good value for money from public investments (Mawejje & Munyambonera, 2016).

#### *Transparency*

Transparency in government is defined as the provision of information and data about government activities, administration, and policies, i.e., precise information on what the government is doing and how it is doing it. Governments can use information transparency to improve existing taxpayers' voluntary compliance and attract new ones

(Fadjar, 2018). Increased openness, in other words, can motivate taxpayers and reassure them that their tax payments are meeting their goals. Transparency is comparable to openness in that it refers to the ability to convey tax status (Woods, 2018).

Woods (2018) goes on to say that successful governance requires transparency. It is also seen as a significant tool in the battle against tax fraud, evasion, base erosion, and profit shifting, as well as assisting revenue authorities in generating more income for their respective countries (Prossetal, 2016).

Furthermore, transparency is thought to be a weapon in the fight against aggressive tax planning and stimulates cross-national information sharing (Pale, 2018).

#### *Government Spending on Education, Health, and Infrastructure*

Government spending, which is the dominant component of the economy in many developing nations (Gurdal, Aydin, & Inal, 2020), is another factor that influences taxation. Taxes are the most major source of funding for these expenses.

Increased tax revenue boosts the government's cash reserves, allowing it to raise spending on education. Previous research has also discovered a positive association between government spending on education and tax revenue. Tax ratio has a favorable effect on government spending on education, according to Ramji, Pooja, Muthu, and Jincy (2016) and Reeves & Gourtsoyannis (2015).

In a more specific term, Ramji, Pooja, Muthu, and Jincy (2016) cited empirical findings related to the fact that the more government spends on health, the more tax revenue accumulates. Furthermore, government spending on health has been conventionally expressed as government expenditure on health as a percentage of GDP. Moreover, Economides, Park, Philippopoulos, and Sakkas (2020) contributed that government spending on health increases the probability of reaching the old age and can also enhance individual human capital. Government spending on infrastructure include construction of roads, power, water,

security, and other services. Increased tax income and base assist the provision of funding for critical infrastructural services, which are sometimes referred to as poverty-reducing public expenditures (Alesina, Favero & Giavazzi, 2019).

#### *Theoretical Review*

This study reviewed the spend-tax hypothesis; tax-spend hypothesis and fiscal illusion theory because of their absolute relevance to the study. Peacock and Wiseman (1961) proposed the spend-tax hypothesis, which asserts that changes in government spending lead to changes in tax income. It is defined by unidirectional causality, which runs from government expenditure to revenue. The theory stated that changes in government expenditure lead to changes in taxes. As a result, more government spending will result in increased tax income.

Friedman (1978) claims that spending levels react to the degree of taxation available and that causality goes from tax to expenditure. This theory states that government expenditure and taxation have a positive relationship. Government expenditure will grow if tax revenue increases, and will drop if tax revenue decreases as a government will want to spend whatever money it has. The theory stated that tax changes result in changes in government expenditures. As a result, as tax revenue rises, government spending rises as well.

Amilcare Puviani created the term "financial illusion" in 1903. It was used to argue that the ruling elite deliberately deceive the populace by exaggerating information. Theorizing public services and hiding the total tax burden is known as fiscal illusion. "Fiscal illusion" refers to a widespread misunderstanding caused by the lack of openness in both expenditure and tax revenue strategies. Transparency advocates come from all sides of the political divide, as well as ordinary citizens (Afonso, 2015). People can understand their total tax burden, including fees and license costs, when a government's tax revenues are transparent. Based on the above theoretical review, the theory of spend-tax

hypothesis underpinned this work in line with the rate of government spending.

#### *Empirical Review*

The relationship between transparency, government spending, and taxation is a subject of study that has remained less popular through time, with empirical investigations conducted in light of diverse ideas. Although, some studies have found results that support the tax spend theory, others have found results that support the spend tax hypothesis. Although there are fewer researches that agree with the ideas of the fiscal illusion theory compared with the other two theories, because it is apparition that government spending is more pronounced in tax literature than transparency.

Changes in the mix of taxes, public expenditures, and public finance in the Eurozone were analyzed by Economides, Park, Philippopoulos, and Sakkas (2020). They created a general equilibrium OLG model in the process, which naturally incorporates all of the major categories of government expenditure and taxes. Increases in public expenditures on education and health care reduce taxes, according to the data. Furthermore, an increase in government spending on health is equally good as an increase in government expenditure on education to the extent that the former likewise augments human capital, while other government spending categories, such as infrastructure, are equally significant.

Oladipo et al. (2019) conducted study on government taxes and its implications on manufacturing sector output, evidence from Nigeria. The findings reveals positive relationship between corporate taxes and the output of the manufacturing sector, while value-added tax reveals a negative relationship with the output in the end. In the same vein, Oladipo et al. (2022) conducted another study on impact of tax fairness and tax knowledge on tax compliance behaviour of listed manufacturing companies in Nigeria. They found that the corporate tax payer's perception of fairness has a significant impact on corporate taxpayers' willingness to pay taxes

and tax knowledge significantly influenced level tax compliance in Nigeria.

Gurdal, Aydin, and Inal (2020) used annual data from 1980 to 2016 to examine the link between tax income, government spending, and economic growth in Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States (the G7) countries. In order to conduct a comparison, the study used two alternative panel causality techniques. There is a bi-directional causation between economic growth and government expenditure, according to the results of the time domain panel causality test. Furthermore, there is a bi-directional causal relationship between government spending and tax collection.

Turan and Karakaş (2018) investigated Turkey's central government's non-interest incomes and spending. The Nonlinear Boundary Test (NBT) approach was used, which is a suitable technique based on recent literature. The authors discovered that in the long run, a positive shock in noninterest expenditures leads to a rise in revenues, whereas a positive (negative) shock in revenues leads to an increase (reduction) in said expenditures, respectively.

The relation between domestic revenue generation and social welfare spending was investigated by Ramji, Pooja, Muthu, and Jincy (2016). The estimation approach employed was two-stage least squares (2SLS). According to the findings, increased tax revenue increased the amount of money available to the government, allowing it to raise spending on health and education.

ARDL bounds testing techniques were used by Mawejje and Munyambonera (2016) to investigate the impact of sectoral growth and governmental expenditure on tax revenue in Uganda. The dominance of the agricultural and informal sectors, according to the findings, is the most significant hindrance to tax revenue performance. Furthermore, government development spending, trade openness, and industrial sector growth are all linked to tax revenue performance.

Reeves and Gourtsoyannis (2015) investigated the link between government tax revenues and health-care coverage. There was a clear link between the two: expanding the tax base, particularly in low-income nations, resulted in increased healthcare spending coverage. The study included data from 89 low- and middle-income nations between 1995 and 2011.

Ali, Fjeldstad, and Sjørusen (2013) looked into the factors that influence tax adherence in Africa. They used attitude and perception data from the latest round of Afrobarometer surveys to investigate factors that influence citizens' tax behavior in Kenya, Tanzania, Uganda, and South Africa. Individuals who are more satisfied with government expenditures on public service provision are more likely to have a tax compliant attitude in all four nations, according to analysis results using a binary logit model.

Pale (2018) looked into tax transparency as well as the impact of tax havens on developing countries. A systematic review research technique was used to conduct the study. Tax transparency, according to the findings, has a favorable influence on developing countries' ability to collect money and expand their tax base, among other benefits. Tax havens have a negative influence on a country's ability to collect additional income and expand its tax base.

Fadjar (2018) looked at the impact of tax transparency and trust on voluntary compliance in both direct and indirect ways. Surabaya, East Java, was the site of this research. Individual taxpayers who work in service industries make up the study's respondents. A total of 56 taxpayers took part in the research. The study's findings revealed that while tax transparency has a negligible direct influence on taxpayer voluntary compliance, it has a positive and considerable indirect influence on voluntary compliance through trust.

## **Method**

The ex-post facto design was utilized to investigate the link between transparency, government spending, and tax ratio. In this

study, the population and sample are the same. This includes all the fifteen (15) constituents of ECOWAS (Nigeria, Ivory Coast, Benin, Guinea Bissau, Liberia, Togo, Niger, Burkina Faso, Cape Verde, Sierra Leone, Gambia, Senegal, Guinea, Mali, and Ghana).

The data used in this research were collected from secondary source. Data were extracted from a broad range of public sources like World Bank Development Indicator and Transparency International (TI) dataset. These datasets provide wider coverage geographically and the requisite country-specific data were well documented in a contemporary manner. The estimation techniques used for the

empirical analysis of this research are regression and correlation analysis.

This study utilized data for multiple countries and characteristics of each country were observed over similar periods (balanced panel dataset). Panel data regression technique was applied on the panel estimates of tax ratio, taking transparency and government spending as independent variables. To test for multicollinearity, the variance inflation factor (VIF) test was also carried out.

#### Model Specification

For the purpose of this study, a model hinged on tax-spend hypothesis and fiscal illusion theory was constructed.

**Table 1. Description of Variables, Measurement, and Supporting Studies**

Variables/ Type	Description	Measurement	Supporting Studies	A Priori Expectation
TAR (Dependent)	Tax Ratio	Tax Percentage of GDP	Maneerat & Fazal (2020)	
<i>Transparency (Independent)</i>				
TRN	Transparency	Corruption Perception Index	Campuzano (2015); Gründler & Potrafke (2019)	$\gamma_1 > 0$
<i>Government Spending (Independent)</i>				
GEH	Government expenditure on health	Government Expenditure on Health as a Percentage of GDP	Economides et al. (2020); Ramji, Pooja, Muthu, & Jincy (2016)	$\gamma_2 > 0$
GEE	Government expenditure on education	Government Expenditure on Education as a Percentage of GDP	Defitri & Fauziati (2018); Reeves & Gourtsoyannis (2015)	$\gamma_3 > 0$
GEI	Government expenditure on infrastructure	Government Expenditure on Infrastructure as a Percentage of GDP	Ramji, Pooja, Muthu & Jincy (2016); Economides, Park, Philippopoulos & Sakkas (2020)	$\gamma_4 > 0$
<i>Controls</i>				
EDV	Economic development	GDP per capita	Kodila-Tedika & Mutascu (2015); Bird, Martinez-Vazquez & Torgler (2006)	$\gamma_5 > 0$
TRD	Trade	Trade (import+ export) as a Percentage of GDP	Bird, Matinez-Vazquez & Torgler (2006); Gupta (2007)	$\gamma_6 > 0$
AGRIC	Agriculture	Agriculture-GDP ratio	Arif & Rawat (2017); Gupta (2007)	$\gamma_7 > 0$

Source: Authors' Computation (2021)

While interacting the study’s variables, the specified model incorporated tax ratio, transparency, and government spending. Also in the model, consideration was given to structural and economic factors as control variables. Concerns that outcomes might be influenced by economic and unofficial activities were addressed by these control factors.

The functional model for this study is specified as:

$$TAR = f (TRN_{it}, GSP_{it}, \mu) \dots\dots\dots (equ. 1)$$

Where, TAR is tax ratio; TRN is transparency (measured by CPI); GSP is government spending (measured by GEH, GEE, OGE).

The econometric version of the panel data model is as follows:

$$TAR_{it} = \beta_0 + \beta_1 CPI_{it} + \beta_2 GEH_{it} + \beta_3 GEE_{it} + \beta_4 GEI_{it} + \beta_5 EDV_{it} + \beta_6 TRD_{it} + \beta_7 AGC_{it} + \mu_{it} \dots\dots (equ.2)$$

Where, CPI- Corruption Perception Index; GEH- Government Expenditure on Health; GEE- Government Expenditure on Education; GEIO- Government Expenditure on Infrastructures and Other services; EDV- Economic Development (control); TRD- Trade (control); AGC- Share of Agriculture (control);  $\mu$ - unobserved determinant of tax ratio.

**Results and Discussion of Findings**

*Summary Statistics*

The summary statistics in Table 2 shows some certain statistical properties of the study’s variables. For instance, Tax Ratio (TAR) with an average of 13.67 percent suggests that the proportion of tax revenue generation to overall economic means is low amongst ECOWAS nations. Based on the period under review,

Togo has the highest tax ratio (18.95 percent) while Nigeria recorded the least (1.48 percent) in the year 2015 and 2013 respectively. The standard deviation of 3.39 indicates that the data point on tax ratio do not spread over a wider range of values.

Furthermore, Transparency (TRN) shows an average of 34.52 transparency points, minimum value of 16.00 points and a maximum value of 60.00 points among ECOWAS countries. This indicates, on the average that there is relatively low perception of openness and control of corruption in the countries. From government spending perspective, the mean of value Government Expenditure on Education (GEE) is 3.76% that implies that government in ECOWAS countries inject a relatively low amount into educational sector. The mean value of government expenditure on health (GEH) in ECOWAS countries is 5.82 percent, which implies that, on the average, government in ECOWAS countries, inject a relatively low fund into health sector.

Government Expenditure on Infrastructure and Other Services (GEIO) in ECOWAS countries shows the mean, maximum and minimum values of 13.15, 19.68 and 4.4 percent respectively. Since the indicator captures all government expenditures on physical infrastructures, compensation of government employees and expenditures on national defense and security, it can be said that ECOWAS nations are still lagging behind in terms of adequate provision of basic physical amenities and social security. The control variables are Economic Development (EDV), Agriculture (AGC) and Trade (TRD). ECOWAS countries has an average of

**Table 2. Summary Statistics**

	TAR	TRN	GEE	GEH	GEIO	EDV	AGC	TRD
Mean	13.67	34.52	3.763	5.82	13.15	1158.1	28.40	69.73
Median	14.47	33.00	3.677	4.83	14.14	752.2	23.56	61.37
Max	18.95	60.00	7.919	20.41	19.68	3557.9	60.28	136.97
Min	1.48	16.00	1.735	2.49	4.40	362.8	4.73	20.72
Std.Dev	3.39	9.17	1.287	3.30	3.97	833.4	12.79	26.20
Skewness	-1.46	0.70	0.492	2.46	-0.23	1.54	0.55	0.690
Kurtosis	5.50	3.78	3.094	9.75	1.81	8.35	2.75	2.776
Jaq.Bera	73.73	12.87	4.887	348.8	8.15	56.64	6.25	9.765
Sum	1640.8	4142.	451.5	698.2	1578.4	138973	3408	8368.1

Source: Authors’ Computation (2021)

\$1158.1M GDP per capita which is the mean economic development of the countries. Cape Verde records the topmost per capita GDP of \$3557.9M, while Niger Republic is the least developed country in the group with \$362.8M GDP per capita in the period under review.

#### Multicollinearity Test

The test for multicollinearity is achieved by conducting the Variance Inflation Factor (VIF) test. The study utilized the VIF technique to determine if there is multicollinearity within independent variables in the regression analysis. It can be seen from Table 3 that all the independent variables in the study have VIF that is less than 10, which means the variables in the study are not strongly correlated with each other.

**Table 3. Variance Inflation Factor**

Variable	VIF	
	Without Control	With control
TRN	1.546	2.821
GEE	2.037	3.108
GEH	4.645	5.519
GEIO	8.193	6.411
EDV		1.471
AGC		2.068
TRD		1.595

Source: Authors' Computation (2021)

#### Preliminary Diagnostic Test

Table 4 shows the results of Breusch Pagan Lagrange Multiplier (BP-LM) test that was carried out to test for the presence of random effects in two models, that is, with and without control models.

The null hypothesis is that no effect occurs; in other words, there is no difference in the unobserved fixed effects. If the BP-LM test result is important at the 5% level of significance, its null hypothesis is rejected.

The BP-LM test reveals a figure of 181.874 (p-value=0.0000<0.05 level of significance) for the model without control, while the BP-LM result of the model with control variables is 180.984 (p-value=0.0000<0.05 level of significance).

Hausman test was carried out to determine whether the model of random effects is more reliable than the model of fixed effects. The null assumption is that the model of random-effects is more consistent. The rule of decision is that null hypothesis is rejected if the Hausman Test is significant at a 5 per cent level of significance. The Hausman test in table 4.3 shows the chi-square statistic of 14.614 (p-value= 0.008 <0.05 significant level) for the model without control, while 16.834 (p-value= 0.0012 <0.05 significant level) for the model which take into consideration of the control variables.

**Table 4. Breusch Pagan Lagrange Multiplier (BP-LM) Test Results**

Test	Null Hypotheses	Statistics	
		Without control	With control
<b>Breusch-Pagan Test</b>	No effect	181.874 (0.0000)	180.984 (0.0000)
<b>Hausman Test</b>	No effect	14.614 (0.0008)	16.834 (0.0012)
<b>Pesaran's CD Test</b>	No cross-sectional dependence	2.552 (0.0107)	2.865 (0.0042)

Source: Authors' Computation (2021)

#### Estimation Results

In a direct focus on the impact of transparency and government spending on tax ratio without controlling for the impact of any other determinant in the fixed-effect model, Transparency (TRN) showed a significant positive impact of 0.0268 percent (p-value= 0.0381 < 0.05 significant level) on tax ratio among ECOWAS countries. This implies that transparency via openness and measures against corruption will increase the level of revenue generated through administration of taxes in the group by 0.0268 percent. Thus, the higher the level of transparency in ECOWAS countries, the higher the tax ratio and vice-versa.

At 10 percent significant level, Government Expenditure on Education (GEE) indicated a significant positive impact of 0.1606 percent (p-value= 0.0608 < 0.1 significant level) on tax ratio. This implies that a percentage upturn in government



expenditure towards education among ECOWAS nations will increase tax ratio by 0.1606 percent. Contrarily, Government Expenditure on Health (GEH) has a negative but insignificant impact of 0.0049 percent ( $p = 0.9619 > 0.05$  significant level) on tax ratio among ECOWAS countries.

Government Expenditure on Infrastructure and Other services (GEIO) revealed a positive and significant impact of 1.0204 percent ( $p\text{-value} = 0.005 < 0.05$  significant level) on tax ratio of the selected countries. This finding insinuates that an increase in government spending (specifically on physical infrastructures, compensation of government employees and national defense and security) will increase tax ratio by 1.0204 percent.

**Table 5. Model Estimation Results**

TRY				
Variables	Without control		With control	
	Coefficients	Prob.	Coefficients	Prob.
Constant	12.4399	0.000	14.1152	0.000
TRN	0.0268*	0.038	0.0420*	0.002
GEE	0.1606	0.061	0.1028*	0.050
GEH	-0.0049	0.962	0.0467	0.641
GEIO	1.0204*	0.005	0.0145*	0.005
EDV			0.0012*	0.001
AGC			-0.0384	0.295
TRD			0.0007	0.946
Model Diagnostics				
F-statistic	44.3823*		44.6762*	
Adj. R-Squared	0.9011		0.9113	

Note: \* indicate statistical significance at 5% level

Source: Author's Computation (2021)

#### Discussion of Findings

This study revealed that transparency has a substantial impact on tax ratio in ECOWAS countries. This explains that taxpayers' perception of any hidden government affairs as against transparency regarding tax revenue will hinder the plight for a better tax ratio. Thus, when government give information or updates on its tax operations, administration, and procedures, there is a chance to improve tax ratio and to attract new/potential taxpayers. This negates the finding of Fadjar (2018) that: the direct effect tax transparency on taxpayer voluntary compliance is insignificant, but

conforms with the findings of Campuzano (2015); Sebhat and Mohammed (2019); Pale (2018) that tax transparency impacts positively on developing countries' ability to collect revenue and enhance their tax base, along with other benefits. Moreover, the finding of this current study upholds the fiscal illusion theory which is very concerned with the positive outcome of tax transparency which will encourage citizens to pay more taxes to the betterment of national tax ratio.

Secondly, this study revealed that government spending on infrastructure places a significant mark on tax ratio in ECOWAS community. This suggests that governments can mobilize more tax revenues by becoming more efficient in spending towards maximizing the welfare of their citizens. This is in tandem to the assertion of Maweje and Munyambonera (2016); Gurdal, Aydin, and Inal (2020); Ali, Fjeldstad, and Sjursen (2013) which found that government expenditures and tax revenues exhibit a stable long run relationship and individuals who are more satisfied with government spending towards public service provision are more likely to pay. This is therefore in line with the both the spend-tax and tax-spend hypotheses which define a positive relationship between government spending and taxation.

Thirdly, Government Expenditure on Education (GEE) has a significant positive impact on tax ratio. This implies that the higher the government expenditure on education among ECOWAS nations, the better the tax ratio. This corroborates the finding of Ali, Fjeldstad, and Sjursen (2013) which found that government spending on education causes tax revenues to increase. However, it negates the finding of Economides, Park, Philippopoulos, and Sakkas (2020).

Finally, government expenditure on health showed an insignificant impact on tax ratio in ECOWAS countries. This implies that the level of government spending on health is only a fulfilment of constitutional duty, but whether tax revenue is maximized is accounted for by other factors devoid of government spending on health. Thus, either increase or decrease in

government expenditure on health will neither boost nor improve tax ratio. This is inconsistent with the finding of Economides, Park, Philippopoulos, and Sakkas (2020) that increase in public spending on health has a negative impact on tax revenue, likewise Reeves and Gourtsoyannis (2015) that reported a strong relationship between the health system coverage and tax revenues.

#### *Control Variables*

The variables under this category account for the impact of major economic determinants in the study's fixed-effect model. They include economic development, agriculture, and trade. Economic development is positively significant to tax ratio. That is, per capita GDP boosts ratio in ECOWAS community. This supports the study of Gupta (2007); Maneerat and Fazal (2020) which showed that tax revenue and GDP per capita are related positively.

#### **Conclusion and Suggestions**

This study assessed the impact of transparency and government spending on tax ratio among ECOWAS nations. Emphasis were placed on transparency and government spending measures such as corruption perception index, government expenditure on education, government expenditure on health, government expenditure on infrastructure, and other services. Each variable has a distinct statistical property and when estimated, mixed results were ascertained.

Specifically, corruption perception index, government expenditure on education, government expenditure on infrastructure, and other services have significant impacts on tax ratio within the group. At the opposing end, government expenditure on health shows no bearing on tax revenue ratio in ECOWAS countries. In addition, this study further provided empirical evidence that level of economic development is positively and significantly related to tax ratio.

It is therefore evident that transparency and government spending, plus economic development directly influence tax ratio among ECOWAS nations. From the result, this study concluded that effective public

spending and sincere openness play a vital role in boosting tax ratio in each nation under consideration. The study recommended that, tax authorities should embrace the principle of informational, participatory, and accountability transparency to facilitate a tax system capable of closing tax gap. Government should prioritize spending more on education, physical infrastructures, and national security in order to be at a favourable end in terms of tax and overall performance.

#### *Suggestions for Further Research*

While previous studies have investigated a range of factors influencing tax revenue and this study contributed to existing literature as it viewed the relevance of transparency and government spending in explaining tax ratio among ECOWAS nations. Future research efforts could be directed towards the possible impact of poverty on tax performance in Africa.

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