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Article

Tax efforts and tax evasion–economic development Nexus. Does institutional quality matter?

Cogent Economics & Finance

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Suggested Citation: Amoh, John Kwaku; Ofori-Boateng, Kenneth; Nsor-Ambala, Randolph; Anarfo, Ebenezer Bugri (2023) : Tax efforts and tax evasion–economic development Nexus. Does institutional quality matter?, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 11, Iss. 2, pp. 1-16, https://doi.org/10.1080/23322039.2023.2243174

This Version is available at: https://hdl.handle.net/10419/304169

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Cogent Economics & Finance

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oaef20

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To cite this article: John Kwaku Amoh, Kenneth Ofori-Boateng, Randolph Nsor-Ambala & Ebenezer Bugri Anarfo (2023) Tax efforts and tax evasion–economic development Nexus. Does institutional quality matter?, Cogent Economics & Finance, 11:2, 2243174, DOI: 10.1080/23322039.2023.2243174

To link to this article: https://doi.org/10.1080/23322039.2023.2243174

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Published online: 03 Aug 2023.

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Received: 13 April 2022 Accepted: 27 July 2023

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Reviewing editor: Samuel Obeng, Department of Economics, University of Warwick, UK

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DEVELOPMENT ECONOMICS | RESEARCH ARTICLE

Tax efforts and tax evasion–economic development Nexus. Does institutional quality matter?

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economics & finance

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Abstract: As a result of the failure to meet tax collection targets, policymakers, economists, and financiers have focused their attention in recent years on how a country's tax effort has been employed to combat tax evasion and maximise tax collections for economic growth. The study looked at the nexus between tax efforts, tax evasion, and economic development, as well as the effect of institutional quality on moderating the nexus in Ghana. The maximum likelihood (ML) estimation and structural equation modelling (SEM) techniques were used in the study to analyse a sample of quartered data from 1996 to 2020. Testing the hypotheses reveals that both tax efforts and tax evasion have negative effects on the economic freedom of the world index (EFWI) but positive effects on urbanisation. A test of the third hypothesis shows that institutional quality moderates tax evasion in Ghana in order to influence economic development. The findings imply that the idea that tax evasion is bad for an economy or that tax efforts drive domestic revenue mobilisation is based mainly on prima facie evidence. Tax efforts such as tax amnesty may appear to compliant taxpayers as an incentive for tax evaders, which could affect their compliance. The adoption of the tax efforts index measure to examine its econometric impact on economic development is one of the pioneering attempts in the field. The study recommends well-thought-out strategies to ensure that tax efforts achieve their intended goals.

Subjects: Economic Theory & Philosophy; International Economics; Public Finance

Keywords: tax efforts; tax evasion; economic development; Ghana; institutional quality

1. Introduction

As a result of the failure to meet tax collection targets, one question that has attracted attention in recent policy decisions and economic and finance debates is how a country's tax efforts have been used to reduce tax evasion and maximise tax revenues for economic development. The first of the United Nations Sustainable Development Goals (SDGs) advocates domestic resource mobilisation and vigorous revenue collection as a path out of poverty and toward economic development (see Asmah et al., 2020). According to Tanzi and Shome (1993), if tax evasion is high, the efforts of tax administration become even more important. In agreeing with Tanzi and Shome (1993), Mansur et al. (2011) and Le et al. (2012) identified tax efforts as one of the factors critical for tax revenue maximisation to drive a country's economic development.





© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent. However, improving taxing authorities' efforts to maximise domestic tax revenue has been a challenge in Ghana. The low tax efforts of Ghana's taxing authority, which has resulted in high levels of tax evasion and low tax revenues, prompted the passage of the Ghana Revenue Authority Act, 2009 (Act 791), which aimed to, among other things, improve the efficiency of tax administration to reduce tax evasion, reduce administrative and tax compliance costs, and improve service delivery for domestic revenue mobilisation. According to Kirchler and Braithwaite (2007), the two most applicable and widely used methods for increasing revenue tax collections are raising taxes and improving tax efforts. As a result, tax efforts are critical in promoting tax compliance for revenue mobilisation to drive economic development.

According to Danquah and Osei-Assibey (2016), Ghana loses 69.5 percent of its potential tax revenues from the informal sector due to tax evasion, and Danquah and Osei-Assibey (2018) discovered that the tax gap in Ghana's informal economy is about US \$57 million. Again, The World Bank (2020) found that the value added tax (VAT) and tax evasion gaps range from 18.2 percent to 39.3 percent, while the corporate income tax gap is approximately 81.5 percent. While donor support, which has conventionally financed a significant amount of public investment in developing nations, has been declining for years, reliance on International Monetary Fund (IMF) and World Bank support has also been criticised for its inconsiderate conditions and negative consequences. These issues have highlighted the need for emerging economies like Ghana to close tax gaps in order to curtail their reliance on outside funding sources and instead focus on using domestic tax revenues to finance their developmental agenda.

Although the current debate on the relationship between tax evasion and economic development in most developing economies is a popular area of economic and finance studies, the results are not only insufficient but inconclusive (Bostina, 2017; Ellawule, 2017; Onyeka and Nwankwo, 2016). From empirical literature, there are three different empirical results on the tax evasion and economic development nexus, namely: a positive, negative or neutral relationship.

In addition, while some researchers have made some attempts and adopted a multiplicity of methods to estimate tax efforts (Brafu-Insaidoo and Obeng, 2020; Caldeira et al., 2020; Naape and Mahonye, 2021; Piancastelli and Thirlwall, 2021), others have employed tax efforts index to determine the tax revenue potential or tax performance of countries (Caldeira et al., 2020; Naape and Mahonye, 2021). Further, there have also been several studies examining the tax evasion—economic development nexus (Bethencourt and Kunze, 2019; Bostina, 2017; Ellawule, 2017; Khyareh, 2019; Omodero, 2019) over the years, but the empirical literature reviewed so far have failed to incorporate the tax efforts index as a variable of tax evasion and to examine the relationship econometrically. This study finds the exclusion of the tax efforts index from the tax evasion—economic development relationship as a gap in the empirical literature.

Based on the preceding discussions, the paper seeks to investigate the effects of tax efforts and tax evasion estimates on economic development, as well as the role of institutional quality in the relationship in Ghana. To achieve these goals, structural equation modelling (SEM) was used on quarterised data from 1996 to 2020. As a result, the study formulated three hypotheses:

H1. Tax efforts do not cause economic development.

H2. Tax evasion does not cause economic development.

H3. Institutional quality does not matter in the tax efforts and tax evasion—economic development nexus.

This paper advances the literature in several ways. To make the models robust and all-inclusive, and to measure the statistical effect of tax efforts on economic development, the specified models include a measure representing the tax efforts of revenue authorities. The study also included an institutional quality index. The majority of the literature on the relationship between tax evasion, tax efforts, and economic development fails to take into account the role of institutional quality as a moderator. In this study, an institutional quality index was created using Principal Component Analysis (PCA). Furthermore, majority of studies in the literature focus on the effect of tax evasion estimates on economic growth by employing GDP per capita as a proxy for economic growth (see Onyeka and Nwankwo, 2016; Owusu-Gyimah, 2015) instead of economic development. Costanza et al. (2009) asserted, however, that a nation could experience appreciable GDP growth rates without concomitant improvements in the general population's standard of living. This study looks beyond economic growth by introducing the Fraser Institute's economic freedom of the world index and urbanisation as proxies for economic development. The current study also aims to provide new country-specific evidence to help bring tax evasion-economic development debates closer to its conclusion.

The remainder of the paper is organised as follows: Both the theoretical foundations and the empirical research on the subject are covered in Chapter 2. The research methods are discussed in Chapter 3, while the research findings are examined in Chapter 4. In Chapter 5, relying on the results of the study, conclusions about how to make and implement policies are drawn.

2. Literature review

Theoretical and empirical literature on tax efforts, tax evasion, and economic development are examined in this section.

2.1. The impact of tax evasion on economic development

Three major threads emerge from a comprehensive examination of the existing literature on the impact of tax evasion estimates on economic development. While some studies, including those by Ameyaw et al. (2015), Onyeka and Nwankwo (2016), Ellawule (2017), and Bethencourt and Kunze (2019), assert that tax evasion has a detrimental effect on economic development, Eichorn (2004) maintains that there is no effect. On the other hand, Aumeerun et al. (2016) and Bostina (2017) discovered a beneficial connection between tax evasion and economic growth.

The "grease the wheels" hypothesis theoretically justifies the positive relationship between tax evasion and economic development while the "sand the wheels" hypothesis offers an explanation for the negative relationship between tax evasion and economic development. The "grease the wheels" or "sand the wheels' hypothesis offers a plausible explanation for the tax evasion-economic development relationship in this study because Méon and Sekkat (2005), Nguyen et al. (2017), and Ellahi (2020) argued that tax evasion is a form of corruption.

Using multiple linear regression analysis, Adegbie and Fakile (2011) investigated company income tax evasion and economic development nexus in Nigeria. The findings show a substantial unfavourable link between corporate income tax evasion and Nigerian economic development. Bekoe (2012) used a panel regression model to examine the influence of tax evasion on economic growth in seven African countries from 1985 to 2010. He discovered that tax evasion was a key element in driving backward economic growth. To analyse the effects of personal income tax evasion on socio-economic growth, Ameyaw et al. (2015) sent 200 questionnaires to respondents in Ghana's Tema Metropolis. They contend that tax evasion estimates have a detrimental effect on the socio-economic development of Ghana using regression analysis.

Onyeka and Nwankwo (2016) assessed the effects of tax evasion and tax avoidance on the growth of Nigeria's economy by employing the ordinary least square regression (OLS) statistical technique. The study found that tax evasion and avoidance have a negative and significant impact on the Nigerian economy. Mehrara and Farahani (2016) relied on data from 1990 to 2013 to assess

the impact of tax evasion and tax revenues on economic stability in 29 Organisation for Economic Co-operation and Development (OECD) countries by using the pooled ordinary least squares model. The study discovered that there is an inverse nexus between tax evasion and economic development. Aumeerun et al. (2016) employed the generalized least squares method to examine the effect of tax evasion on the GDP per capita of sub-Saharan African (SSA) countries. The findings, however, showed that the effect of tax evasion on GDP per capita is positive but insignificant.

Ellawule (2017) used the Chi-square technique on secondary data to examine the impact of tax evasion on economic growth in Yobo State, Nigeria, and discovered that tax evasion negatively and significantly affects economic development in Yobo State, Nigeria. Bostina (2017) estimated the influence of tax evasion on economic growth in the European Union from 1997 to 2001 using linear regression with cross-sectional fixed factors. The study found that tax evasion has a positive effect on economic growth

With the help of a dynamic overlapping (OLG) model of tax evasion, Bethencourt and Kunze (2019) looked into the inverse relationship between tax evasion and economic development. According to the study, tax evasion is found to have a negative link with economic development. Omodero (2019) looked into the economic effect of tax evasion and the black market in Nigeria. Secondary data was employed, as well as ordinary least squares multiple regression techniques, to conduct the research, which spanned the years 1991 to 2018. According to the findings, tax evasion is found to have a significant negative influence on economic growth.

According to the literature, the impact of tax evasion on economic development is not a foregone conclusion. Therefore, this paper contributes to this body of literature by arguing that the notion that tax evasion is harmful to economic development is based solely on circumstantial evidence. To supplement the few studies that have used these techniques, the study employed SEM methodology and maximum likelihood techniques.

2.2. The impact of tax efforts on economic development

Extant literature on tax efforts index—economic development nexus has largely been on identification of tax effort index as economic development triggering variable (Dobrovič et al., 2016; Le et al., 2012; Mansur et al., 2011), and estimating tax efforts index to rank the tax revenue potential or performance of countries (Caldeira et al., 2020; Naape and Mahonye, 2021; Piancastelli and Thirlwall, 2021).

For example, Mansur et al. (2011) discovered that weaknesses in the tax system and tax administration have contributed to Bangladesh's low level of tax collection, undermining the government's capacity to provide necessary public services. Using a cross-country study of 110 developing and developed countries from 1994 to 2009, Le et al. (2012 discovered that nations with insufficient levels of actual tax revenue collections and low tax efforts may have more room to shore up tax revenues in order to attain their taxable capacity without leading to significant major economic distortions or costs.

Dobrovič et al. (2016) relied on a survey in 3 Slovak provinces and by factor analysis, to explore among other factors, the effectiveness of tax collection and concluded that to ensure the long-term sustainability of the Slovak socioeconomic system, the system of optimal tax collection must be improved.

Although these studies identified tax efforts as one of the variables that could affect economic development, the researchers did not carry their work further by testing econometrically the actual impact of tax efforts on a country's economic development. The failure to incorporate the tax efforts index into models may lead to model specification bias. Having identified this research gap, the study contributes to this strand of literature by incorporating tax efforts index as tax evasion variable to achieve the objectives of the study.

2.3. The impact of institutional quality on economic development

Several researchers have looked into the role of institutions in moderating the relationships between tax evasion variables and economic development. For example, Valeriani and Peluso (2011) used a pooled regression model and a fixed effects model to examine the impact of institutional quality on economic growth. The study found that institutional quality has a significant positive impact on economic growth for both developing and developed countries. Elgin and Öztunali (2014) found that the quality of institutions has a significant impact on the relationship between economic development and the size of the informal sector.

Nawaz et al. (2014) created a theoretical model that takes into account the role of institutions in promoting economic growth. The empirical results demonstrate that, in Asian economies, institutions do influence long-term economic growth. Yamen et al. (2018) investigated how the quality of the institutional environment affected tax evasion in both former (pre-2004) and current (post-2004) members of the European Union (EU).

Overall, In the EU, Yamen et al. (2018) found a significant inverse nexus between governance indicators and tax evasion. Cummings et al. (2009) concurred that taxpayers' perceptions of good institutional quality will increase tax compliance and, as a result, reduce tax evasion.

The paper adds to this body of literature by supplementing the few research efforts that have focused on the moderating effect of institutional quality in the relationship between tax evasion and economic development. Furthermore, the paper adds to the literature by using PCA to create an institutional quality index.

In conclusion, the literature review on the impact of tax evasion and tax efforts on economic development reveals that the debate is ongoing and inconclusive. To begin, the literature on the impact of tax evasion on economic development is divided into three strands: positive impact, negative impact, and no impact. Second, while a review of existing empirical literature identified tax efforts as one of the variables that could affect tax revenue collection and economic development, the studies did not go any further by statistically testing the actual impact of tax efforts on a country's economic development. Finally, the empirical literature reports significant mixed results, positive or negative, on the impact of institutional quality as a moderating role in the tax evasion—economic development relationship. The study concludes, after reviewing both empirical and theoretical literature, that the impact of tax evasion and tax efforts on economic development is not a given. As a result, the notion that tax evasion is harmful to economic development or that tax efforts drive domestic revenue mobilisation is based solely on prima facie evidence.

3. Methodology

The methodology section covers the choice of variables and justifications, empirical strategy, estimation method, and model development. In this study, it was necessary to use path analysis within the SEM because it relied on observed quarterised secondary data from 1996 to 2020.

3.1. Data sources and variables selection

This sub-section discusses a number of variables which have been relied on as proxies for tax evasion. The study chose the tax efforts index and estimates of tax evasion (as a percentage of GDP) as its key exogenous variables, while the control variables are tax burden, currency outside of banks, and corruption. Because the word "economic development" has been explained as a multivariate notion due to its multi-dimensional nature, no one measure of development is capable of adequately capturing the concept. As a result, top experts have developed a variety of economic development indicators. As proxies for economic development in this study, urbanisation and the economic freedom of the world index (EFWI) were chosen. The defined variables and information about the data sources are shown in the Appendix.

3.2. Justification for the choice of SEM and maximum likelihood (ML) empirical strategy

Unlike other methods like multiple regressions, SEM makes it possible to estimate the nexus between a number of exogenous and endogenous variables simultaneously for research purposes. Rather than relying on traditional and well-known methods such as multiple regression analysis, SEM provides an all-encompassing approach (Oler et al., 2010). ML was used in this study. In addition, Hair et al. (2016) claim that SEM offers flexibility by allowing the researcher to use numerous exogenous and endogenous measures to test a specific model. SEM was employed in this paper to investigate the nexus between tax evasion estimates and tax burden and economic development by permitting the simultaneous use of five exogenous variables and two economic development indicators.

Finally, SEM solves the endogeneity problems that affect conventional regression methods (Zaefarian et al., 2017), making it a great fit for the current study, which examines the multivariate tax evasion variables that are being regressed on selected economic development indicators concurrently

Although SEM empirical strategy has many positive qualities, SEM as a statistical tool requires an extensive knowledge to be able to make good choices to prevent misleading conclusions.

3.2.1. The statistical estimation technique: the Maximum Likelihood(ML) technique There is also the need to select an estimation method after justifying the empirical strategy as SEM. Basically, a basic fit ML function proposed by Bollen (1989) is presented as:

$$\mathsf{FML} = \mathsf{log}[\Sigma(\theta)] + \mathsf{tr}(\mathsf{S}\Sigma - (\theta)) - \mathsf{log}|\mathsf{S}| - \mathsf{p} \tag{1}$$

where:

log is the natural logarithm function,

tr is the trace function,

 θ is the model parameter of all unknown parameters,

S, is the sample variance-covariance matrix, and

p is the number of observed variables.

Operating on the assumption of the multivariate normality of the observed variables and a suitable model specification, the ML estimator is asymptotically accurate, unbiased, effective and normally distributed, whereas the fit model statistic (TML) is asymptotically distributed as χ^2 with df = p(p+1)/-t, where t is the number of model parameters estimated.

3.2.2. Model specification

The use of path analysis within the SEM was necessary because this study used observed quartered secondary data. The mathematical model for SEM is as follows:

 $\eta = B\eta + Lm + \mathcal{E}$

where $\boldsymbol{\eta}$ denotes endogenous variables,

m is a vector of exogenous variables,

 $\boldsymbol{\epsilon}$ is the error or disturbance term vector, and

B and L are the path coefficients of endogenous and exogenous variables.

(2)

From Equations 3.2, the moderating impact of institutional quality on the hypothesised multivariate models was specified as follows:

$$\begin{aligned} \mathsf{EFWIt} &= \beta_0 + \beta_1 \mathsf{TVESt} + \beta_1 \mathsf{TVESt} * \mathsf{INSQt} + \beta_2 \mathsf{TGDPt} + \beta_2 \mathsf{TGDPt} * \mathsf{INSQt} + \beta_3 \mathsf{TEFIt} \\ &+ \beta_3 \mathsf{TEFIt} * \mathsf{INSQt} + \beta \mathsf{4LCOBRt} + \beta_4 \mathsf{LCOBRt} * \mathsf{INSQt} + \beta_5 \mathsf{CPIIt} + \beta_5 \mathsf{CPIIt} * \mathsf{INSQt} \\ &+ \mathcal{E}\mathsf{t} \end{aligned}$$
(3)

$$\begin{aligned} \mathsf{URBNt} &= \beta_0 + \beta_1 \mathsf{TVESt} + \beta \mathsf{1TVESt} * \mathsf{INSQt} + \beta_2 \mathsf{TGDPt} + \beta_2 \mathsf{TGDPt} * \mathsf{INSQt} + \beta_3 \mathsf{TEFIt} \\ &+ \beta_3 \mathsf{TEFIt} * \mathsf{INSQt} + \beta_4 \mathsf{LCOBRt} + \beta_4 \mathsf{LCOBRt} * \mathsf{INSQt} + \beta_5 \mathsf{CPIIt} + \beta_5 \mathsf{CPIIt} * \mathsf{INSQt} \\ &+ \mathcal{E}\mathsf{t} \end{aligned}$$

The path analyses of the multivariate hypothesised models are:

$\begin{array}{l} \textit{Model } 1: \texttt{TVES}, \texttt{TVES}*\texttt{INSQ}, \texttt{TGDP}, \texttt{TGDP}*\texttt{INSQ}, \texttt{TEFI}, \texttt{TEFI}*\texttt{INSQ}, \texttt{LCOBR}, \texttt{LCOBR}*\texttt{INSQ}, \texttt{CPII}, \texttt{CPII}*\texttt{INSQ} \Rightarrow \texttt{EFWI} \end{array}$	(5)
Model 2 : TVES, TVES * INSQ, TGDP, TGDP * INSQ, TEFI, TEFI * INSQ, LCOBR, LCOBR * INSQ, CPII, CPII * INSQ \Rightarrow URBN	(6)

4. Discussion and results

A discussion of the robustness tests, empirical findings, and hypothesis testing are presented in this section.

4.1. Path diagram of models

The path diagram in Figure 1 depicts the hypothesised relationships between tax evasion variables and economic development, as well as the moderation effect of institutional quality within the relationships. The path diagram in Figure 1 was produced using the path models from equations 3.5 and 3.6.

The path diagram also shows the coefficients of the constants of the models, the mean values, the coefficients, etc. For example, the mean values of the exogenous variables are displayed in their boxes as 22, 18, 0.16, 7.5, and 18 for TVES, TGDP, TEFI, LCOBR, and CPII respectively.



(4)

According to Figure 1, the exogenous variables' coefficients regressing on EFWI are 0.089 (TVES), 0.33 (TGDP), 0.12 (TEFI), 0.39 (LCOBR), and 0.23 (CPII). The exogenous variables' coefficients regressing on URBN are 0.31 (TVES), 0.58 (TGDP), 0.02 (TEFI), 2.90 (LCOBR), and -0.0015 (CPII).

To assess the study's robustness, model fitness tests, model significance tests, model stability tests, joint significance of exogenous variable tests, and variables normality tests were performed.

4.2. Model fitness tests

From the SEM literature, there are no straightforward tests or a single criterion to evaluate a model's fitness (Kline, 2011) and hence there are several recommended fit indices available. As a result, when using SEM methodology, it is best to look at several tests, including the coefficient of determination (COD) or goodness of fit index, residual variances, standard root of mean squared residuals (SRMR), and the F-test. According to Jiang and Yuan (2017), if most of these tests indicate that the model fits the data satisfactorily, it is safe to interpret the parameter estimates and test the research hypotheses.

Tables 1 has been analysed and discussed to justify the fitness of the specified models as well as the overall model's fitness. Firstly, from Table 1, the residual variances from the dataset show that there are no noticeable variances for the endogenous variables and the moderating variable and hence an indication of good fit models.

Second, the R^2 is a statistical tool for the measurement of how much variation of the endogenous variable is explained jointly by all the exogenous variables (Gujarati, 2013). The R^2 ranges from 0 to 1, with 1 representing perfect predictive accuracy. From Table 1, the exogenous variables explain 77.96 percent and 99.54 percent respectively of each of the endogenous variables (EFWI, URBN). The R^2 of 71.19 percent of the moderating variable also suggests that the exogenous variables predict and justify how institutional quality influences the nexus between economic development and tax efforts and tax evasion. This supports an overall fit model for in-depth examination and further discussion.

The SRMR is the next fitness model index to be looked at. Ringle and Sarstedt (2016a) proposed that the model is a good fit if the SRMR index is less than 0.10. The SRMR indices for the two models are less than 0.10, indicating that they are robust models.

4.3. Tests of the significance and stability of the models

The F-test is to enable the researcher to ascertain which of the models are insignificant at acceptable levels of statistical significance.

According to the literature, if the p-value of the F-statistic for any given model is less than the 5 percent level of significance, the researcher can reject the null hypothesis. The models in Table 2 are all statistically significant at one percent, so the models that were proposed to explain the data are sound.

The highest eigenvalue modulus for the matrix of endogenous variable coefficients predicting other endogenous variable is used to calculate a model's stability index. The models reported a zero stability index, and according to the data in Table 2, all of the zero eigenvalues also fall

Table 1. Equation level goodness of fit—variances, COD, SRMR					
Endogenous variable	Fitted variance	Predicted variance	Residual variance	R ²	SRMR
EFWI (model 1)	0.2523	.1968	0.0555	0.7796	0.001
URBN (model 2)	17.2921	17.2125	0.07955	0.9954	0.002
INSQ	0.2555	.1819	0.0736	0.7119	

Source: Author's construct (2022).

Table 2. Tests of the significance and stability of the models				
Observed variable	f-statistic	p-value	eigenvalue	modulus
EFWI (model 1)	55.9027	.000	0.000	0.000
GDPP (model 2)	349.2123	.000	0.000	0.000
URBN (model 3)	3418.6110	.000	0.000	0.000

Stability index = 0.

Source: Author's construct (2022).

within the unit circle. The implication is that the stability test is satisfied by the SEM models that were developed.

4.4. Testing the joint significance of the exogenous variables

The Wald test determines the joint significance of the exogenous variables in predicting or influencing the specified model jointly. The results report that the chi² values of the are 301.10 and 21,982 for EFWI and URBN respectively. The p-values are also 0.0000 for both EFWI and URBN, suggesting that all the p-values of the chi² are significant. Therefore, we conclude that all the five exogenous variables jointly and significantly affect each of the two specified models.

4.5. Normality of variables tests

Consistent with all inferential normality tests, the null hypothesis is that the population is normally distributed. According to Hair et al. (2010), a dataset is deemed to be normal if the skewness is between -2 and 2, while with the kurtosis it should be -7 and 7. Other researchers have reported that for normality tests, skewness of less than 3 and kurtosis of between -2 and 2 denotes good and acceptable normality of the specified variables. Based on the empirical results obtained and relying on Hair et al. (2010), the tests of the normality of the variables (TVES, TEFI, TGDP, LCOBR, CPII, EFWI, URBN) do not lead to a rejection of the null hypothesis of normality because their values fall within the acceptance limits. Hence, the dataset is normally distributed.

Overall, the above robustness test results show that the three models are suitable for discussion and hypothesis testing.

4.6. Empirical findings and hypothesis tests

The empirical results of the study are discussed in this section.

4.6.1. Model 1 - the impacts of tax evasion and tax efforts on EFWI

In this section, tax evasion (TVES) and tax efforts index (TEFI), being the policy variables, were regressed on economic freedom of the world index (EFWI). From Table 3, the results are discussed as follows:

First, as represented by EFWI, TVES has an inverse relationship with economic development. The logical explanation for the negative nexus between tax evasion and economic development in Ghana is that tax evasion symbolises tax revenue that the nation loses and could have been invested in infrastructure development to spur economic development. According to Celikay (2020), tax revenue is now a crucial source of funding for nations to support economic development. As a result, when tax evasion dominates, as reported by Honest Accounts (2017) and Danquah and Osei-Assibey (2016, 2018), economic development is negatively impacted. According to Onyeka and Nwankwo (2016), Ellawule (2017), and Bethencourt and Kunze (2019), tax evasion has a detrimental impact on economic development. This result is consistent with their findings. The high rates of tax evasion observed in Ghana and reported by Bekoe (2012), Ameyaw et al. (2015), and Amoh and Adafula (2019) could only lend credence to the literature arguing for

Table 3. Final path analysis				
Exogenous variables	Model	1-EFWI	Model 2-URBN	
	path coefficient	p-value	path coefficient	p-value
TVES	-0.0892	0.004	0.1232	0.000
TEFI	-30.5329	0.000	22.8426	0.004
TGDP	0.3304	0.000	-0.3945	0.000
LCOBR	0.5781	0.000	2.9283	0.000
CPII	-0.0208	0.000	-0.0015	0.602
CONS	3.3856	0.000	28.4765	0.000

Source: Author's construct (2022).

the inverse link between economic development and tax evasion. The "sand the wheels" hypothesis theoretically offers an explanation for the adverse nexus between tax evasion and economic development.

Theoretically, in Ghana, the tax efforts of the GRA are expected to trigger positive tax compliance behaviour from taxpayers and lead to an increase in tax revenues. Therefore, the sustainability and effectiveness of the tax efforts has the potential to curtail the high incidence of tax evasion levels in Ghana.

According to Kirchler and Braithwaite (2007), the adoption of tax efforts is one method most useful in tax revenue collection maximisation for economic development. Relying on tax efforts strategy for the enhancement of tax revenue collection to drive economic development is supported by Mansur et al. (2011), Le et al. (2012), and Dobrovič et al. (2016). However, from Table 3, TEFI displays a negative and significant correlation with EFWI. The plausible justification for this negative relationship comes from situations where tax efforts and initiatives such as tax amnesties from taxing authorities fail to achieve their intended purposes of enhanced tax compliance and revenue maximisation and hence economic development.

Theoretically, according to Nurwanah et al. (2018) and Damayanti et al. (2020), taxpayers are increasingly obedient in paying taxes but the existence of a tax amnesty may impair a sense of justice because compliant taxpayers may believe they are treated no differently than non-compliant taxpayers. As a result, taxpayers who are compliant see tax amnesty as a gift to tax evaders, which will have a negative impact on their compliance. As a result, tax evasion would increase, affecting tax revenue mobilised because of the tax amnesty initiative, potentially harming economic development. Furthermore, the negative tax efforts index and the economic development relationship finding could be attributed to flaws in Ghana's tax system and tax administration. This viewpoint is supported by Mansur et al. (2011), who reported that low tax collection efforts harm Bangladesh's economy due to flaws in the tax system and tax administration. Finally, granting of excessive tax exemptions which are not commensurate with foreign direct investment (FDI) or growth enhancing could account for an inverse tax efforts and economic development nexus.

4.6.2. Model 2 - the impacts of tax evasion and tax efforts on urbanisation

Table 3 shows that TEFI has a positive and significant effect on urbanisation. Torgler et al. (2010) argued that when a country's economy is largely concentrated in urban areas as is the case in Ghana,¹ the greater are the incentives offered to conduct business in the shadow economy. This is normally the case when the service delivery and other outlooks from the state are below the expectations of taxpayers. Secondly, when taxpayers perceive the probability of tax audit and penalty rate for tax evasion detection to be high due to the tax efforts to retrieve unreported income, a positive relationship of tax efforts with urbanisation would therefore be

reported. Thirdly, since most of Ghana's rural potential taxpayers are in agriculture, which is mostly tax free or enjoy massive tax incentives, more tax revenues accrue to the state from the urban areas. Thus, where tax administrative machinery is efficient and tax efforts are made to ensure maximum tax compliance, more tax revenues due to the state will be collected for economic development. This suggests that GRA's effective tax efforts for tax compliance and revenue collection, particularly in urban areas where most economic activities take place, will increase tax revenues to support economic development. The World Bank (2020) confirmed this finding, noting that urbanisation has an impact on tax evasion. The Greater Accra Region (Ghana's capital), according to the report, accounts for at least 84.1 percent of the total corporate income tax gap. As a result, increased tax efforts in the Greater Accra Region would contribute to lowering tax evasion to promote economic development. This finding is also supported by the works of Worlu and Nkoro (2012) and Owusu-Gyimah (2015) who argued that tax revenues drive economic growth and development. Furthermore, taxing authorities, according to Prinz et al. (2014) and Ramírez Zamudio and Nolazco Cama (2020), must employ both coercive and persuasive instruments and efforts to ensure tax compliance in order to increase domestic tax revenue mobilisation and accelerate economic development. They claim that this is done to satisfy both compliance and evasion-minded taxpayers.

According to the empirical findings of model 2, there is a positive and significant correlation between urbanisation and tax evasion. According to Torgler et al. (2010), the more sectors of an economy that are located in urban centres, the greater the incentives are to conduct business in the shadow economy. This is the likely explanation for the positive tax evasion-urbanisation relationship. This means that the greater the hidden economy and tax evasion activities in a country, the more positive the nexus between tax evasion and urbanisation is thought to be. For instance, according to The World Bank's (2020) report, the Greater Accra Region is responsible for at least 84.1 percent of the total corporate income tax gap. Therefore, the higher the rate of urbanisation, the higher the probability of tax evasion.

4.6.3. The moderating effect of institutional quality on tax evasion and tax efforts-economic development relationship

The empirical findings in Table 4 show that there is a significant inverse interaction between tax evasion and institutional quality, tax efforts index has a negative (but insignificant) interaction with the institutional quality, in explaining the impact on economic development.

These results suggest that there is a negative nexus between institutional quality and tax evasion that affects economic development. Yamen et al. (2018), who found a significant inverse nexus between governance indicators and tax evasion in EU nations, validate these findings. Elgin and Öztunali (2014) discovered that in countries with low institutional quality, higher economic development (GDP per capita) is closely related to a larger informal sector. The likely justification for this finding is that, in accordance with Cummings et al. (2009) and Nawaz et al. (2014), institutions with clearly defined mechanisms will lessen tax evasion while fostering economic development.

Table 4. The impacts of tax evasion and tax efforts on institutional quality				
Variable	Exogenous variables	Path coefficient	p-value	
	TVES	1077	.002	
INSQ	TEFI	1050	.989	
	TGDP	.1293	.047	
	LCOBR	.3567	.000	
	CPII	0033	.289	

Source: Author's construct (2022).

Table 5. Summary of hypothesis testing				
		Exogenous		
	Variable	TVES	TEFI	
	EFWI	Rejected	Rejected	
Endogenous	URBN	Rejected	Rejected	
	INSQ	Rejected	Rejected **	
	Hypothesis	H ₁	H ₂	
	Decision	Rejected	Rejected	

Source: Author's construct (2022).

**Not significant.

4.6.4. Testing of the hypotheses

Based on the discussions of the results above, Table 5 summarises the hypotheses tested.

H1. Tax efforts do not cause economic development.

From Table 5, the study found that tax efforts drive both the economic freedom of the world index and urbanisation when testing the first hypothesis. As a result, the study rejects the null hypothesis that taxation does not lead to economic development in Ghana.

H2. Tax evasion does not cause economic development.

Table 5 demonstrates that tax evasion influences economic development (EFWI and URBN), implying that the hypothesis that tax evasion does not cause economic development cannot be accepted.

H3. Institutional quality does not moderate evasion and corruption—economic development nexus.

The findings show that the institutional quality index moderates the tax evasion—economic development nexus. As a result, the study rejects the null hypothesis that institutional quality does not moderate the relationship between tax evasion and economic development.

5. Conclusion and policy recommendations

This paper examined the impacts of tax efforts and tax evasion on economic development as well as the moderating role of institutional quality on the relationship. The following hypotheses were tested to investigate the study objectives:

H1. Tax efforts do not cause economic development.

H2. Tax evasion does not cause economic development.

H3. Institutional quality does not matter in the tax efforts and tax evasion—economic development nexus.

The following are the key specific empirical findings. First, tax evasion and tax efforts have negative relationships with economic freedom of the world index. The inverse tax evasion—economic freedom of

the world index nexus, in particular, represents tax income that is lost to the state which could have been used to fuel economic development through infrastructure development. The negative relationship between the tax efforts index and the economic freedom of the world index, on the other hand, indicates to some extent the failure of GRA's tax efforts and initiatives, such as tax amnesties, to achieve their intended goals of increased tax compliance and revenue maximisation, and thus economic development. As a result, some compliant taxpayers may perceive tax amnesty² as an inducement to tax evaders, which may have an impact on their compliance. This implies that tax policies that would seem to be inducements to tax evaders should be carefully thought through before their implementation. In addition, the granting of generous tax incentives should commensurate with FDI inflows and be growthenhancing to promote economic development in Ghana.

Second, tax evasion and tax efforts have positive and significant relationships with urbanisation. The positive relationship between the tax efforts index and urbanisation implies that the enhancement and mobilisation of domestic tax revenues through tax efforts could drive economic development. Also, more tax efforts should be deployed in Ghana's urban areas in order to mobilise tax revenues and reduce tax evasion for improved economic development.

Third, the impact of institutional quality on tax evasion and economic development relationships was also found to be significant. The findings indicate that when tax evasion interacts with institutional quality, an inverse relationship is formed that influences economic development. This implies that the quality of state institutions is critical to increasing tax revenues and driving economic development by reducing tax evasion.

The study contributes to literature in diverse ways. The adoption of the tax efforts index to examine its econometric impact on economic development is one of the pioneering attempts in the field. More so, few studies have explored the multivariate relationship by adopting SEM methodology, as has been done in this research. In addition, few research efforts have been directed at the moderating role of the quality of institutions in the tax evasion-economic development relationship.

Since an increase in tax efforts will stimulate enhanced tax compliance to increase tax revenues for economic development (urbanisation), the study recommends policies to ensure tax compliance through enhanced tax efforts, with attention to the urban areas. Because it has been argued that economies south of the Saharan require strong state institutions to combat tax evasion, the study recommends that public institutions should carry out their mandates with rigour and effectiveness in order to curb tax evasion and ensure improved tax compliance and adequate tax revenue mobilisation to accelerate SDG achievement.

Funding

The research, writing, and/or publication of this article were all done without any financial assistance.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: Tax efforts and tax evasion–economic development Nexus. Does institutional quality matter?, John Kwaku Amoh, Kenneth Ofori-Boateng, Randolph Nsor-Ambala & Ebenezer Bugri Anarfo, *Cogent Economics* & *Finance* (2023), 11: 2243174.

Notes

- 1. In Ghana, the level of urbanisation has been increasing steadily, from 31.84 percent in 1983 to 43.93 percent in 2000 to 50.71 percent in 2010 and 56.06 percent in 2018 (WDI, 2020).
- 2. GRA's Customs Division has granted a three-month amnesty to all users of uncustomed vehicles, beginning Friday, October 1, 2021, and ending December 31, 2021.

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Appendix

Table A1. Definition of variables and data sources				
Variable	Definition	Data source		
TVES	Tax evasion estimates (% of GDP)	Amoh and Adafula (2019)		
TGDP	Tax burden	Bank of Ghana (BoG)		
TEFI	Tax efforts index	WDI and Bank of Ghana (BoG)		
LCOBR	Currency outside banks	Bank of Ghana (BoG)		
CPII	Corruption perception index	Transparency International (TI)		
EFWI	Economic freedom of the world index	Fraser Institute (FI)		
URBN	Level of urbanisation	World Development Indicators (WDI)		
INSQ	Institutional quality index	World Governance Indicators (WGI)		

Source: Author's construct (2022).

URBN is the level of urbanisation, proxied by urban population (% of total); TEFI is the tax efforts of taxing authorities; LCOBR is the natural log of the currency outside the banks; INSQ is the institutional quality index computed from the Principal Component Analysis.