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Regular Article

Determinants of tax compliance costs of small and medium enterprises in emerging economies: Evidence from Ghana

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ABSTRACT

Small and medium enterprises (SMEs) are important to emerging economies, especially in tackling economic growth and unemployment challenges. SMEs bear a disproportionate burden in complying with many forms of regulations, in particular tax rules and legislation. Complying with tax regulations often result in increased costs and a significant reduction in profits. There is very little information available about the various factors that determine the tax compliance costs of SMEs, especially in Africa. The study attempted to identify the determinants of tax compliance cost using a survey of 132 SMEs in Ghana. From the analysis of three models and OLS regression, the study found that the size of the business, the age of the business, the business sector and technological costs were significant determinants of tax compliance cost. The results provide meaningful insight to the revenue authorities in knowing the determinants of SMEs' tax compliance costs. Furthermore, the findings provide valuable information to SMEs to assist in evaluating and managing their tax compliance costs. Finally, the study offers an empirical contribution to the scanty literature on SMEs' tax compliance cost in emerging economies.

1. Introduction

In Ghana, just as in many other emerging economies, SMEs are becoming increasingly important, especially in addressing the challenges of job creation, economic growth and equity (Ng & Kee, 2017; OECD, 2019; Smulders & Naidoo, 2013). According to the Ghana Statistical Service IBES report (2016), SMEs (businesses with fewer than 30 workers as small, and those between 30 and 100 workers as medium) generate roughly 70% of Ghana's GDP and account for 99.6% of all enterprises. SMEs are critical for driving growth, creating jobs, and alleviating poverty in Ghana because of their economic importance. Regardless of their importance, SMEs must comply with a variety of tax laws (ITC, 2016). SMEs' tax compliance activities include maintaining proper records, undertaking tax planning, hiring professionals to complete and file returns, and gaining enough knowledge to allow these obligations to be correctly done (Okello, 2014). The costs incurred in the performance of these activities are usually significant parts of SMEs' costs.

Taxpayers are indeed concerned about tax compliance costs (TCC) and the related resources spent on meeting tax responsibilities (Sapiei, 2012). One of the key considerations for the private sector when considering whether to establish, relocate, or extend its operations is the level of taxation, because a high tax burden and cost of complying with the tax regulations discourage private sector growth (World Bank Group, 2016). TCC may overstrain SMEs, and therefore, some might be forced to shut down their businesses or choose not to comply with tax laws (Sapiei, 2012). Therefore, compliance behaviour levels might not meet expectations, as many businesses might consider the tax system to be unfair (Damayanti & Matasik, 2021; Sapiei, 2012). For this reason, the effectiveness of a tax system can be evaluated by obtaining and examining measurable data from a TCC survey.

High TCC might reduce small businesses' profitability and, as a result, limit economic growth (Schoonjans et al., 2011; Smulders et al., 2017). When SME costs are high, it is likely to affect government revenue through a reduction in SMEs' profit, resulting in low tax revenues. Eichfelder and Vaillancourt (2014) observed that the high cost of compliance efforts is a waste of financial resources, because it raises the effective tax burden on enterprises without increasing government revenue. On the other hand, Lignier et al. (2014) opined that a decrease in TCC could improve the international competitiveness of SMEs by

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committing more resources to strategic business activities, which would result in an increased capacity for job creation and enhanced conditions of service.

Scholars (Ariff & Pope, 2002; Lignier & Evans, 2012; Sapiei, 2012; Tran-Nam et al., 2000) have classified TCC under three main components: internal, external and incidental expenses. The first is the time taxpayers spend on unpaid assistants as well as internal personnel who are paid. The second component comprises the cost of external tax advisers. Incidental expenses are tax-related miscellaneous tax costs or firm overhead costs, for example stationery, electricity, telephone, and transport costs.

Very few studies have been conducted on TCC incurred by SMEs in Ghana. A study by Bruce-Twum and Schutte (2021a) estimated that SMEs in Ghana incurred an average TCC of GHS 4687 in 2018. This cost comprised internal tax compliance cost (ICC) of GHS1 048, incidental cost of GHS121, and external tax compliance cost (ECC) of GHS1 146. The authors also suggested that small businesses bear a higher tax compliance burden in all the cost categories (ICC, ECC and incidental cost), while large businesses (those with more than 100 workers) were the least affected. The result affirms the regressive nature of Ghana's income tax. The regressive nature of TCC in Ghana is in agreement with the findings of many international studies (Eichfelder & Vaillancourt, 2014; Sapiei, 2012; Smulders et al., 2017).

Limited information is, however, available about the specific qualities of businesses that contribute to these costs and in particular the determinants of TCC. Therefore, the study aims to ascertain the determinants of TCC incurred by SMEs in Ghana.

The remaining part of this paper is structured as follows. The ensuing section provides a review of literature and hypothesis development. Section 3 discusses the methods and data. Empirical results are presented in the penultimate section, with conclusions given in the last section.

2. Literature review and hypothesis development

The internal costs incurred by SMEs include the value of the time employees of a business spend on tax matters (Eichfelder & Kegels, 2014; Lignier & Evans, 2012; Sapiei, 2012). On the other hand, external tax compliance costs refer to the payments made to external tax experts (Eichfelder & Kegels, 2014; Lignier & Evans, 2012). According to Ariff and Pope (2002), incidental costs are the miscellaneous tax costs of transport, stationery, computers, telephone, and related costs. Sapiei (2012) added a fourth component, psychological costs, which are the negative experiences of taxpayers in obeying tax laws.

Various factors have been mentioned in the literature as determinants of TCC. One of these factors is the sector of the business. However, there are mixed results regarding the level of significance that the business sector has on TCC. Lignier and Evans (2012) did not find the business sector to be a significant determinant of TCC. Sapiei (2012) observed variations in TCC between various sectors in Malaysia. In South Africa, Smulders et al. (2012, 2017) noted that the business sector is a determinant of TCC; however, it was not significant. The World Bank Group (2016) also found the sector of a business as a determinant of the magnitude of TCC. As a result of the above literature, the following hypotheses are posed for the current study:

H1. TCC does not significantly vary between business sectors

Another factor that could influence TCC is the size of the business. Studies (Eichfelder & Kegels, 2014; Lignier & Evans, 2012; Sapiei, 2012; Schoonjans et al., 2011; World BankGroup, 2016) have provided empirical support that TCC increases with the size of a business. The size of a business could influence both the internal tax compliance cost (Smulders et al., 2017) and the external tax costs of compliance. Therefore, the second hypothesis is formulated as:

H2. There is a positive connection between the size of an entity and its TCC

The ownership type of an entity is also a factor that could influence TCC. Studies by Blaufus et al. (2014), Smulders et al. (2017) and World Bank Group (2016) found sufficient variations in costs between sole proprietorship, cooperative and private limited companies. However, there was no consistency regarding the significance level of ownership type influencing TCC. This study therefore posits the third hypothesis as:

H3. There are variations in the ownership type of an entity and the level of TCC

Additionally, the ownership status of the premises used for a business operation could influence the TCC incurred by SMEs. SMEs could be operating in the formal or informal sectors of the economy. In the World Bank Group (2016) survey of both formal and informal sectors, the study found a variation in the ownership status of premises between the respondents, which influenced the TCC incurred. Therefore, this study posits its fourth hypothesis as follows:

H4. The ownership status of premises for a business affects TCC

The procurement and maintenance of technology is also a factor mentioned in the literature as a determinant of TCC. Studies by Coolidge et al. (2009), Hansford et al. (2003), and World Bank Group (2016) found an increase in compliance costs of businesses that used computerised systems and software. There is not much literature on cost-saving associated with the use of technology (Eichfelder & Schorn, 2012). However, Coolidge et al. (2009) and Smulders et al. (2017) detected that businesses using computerised accounting systems reduce their external tax compliance costs. Hypothesis 5 of the study was consequently formulated as:

H5. There is a positive connection between the procurement and maintenance of software and TCC

The age of a business is another determinant of TCC mentioned in the literature. Scholars (Eichfelder & Vaillancourt, 2014; Sapiei, 2012) observed that enterprises that have been in operation for prolonged periods incurred higher tax compliance costs than younger ones. However, there are inconsistencies in the literature on the significance of the business age as a driver of TCC. The study therefore posits as follows:

H6. There is a positive connection between the number of years a business has been in existence and the level of TCC

2.1. Methods and data

The literature suggests that surveys are a preferred method to collect TCC data (Bruce-Twum & Schutte, 2021b). Therefore, the data for this study was obtained from a survey of 200 SMEs randomly selected from five regions in Ghana (Greater Accra, Central, Ashanti, Eastern, and Western). According to the Ghana Statistical Service IBES report (2016), the selected regions have a large number of SMEs (74.5% of all SMEs in Ghana). One key city or town was chosen in each region utilising the size of a city's population as criterion. The selection of capital cities was based on the long-standing assertion that SMEs primarily operate in urban centres (Carsamer & Abbam, 2020). The sample size was chosen based on Yamane's formula (Israel, 1992, p. 4). The numbers of SMEs in the five regions were 473 592, with a 90% degree of confidence, a statistical z value of 2 ($z = 2$) and a 10% error limit. Yamane's formula required a minimum sample of 99 to be selected. However, a final sample of 200 was selected for this study after the views of Sekaran (2003) and Fowler (1993) were taken into consideration. Additionally, the sample size was set to yield a sufficient number of useful responses for statistical analysis.

In total, 132 questionnaires were received, out of which 16 were rejected, leaving a useable response of 116 representing a response rate of 58%. Yehuda and Brooks (2008) reported an average response rate of

35.7% from 1607 research studies that collected data from organisations, and Hiebl and Richter (2018) had a 38% response rate after evaluating 140 survey publications. As a result, the current study's response rate (58%) was considered reasonable.

Three models were built to examine the relationship between the factors that influence TCC, using ordinary regression analysis. The first model involved internal tax compliance costs (DV1), the second model involved external tax compliance costs (DV2), and the third model was based on total tax compliance costs (DV3). DV1, DV2 and DV3 were converted to standard logs before regression analysis was performed to reduce the skewness of data related to the dependent variables. The measurement of the dependent variables is presented in Table 1.

The independent (predictor) variables used in the regression models include business sector, business ownership, business size, tenancy status (owned or renting), business age, technology cost and harassment (dealing with tax authority).

Due to the nominal nature of the business sector, three dummy variables were created, D1 for manufacturing business, D2 for retail business, D3 for "other" business (comprising property and construction, finance and banking, and plantation and agriculture). In addition, service businesses were used as the reference category. Due to the nominal nature of business ownership, two dummy variables were created, D4 for partnerships and D5 for private limited liability companies, while sole proprietorships were used as the reference category. Due to the ordinal nature of business size, two dummy variables were created – D6 for medium-sized businesses (a turnover of GHS50 000-GHS100 000) and D7 for large businesses (a turnover of >GHS100 000), with small businesses (a turnover of <GHS50 000) used as the reference category. Due to the nominal nature of tenancy status, one dummy variable was created, which was termed as "X1", while owned premises was used as the reference group. Business age was modelled as variable "X2" since continuous data was captured in the survey. Technology costs were modelled as variable "X3" since continuous data was captured in the survey and logarithmically converted into common logs (log10) for regression purposes. Harassment was measured using a univariate ordinal variable concerning the difficulty in "dealing with tax authority" and denoted as "X4".

The following model was developed to test the hypotheses of the study.

$$Y = \beta 0 + \beta 1(D1) + \beta 2(D2) + \beta 3(D3) + \beta 4(D4) + \beta 5(D5) + \beta 6(D6) + \beta 7(D7) + \beta 8(X1) + \beta 9(X2) + \beta 10(X3) + \beta 11(X4) + e$$

where:

Y = Tax compliance costs (with Y_1=Internal tax compliance costs; Y_2 = External tax compliance costs and Y_3 = Total compliance costs); $\beta 1$-11 = Coefficients; $D1$ = Manufacturing sector, $D2$ = Retail sector; $D3$ = Other sectors; $D4$ = Partnerships; $D5$ = Private limited liability company; $D6$ = Medium-sized company; $D7$ = Large-sized company; $X1$ = Tenancy status (renting); $X2$ = Business age/business length; $X3$ = Technology cost; $X4$ = Harassment.

Table 1
Dependent variables.

Tax compliance costs	Measurement
Internal compliance costs (DV1)	TCC estimates were based on internal and incidental cost components. Internal tax compliance cost estimates were converted to common logs (log10) for regression purposes.
External compliance costs (DV2)	TCC estimates were based on the tax fees paid to external tax professionals. External tax compliance cost estimates were converted to common logs (log10) for regression purposes.
Total compliance costs (DV3)	TCC estimates were based on three main components: internal, incidental and external costs. Total compliance cost estimates were converted to common logs (log10) for regression purposes.

Source: Field Data (2021)

3. Empirical results

The results are presented in three parts; the first part considers an ANOVA test and a *t*-test as an initial step in analysing SMEs' features that determine TCC. Further statistical analyses were performed in the second (correlation) and the third part (ordinary regression analysis) to examine the strength of the relationships between the factors that determined TCC.

Table 2 presents the key characteristics of the SMEs studied. The business sector, ownership structure, tenancy status, business size/turnover, tax liabilities, and business age were the factors considered.

Table 2 shows that nearly half of the businesses surveyed (46.6%) were service businesses, with 26.7 percent being retail businesses, 16.4 percent being manufacturing businesses, and the rest (10.3%) being in other industries like property and construction, plantation and agriculture, and finance and banking. This sample agrees with the observation by Quaye and Mensah (2019), indicating that most SMEs in Ghana were service and retail businesses. Furthermore, 61 percent of businesses surveyed were registered as sole proprietorships, 23.3 percent were partnerships, and 15.5 percent were private limited liability companies. More than half (50.9%) of the businesses owned their premises, whereas the remaining businesses (49%) operated in rented facilities. Also, more than half of the enterprises (54.2%) had been in operation for less than ten years, 35.3 percent for ten to 20 years, and the remaining (10.3%) had been in existence for more than 20 years.

In addition, in 2018, 36.2 percent of businesses had a turnover of less than GHS50 000, 35.3 percent had a turnover of between GHS50 000 and GHS100 000, and the remaining 28.5 percent had a turnover of more than GHS100 000. More than half (52.5%) of the businesses had tax liabilities of less than GHS10 000 for 2018, while the remaining businesses (47.5%) had tax liabilities above GHS10 000.

Table 2
Background information of SMEs.

Variable	Frequency	Per cent
Business sector/main business activity		
Manufacturing	19	16.4
Service	54	46.6
Property and construction	4	3.4
Plantation and agriculture	3	2.6
Finance and banking	5	4.3
Trading (retail)	31	26.7
Ownership structure		
Sole proprietorship	71	61.2
Partnership	27	23.3
Private limited company	18	15.5
Tenancy status		
Rented	57	49.1
Owned	59	50.9
Business Size/turnover		
Less than GHS50 000	42	36.2
GHS50 000 -GHS100 000	41	35.3
GHS100 001-GHS200 000	10	8.6
GHS200 001-GHS500 000	14	12.1
GHS500 001-GHS1 000 000	9	7.8
Tax liability		
Nil (no tax liability)	4	3.4
Less than GHS10 000	57	49.1
Between GHS10 000 and GHS50 000	43	37.1
Between GHS50 001 and GHS100 000	6	5.2
More than GHS100 000	6	5.2
Business age		
Less than 10 years	63	54.3
10–20 years	41	35.3
More than 20 years	12	10.3
Total	**116**	**100.0**

Source: Field Data (2021)

3.1. Incidence of tax compliance costs

SMEs' TCC burdens were analysed by specific characteristics using an ANOVA and *t*-test to ascertain their significance and influence on TCC. Information from the two tests served as the basis for learning about what drives TCC. The results are presented in Table 3.

The results of the tests, as shown in Table 3, are analysed using the various characteristics as follows:

- **Business sector**

From the perspective of the sector of operation, Table 3 shows that the mean TCC values differed marginally with 'other' sectors, followed by manufacturing business, service business and retail business in descending order of costs. An ANOVA test ($F = 2.27$, $p = 0.08 < 0.10$) showed a marginal difference across sectors regarding mean tax compliance costs.

- **Business ownership structure**

In terms of the ownership structure of SMEs, the mean TCC (as shown in Table 3) was significantly higher for private limited liability companies followed by partnerships and sole proprietorships, respectively, in descending order of costs. The ANOVA test results ($F = 4.85$, $p = 0.01 < 0.01$) indicate that a significant difference exists across different ownership structures in the mean TCC.

- **Tenancy status**

Table 3 also shows no significant difference between the mean TCC for the ownership status of offices used by SMEs. This position was confirmed by the *t*-test results obtained ($t = -0.073$, $p = 0.943$ = n.s.), indicating the lack of significance between the variables.

- **Business turnover/size**

A significant difference exists between business sizes and their related TCC ($F = 11.64$, $p = 0.00 < 0.01$). Specifically, the mean TCC increased with turnover levels. This means that businesses with a turnover above GHS100 000 (large businesses) were significantly more likely to incur higher TCC compared to medium (GHS50 000-GHS100 000) and small businesses (<GHS50 000). The ANOVA tests with multiple comparison tests, such as Fisher's LSD and Bonferroni tests, confirmed that TCC increases with business size/turnover.

Table 3
Cross-tabulation results for business characteristics and tax compliance costs.

Variable	Freq.	Mean	Type of test	F	p
Business sector					
Manufacturing	19	2281.5	ANOVA	2.27	0.08+
Service	48	1847.8			
Trading (retail)	29	1549.3			
Others (plantation etc.)	11	3114.2			
Ownership structure					
Sole proprietorship	66	1730.1	ANOVA	4.85	0.01**
Partnership	23	1747.9			
Private limited	18	3157.7			
Tenancy status					
Rented	51	1960.4	*t*-test	−0.073	0.942
Owned	56	1986.5			
Business size/turnover					
Small (<GHS50 000)	38	1019.8	ANOVA	11.64	0.00***
Medium	37	2121.9			
Large (>GHS100 000)	32	2936.4			
Tax liability					
Less than GHS10 000	55	1384.15	*t*-test	3.62	0.00***
GHS10 000 and above	52	2598.03			
Business age					
Less than 10 years	55	1311.3	ANOVA	11.36	0.00***
10–20 years	40	2390.8			
More than 20 years	12	3623.0			
Overall	**107**	**1974**			

Note: ***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10.
Source: Field Data (2021)

- **Tax liability**

Table 3 further shows a significant difference between a business' tax liability and TCC. Specifically, TCC increased with a higher tax liability. Businesses that pay more than GHS10 000 as taxes were significantly more likely to incur higher TCC than businesses that pay less than GHS10 000. The independent sample *t*-test results ($t = 3.62$, $p = 0.00 < 0.01$) confirmed a significant difference for TCC between the two categories of tax liabilities.

- **Business age**

For the period of time an enterprise has been in operation, the study found a significant difference between the period of time a business has been in operation (business age) and the related TCC. Specifically, TCC increased with extended periods of being in business. Therefore, businesses that had been operating for more than 20 years were significantly more likely to incur higher TCC compared to businesses that had been working for less than 20 years. ANOVA test results ($F = 11.36$, $p = 0.00 < 0.01$) with multiple comparison tests, such as Fisher's LSD and Bonferroni tests, confirmed that TCC increases with a business's age.

3.2. Correlation analysis

The correlation matrix was performed for the seven key variables, including TCC, business sector, ownership structure, tenancy status, business size, tax liability and business age. The results are presented in Table 4.

From Table 4, a significant positive relationship was found between TCC and ownership structure ($p < 0.01$), TCC and business size ($p < 0.001$), TCC and tax liability ($p < 0.001$), and TCC and business age ($p < 0.001$). The positive relationship between the business size and TCC indicates that an increase in the turnover levels of SMEs would also increase TCC. The correlation between the turnover and TCC was significant at a one percent level. The strength of the correlation of 0.426 indicates a medium relationship between ownership structure and TCC. The relation between tax liability and TCC was also found to be positive. This indicates that SMEs with higher tax liabilities tend to have higher TCC. A correlation coefficient of 0.333 also indicates a medium relationship between tax liability and TCC. The correlation between the two variables was significant at a ten percent level.

In addition, there was a positive relationship between business age and TCC. The positive relationship means that as the enterprise grows, TCC also increases. The relationship between business age and TCC was significant at a one percent level. A medium relationship was found between the two variables with a coefficient of 0.423.

Table 4, however, shows a very weak relationship between tenancy status and TCC. The coefficient of 0.007 was obtained between tenancy status and TCC. The relationship between the variables was also not significant. Another weak relationship was observed between the business sector and TCC. A correlation coefficient of 0.040 shows a very weak relationship. The relationship between the business sector and TCC was not significant.

A regression analysis was also used to test the strength of the relationship between the determinants of TCC. Before performing ordinary least squares regression, it was essential to calculate the normality of the variables to be considered for the regression. A normality test was conducted by examining skewness, kurtosis and Kolmogorov-Smirnov tests (Hair et al., 2017). The test for normality of the standardised residuals of the dependent variables of the three models (DV1-DV3) is

Table 4
Correlation matrix.

Constructs	1	2	3	4	5	6	7
1 Tax compliance cost	1.000						
2 Business sector	0.040	1.000					
3 Ownership structure	0.251**	−0.079	1.000				
4 Tenancy status	0.007	−0.123	0.027	1.000			
5 Business size/turnover	0.426***	0.024	0.459***	0.050	1.000		
6 Tax liability	0.333**	−0.013	0.300**	−0.067	0.401***	1.000	
7 Business age	0.423***	−0.047	0.381***	0.181*	0.449***	0.351***	1.000

Note: ***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10.
Source: Field data (2021)

presented in Table 5.

From Table 5, the skewness and kurtosis values for the standardised residual of the three dependent variables were approximately zero, showing that the assumptions of normality were met. Furthermore, the Kolmogorov-Smirnov test of normality for all three models was non-significant at a 1 percent level of significance (p > 0.01). This result implies that the three models assume multivariate normality, thereby meeting the requirement for performing ordinary least squares (OLS) regression.

The diagnostic statistics calculated following ordinary least squares (OLS) regression application are summarised in Table 6.

From Table 6, the variance inflation factor (VIF) was used to calculate multicollinearity statistics. All of the VIFs were less than 5, indicating that there were no multicollinearity issues (Hair et al., 2016). Again, OLS assumes that the variance of the error term is constant (homoscedasticity). From Table 6, the Breusch-Pagan/Cook-Weisberg chi-square tests for the three estimations were non-significant (p > 0.01). This means that the null hypothesis of homoscedasticity was not rejected, and therefore, there was no heteroscedasticity problem with the three estimations. The data, therefore, was acceptable for OLS analysis. The Ramsey reset tests for the three estimations were non-significant (p > 0.01). The non-significant test results suggest that there was no sign of nonlinearity or misspecifications of the regressions. Therefore, the three models estimated are suitable for OLS.

3.3. Internal tax compliance cost (ICC)

The OLS regression results for internal tax compliance costs are presented in Table 7.

The overall relationship of the predictors with ICC was statistically significant (F = 5.76, p = 0.00 < 0.001). Furthermore, the predictor variables jointly contributed to about 34% of the total variance explained in ICC. Specifically, the business company size was found to be a significant determinant of the ICC. Both medium-sized business (Beta = 0.21, t = 1.88, p = 0.06 < 0.10) and large-sized business (Beta = 0.28, t = 2.37, p = 0.02 < 0.05) were significantly more likely to incur higher ICC when compared with small-sized business. The regression results on the business' size further mean that with other variables kept constant, the business' size was positively related to the ICC, increasing by 0.21 and 0.28, respectively. The medium-sized businesses were significant at the ten percent level, whereas the large businesses were significant at the five percent level. Table 7 also depicts that technological cost was a significant determinant of ICC. This implies that businesses with higher technological costs were significantly more likely

Table 5
Normality diagnostics-compliance costs.

Variables	Skewness	Kurtosis	Kolmogorov-Smirnov		
			Statistic	**Df**	**p**
Standardised residual (ICCLog10) (DV1)	0.210	−0.316	0.079	103	0.120
Standardised residual (ECCLog10) (DV2)	0.603	−0.156	0.104	96	0.012
Standardised residual (TCCLog10) (DV3)	−0.719	0.446	0.086	107	0.052

Source: Field data (2021)

Table 6
Diagnostics statistics-compliance costs.

Constructs	Multicollinearity test		
	DV1	DV2	DV3
	VIF	VIF	VIF
Manufacturing business (D1)	1.398	1.403	1.367
Retail business (D2)	1.309	1.359	1.295
Other sectors (D3)	1.29	1.303	1.271
Partnerships (D4)	1.269	1.258	1.248
Private Ltd companies (D5)	1.769	1.685	1.616
Medium-sized business (D6)	1.837	1.924	1.841
Large-sized business (D7)	2.112	2.146	2.045
Tenancy (X1)	1.075	1.107	1.073
Business age (X2)	1.791	1.903	1.739
Technology cost (X3)	1.313	1.323	1.288
Harassment (X4)	1.30	1.36	1.31
Heteroscedasticity	4.760	0.210	3.030
	0.030	0.644	0.080
Ramsey reset test	2.580	6.320	2.160
	0.060	0.030	0.100

Note: VIF< 5 is acceptable (Hair et al. 2014).
Source: Field Data (2021)

Table 7
Regression results for internal tax compliance costs (ICC).

DV1[a]	β[b]	S.E	Beta[c]	t	p
(Constant)	2.21	0.15		14.52	0.00
Manufacturing business (D1)	0.23	0.16	0.14	1.45	0.15
Retail business (D2)	−0.18	0.13	−0.13	−1.37	0.18
Other sectors (D3)	0.26	0.19	0.13	1.40	0.16
Partnerships (D4)	−0.09	0.14	−0.06	−0.62	0.54
Private Ltd companies (D5)	0.18	0.18	0.10	0.98	0.33
Medium-sized business (D6)	0.27	0.14	0.21	1.88	0.06+
Large-sized business (D7)	0.38	0.16	0.28	2.37	0.02*
Tenancy (X1)	−0.01	0.11	−0.01	−0.09	0.93
Business age (X2)	0.01	0.01	0.14	1.31	0.19
Technology cost (X3)	0.09	0.03	0.25	2.76	0.01**
Harassment (X4)	−0.01	0.03	−0.03	−0.28	0.78
S.E of estimate	0.514				
R-square	0.410			**F-statistic**	5.76
Adj. R-square	0.339			**Prob. (F-stats.)**	0.00***

Note: ***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10.
DV1[a] = Dependent variable = Internal tax compliance costs (ICC).
β[b] = Unstandardised coefficients, Beta[c] = Standardised coefficients, S.E. = Standard error.
Source: Field data (2021)

to incur higher ICC than businesses with lower technological costs (Beta = 0.25, t = 2.76, p = 0.007 < 0.01). The technological cost was significant at the one percent level.

3.4. External tax compliance cost (ECC)

The OLS regression results for external tax compliance costs are presented in Table 8.

The overall relationship between predictors and ECC was statistically significant (F = 6.59, p = 0.00 < 0.001). Furthermore, the predictor variables jointly contributed to about 36% of the total variance explained in ECC. Table 8 indicates that the business sector, technological costs and business size were the three variables that significantly determined ECC. Specifically, when other variables are held constant, manufacturing businesses were positively related to external tax compliance costs, increasing by 0.16 for every cedi spent on ECC. The regression results of manufacturing businesses also mean that they are significantly more likely to incur higher ECC than service businesses (Beta = 0.16, t = 1.73, p = 0.08 < 0.10). Manufacturing businesses were significant at the ten percent confidence level. Furthermore, ECC was found to be positively related to both medium-sized businesses (Beta = 0.22, t = 1.98, p = 0.05) and large-sized businesses (Beta = 0.50, t = 4.25, p = 0.00 < 0.001). Medium-sized businesses were significant at the five percent confidence level, whereas the large-sized businesses were at the one percent confidence level. This result also means that both medium-sized businesses and large-sized businesses were significantly more likely to incur higher ECC compared with small-sized businesses. Also, the technological cost was positively related to the ECC, increasing by 0.24. The technological cost was significant at the one percent confidence level. The result for the technological costs means that businesses with higher technological costs were significantly more likely to incur higher ECC than businesses with lower technological costs (Beta = 0.24, t = 2.66, p = 0.009 < 0.01).

3.5. Total tax compliance cost (TCC)

The OLS regression results for total tax compliance costs (same as TCC) are presented in Table 9.

The overall relationship of the predictors with TCC was statistically significant (F = 3.86, p = 0.00 < 0.001). Furthermore, the predictor variables jointly contributed about 23 percent of the total variance explained in the TCC. Three variables (size of business, business age and technological cost) were significant determinants of TCC. Specifically, medium-sized businesses (Beta = 0.22, t = 1.89, p = 0.06 < 0.10) and large-sized businesses (Beta = 0.25, t = 2.01, p = 0.05) were significantly more likely to incur higher TCC compared to small-sized businesses. With other variables held constant, business age was positively related to TCC, increasing by 0.24 per one cedi of TCC. The business age was significant at the five percent confidence level. The result for the age of the business means that businesses that have been in operation for longer periods (older business) were significantly more likely to incur higher total compliance costs than businesses that have operated for shorter periods (younger business) (Beta = 0.24, t = 2.10, p = 0.04 < 0.05). Finally, TCC was positively related to the technological cost, increasing by 0.19, when all other variables were held constant. This result means that businesses with higher technological costs were significantly more likely to incur higher TCC than businesses with lower technological costs (Beta = 0.19, t = 2.00, p = 0.05).

Table 8
Regression results for external tax compliance costs (ECC).

DV2[a]	β[b]	S.E	Beta[c]	t	p
(Constant)	2.57	0.08		33.58	0.00
Manufacturing business (D1)	0.14	0.08	0.16	1.73	0.08+
Retail business (D2)	−0.02	0.07	−0.03	−0.30	0.76
Other sectors (D3)	0.01	0.09	0.01	0.10	0.92
Partnerships (D4)	0.03	0.07	0.04	0.46	0.65
Private limited company (D5)	0.00	0.09	0.00	−0.01	1.00
Medium-sized business (D6)	0.15	0.08	0.22	1.98	0.05*
Large-sized business (D7)	0.36	0.08	0.50	4.25	0.00***
Tenancy (X1)	0.05	0.06	0.07	0.88	0.38
Business age (X2)	0.00	0.00	0.07	0.63	0.53
Technology cost (X3)	0.04	0.02	0.24	2.66	0.00**
Harassment (X4)	0.02	0.01	0.12	1.26	0.212
S.E of estimate	0.26				
R-Square	0.410			**F-statistic**	6.59
Adj. R-square	0.364			**Prob. (F-stats.)**	0.00***

Note: ***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10.
DV2[a] = Dependent variable = External compliance costs (ECC).
β[b] = Unstandardised coefficients, Beta[c] = Standardised coefficients, S.E. = Standard error.
Source: Field data (2021)

Table 9
Regression results for total tax compliance costs (TCC).

DV3[a]	β[b]	S.E	Beta[c]	t	p
(Constant)	2.76	0.13		20.99	0.00
Manufacturing business (D1)	0.09	0.13	0.07	0.70	0.49
Retail business (D2)	−0.02	0.11	−0.02	−0.19	0.85
Other sectors (D3)	0.24	0.16	0.15	1.51	0.14
Partnerships (D4)	−0.10	0.12	−0.08	−0.83	0.41
Private company (D5)	0.09	0.15	0.07	0.61	0.55
Medium-sized business (D6)	0.24	0.13	0.22	1.89	0.06+
Large-sized business (D7)	0.27	0.14	0.25	2.01	0.05*
Tenancy (X1)	0.00	0.09	0.00	0.04	0.97
Business age (X2)	0.01	0.01	0.24	2.10	0.04*
Technology cost (X3)	0.05	0.03	0.19	2.00	0.05*
Harassment (X4)	−0.02	0.02	−0.09	−0.92	0.36
S.E of estimate	0.451				
R-square	0.306			**F-statistic**	3.861
Adj. R-square	0.229			**Prob. (F-stats.)**	0.00***

Note: ***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10.
DV3[a] = Dependent variable = Total tax compliance costs (TCC).
β[b] = Unstandardised coefficients, Beta[c] = Standardised coefficients, S.E. = Standard error.
Source: Field data (2021)

3.5.1. Summary of the multiple regression results

A summary of the three regression results for TCC is presented in Table 10, showing significant p-values only.

The three regression analyses conducted, in summary, have shown the statistical association between the TCC incurred by SMEs and the various factors/variables that determine these costs. Table 10 indicates that even though ownership of an enterprise was positively correlated to

Table 10
Synthesis of the statistical significance level of multiple regression results-tax compliance costs.

Business characteristics	Internal tax compliance costs	External tax compliance costs	Total tax compliance costs
Business sector	_	0.08+	_
Business ownership	_	_	_
Business size	0.064+, 0.020*	0.051*, 0.000***	0.061+, 0.047*
Tenancy status	_	_	_
Business age	_	_	0.039*
Technology costs	0.007**	0.009**	0.049*
Harassment	_	_	_

Note: ***p < 0.001; **p < 0.01; *p < 0.05; +p < 0.10.
Source: Field data (2021)

TCC, it was not a significant determinant of TCC. This result agrees with the findings of Blaufus et al. (2014), Smulders et al. (2017) and the World Bank Group (2016).

In line with the finding of World Bank Group (2016), the results on the tenancy status (Ownership of Premises) indicate that even though there is a relationship with TCC, it does not significantly explain any variations observed in TCC.

Table 10 also indicates that harassment of company officials by GRA staff does not significantly determine the TCC incurred by SMEs. However, four factors discussed below were found to be significant determinants of TCC.

- **Business sector:** The sector in which SMEs operate was found to be a significant determinant of the external tax compliance cost. The results show differences in the sectors in which SMEs operate and external tax compliance costs. Enterprises operating in the manufacturing industry were significantly more likely to incur higher external tax compliance costs ($p < 0.10$) compared to those working in the service industry. Although this result confirmed the findings of Lignier and Evans (2012), Sapiei (2012) and Smulders *et a1*. (2017), it disagrees with Lignier and Evans (2012) and Sapiei (2012) on the significance level.
- **Business size:** This was consistently found in all three regressions as a significant determinant of the TCC. The regression results showed that both medium-sized and large businesses were significantly more likely to incur higher internal tax compliance costs, external tax compliance costs and TCC than smaller businesses (p ranges from 0.0001 to 0.10). This result is in agreement with prior studies (Eichfelder & Kegels, 2014; Lignier & Evans, 2012; Sapiei, 2012; Schoonjans et al., 2011; World Bank Group, 2016).
- **Business age:** In line with the findings of Eichfelder and Vaillancourt (2014), and Sapiei (2012), the length of time an enterprise has been in operation was also a significant determinant of TCC. The results show that older businesses were significantly more likely to incur higher TCC ($p < 0.05$) compared to recently established businesses. Contrary to Smulders et al. (2017), business age was not a significant determinant of external TCC.
- **Technological costs:** Finally, technological costs were consistently observed to be a significant determinant of ECC, ICC and TCC. The results mean that businesses with higher levels of technological costs were significantly more likely to incur higher ICC ($p < 0.01$), ECC ($p < 0.01$) and TCC ($p < 0.05$) than businesses with lower technological costs. This result also agrees with the finding of Coolidge et al. (2009), Hansford et al. (2003), and World Bank Group (2016).

3.6. Hypotheses results

Hypothesis 1 posited that TCC does not significantly vary between business sectors. The results of the study showed that the TCC for manufacturing, retail and other sectors did not significantly differ from the service sector ($p > 0.10$ in all three dummy cases). Therefore, hypothesis one (H1) is supported for TCC. A significant variation occurred between sectors for ECC, where the manufacturing sector significantly incurred higher ECC than service businesses ($p < 0.10$).

Hypothesis 2 also posited a positive connection between the size of an entity and its TCC. The results of the study indicate that both medium-sized businesses (Beta = 0.22, t = 1.89, p = 0.06 < 0.10) and large-sized businesses (Beta = 0.25, t = 2.01, p = 0.04 < 0.05) were significantly more likely to incur higher TCC compared with small-sized businesses. Therefore, hypothesis two (H2) is supported.

Hypothesis 3 posited that there were variations in the ownership type of an entity and its level of TCC. The study found that partnerships and private limited liability companies did not differ significantly from sole proprietorships with regard to TCC. Therefore, the ownership type of an entity is not a predictor of its TCC. Consequently, hypothesis three (H3) is rejected.

Hypothesis 4 also posited that factors such as the premises of a business affect its TCC. Findings from this study indicated that businesses operating from rented premises did not differ significantly from those who owned their premises with regard to TCC ($p > 0.10$). Therefore, hypothesis four (H4) is not supported by the findings of this study.

Furthermore, hypothesis 5 suggested a positive connection between the procurement and maintenance of software and TCC. The study results indicated a significant positive relationship between technology costs and the level of TCC (Beta = 0.19, t = 2.00 p = 0.04 < 0.05). This implies that higher technological costs have a positive influence on TCC. Therefore, hypothesis five (H5) is supported in the present study.

Finally, hypothesis 6 posited a positive relationship between the number of years a business has been in existence and the level of TCC. The study found a significant positive relationship between business length and TCC level (Beta = 0.24, t = 2.10 p = 0.04 < 0.05). This implies that businesses that have been in operation for longer periods were significantly more likely to incur a higher level of TCC than those that have been in operation for shorter periods. Therefore, hypothesis six (H6) is supported within the present context.

4. Conclusion

The study was motivated by limited knowledge about the factors that determine the TCC incurred by SMEs in Ghana. We, therefore, collected data through a survey of 132 SMEs in five regions in Ghana, after which regression analysis was conducted to ascertain the significant factors. The study found that even though ownership of an enterprise and the tenancy status were positively correlated with TCC, they were not significant. Harassment was negatively related to ICC, but positively related to ECC. However, the relationship was not significant.

The significant factors that determine the TCC of SMEs in Ghana were the business sector, business size, business age, and technological costs. In agreement with prior studies (Coolidge et al., 2009; Eichfelder & Kegels, 2014; Lignier & Evans, 2012; Sapiei, 2012; Schoonjans et al., 2011; Smulders et al., 2017), the size of a business (measured by turnover) was found to be the most significant cost driver of SMEs' TCC.

The study results will assist the GRA to know the factors that affect SMEs' TCC, which could militate against SMEs' compliance behaviour. Furthermore, the findings provide valuable information to the SME owner about the various determinants that significantly impact TCC. A better understanding of the determinants could assist SMEs to decide whether to learn to do tax compliance work themselves (in-house) or to outsource, with the goal of reducing cost. Finally, the study provides an empirical contribution to the scanty literature on SMEs' TCC in emerging economies.

This study is, however, not without some latent limitations. The study focused on only the compliance cost of income taxes, and this means that other taxes, such as Value Added Tax and Pay as you earn, which are connected to tax compliance, are not studied. However, it can be argued that limiting the study to only one aspect of the tax system can be considered a strength as it can lead to a better understanding of the issues involved, contributing to a better appreciation of the entire tax system.

Future studies could examine the factors that determine the tax compliance cost incurred by large businesses.

CRediT authorship contribution statement

Bruce-Twum Ernest: Conception and design of the study, Acquisition of data, Methodology, analysis and/or interpretation of data, Drafting the manuscript, Revising the manuscript critically for important intellectual content, Approval of the version of the manuscript to be published. **Schutte Danie:** Conception and design of the study, Methodology, analysis and/or interpretation of data, Revising the manuscript critically for important intellectual content, Reviewing and Editing,

Approval of the version of the manuscript to be published. **Asare Nicholas:** Revising the manuscript critically for important intellectual content, Reviewing and Editing, Approval of the version of the manuscript to be published.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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