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Managers or Corporates?: Curbing Non-compliance through Corporate Income Tax Penalty

Mahangila¹

ABSTRACT

Governments normally impose tax penalties for tax non-compliance. They can either impose financial corporate income tax penalties on corporates or tax managers in cases of corporate income tax non-compliance. However, the effectiveness of these corporate income tax penalty incidences remains largely unknown. This paper examines their effectiveness experimentally. In all, 100 Bachelor of Commerce second-year students at the University of Dar es Salaam participated in the laboratory experiment. The participants were randomly assigned into two groups: of managers and of owner-managers. Then the two groups were subdivided randomly into two groups based on corporate income tax penalty incidences: corporate income tax penalty imposed on managers and corporate, respectively. The study suggests that corporate income tax penalties imposed on managers may be more effective in enhancing corporate income tax compliance in both manager and owner-manager run corporations. Tax authorities should impose corporate income tax penalties on individuals responsible. The study contributes to limited corporate income tax literature, particularly in helping to reconcile the mixed results of prior theoretical research given fixed incentives. Also, it provides the first experimental evidence on the relevance of corporate income tax penalty incidence in the context of Tanzania. Finally, it adds to the scarce corporate income tax compliance literature and to the few studies on this aspect from developing countries.

Keywords: *Corporate income tax, experiment, tax avoidance, tax compliance, tax evasion, tax penalty incidence,*

INTRODUCTION

Tax penalty incidence in corporate taxation is often not considered as much as it should despite increasingly becoming difficult to ignore the contribution of corporations in tax collection systems. The Tanzania Income Tax Act, 2004, defines a corporation as any company, incorporated or unincorporated, association of persons excluding partnerships. Besides paying corporate income taxes, they may collect PAYE and VAT. So, corporate tax evasion may have a devastating impact on the overall government tax revenue. Tax compliance

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occurs when a taxpayer abides by tax laws (Kirchler, Muehlbacher, Kastlunger, & Wahl, 2007).

Yet, the usefulness of tax penalty incidence in corporate taxation in particular remains largely unclear. The tax penalty incidence in corporate taxation refers to whom the corporate income tax penalty applicable between tax managers and corporates. Furthermore, Slemrod (2004, p.11) calls for testing of these policies: "It is valuable to know whether there is an *a priori* reason to prefer one to another". Three papers have responded to the call, Crocker and Slemrod (2005), Chen and Chu (2005) and Lipatov (2012) but these studies are largely theoretical (See the next section); consequently, empirical evidence is missing. Moreover, little attention has been paid to corporate income tax compliance, and there is a paucity of tax compliance research in developing countries (Hanlon & Heitzman, 2010). Doing research on tax compliance in developing countries is relevant as results from developed countries are not applicable in developing countries because of differences in tax compliance culture and tax systems (Torgler & Schneider, 2007; Torgler & Schneider, 2009). Moreover, developing countries have to contend with low tax compliance levels at a time of decreasing donor support, hence forcing governments in these countries to reform their tax systems with the aim of improving tax compliance. These governments fail to support development projects, education, health and other social services because of inadequate funding. Therefore, undertaking a study on corporate tax compliance is important as the majority of tax collected by tax administrations in developing countries comes from corporate taxpayers (Kimungu & Kileva, 2007). In particular, this paper investigates the issue of corporate income tax penalty incidence experimentally to answer the question: Does corporate income tax penalty matter?

The remainder of the paper is divided as follows. Section 2 discusses tax compliance literature and develops hypotheses. Section 3 describes methodology. Section 4 presents the results, and section 5 concludes the paper.

LITERATURE REVIEW

The Economic Personal Income Model in a Corporate Setting

Corporate income tax penalty is based on an economic personal income tax model developed by Allingham and Sandmo (1972) and Srinivasan (1973). The model assumes that a rational person makes a tax compliance decision. The true income (I), tax rate (T), audit rate (R), a chance of being selected for tax audit (Yitzhaki, 1974), and income tax penalty (P) for not declaring all income are known. Furthermore, the model assumes personal wants to maximise the income after payment of income tax and any income tax penalty.

The person compares expected benefits i.e. $(I \times T \times (1-R))$ vs. expected costs to be incurred i.e. $(I \times T \times R \times P)$ of income tax non-compliance, assuming the person wishes to declare nil income. Moreover, the person is risk-averse preferring to comply with tax laws when the expected benefit from tax evasion is less or equal to the expected costs of tax evasion. Accordingly, tax authorities are advised to lower the tax rate because low tax rate lowers the expected benefit of tax non-compliance while leaving the taxpayer with high disposal income which facilitates tax compliance. Also, tax authorities are advised to increase the audit and penalty rate as doing so increases the expected costs of tax evasion.

In general, the model offers some empirical supports. Certain audit rates have been found to be associated with high tax compliance (Spicer & Thomas, 1982; Kamdar, 1997; Fjeldstad & Semboja, 2001; Alm & McKee, 2006). However, a field experiment found a positive relationship between tax compliance rate and certain audit rate in low and middle income taxpayers despite having tax non-compliance opportunities; on the other hand, low tax compliance was found in wealthy taxpayers (Slemrod, Blumenthal, & Christian, 2001). Consequently, the impact of a certain audit rate on tax compliance may depend on the taxpayers' income. Nevertheless, not all the factors are controlled in field experiments. For instance, the study did not control for the use of paid tax preparers who significantly affect tax compliance (Hasseldine, Hite, James & Toumi, 2007). Also, the perceived weakness of the revenue authority to uncover all tax non-compliance activities was found to cause tax non-compliance in high income taxpayers (Slemrod *et al.*, 2001).

On the other hand, wealthy individual taxpayers were found to react more positively to audit rates than other categories of taxpayers (Ali, Cecil, & Knoblett, 2001). Uncertain audit rate in Ali *et al.*'s (2001) study might have translated into high income taxpayers' perception of high audit rate because tax authorities might have exclusive larger taxpayers' department. For instance, the Tanzania Revenue Authority (TRA) has a department that closely monitors large-scale taxpayers who are few. The low income taxpayers, who are numerous, tend to enjoy perceived tax non-compliance opportunities. In consequence, low income taxpayers may lower their tax compliance levels. Subsequently, the results based on archival tax data used in Ali *et al.*'s (2001) study might differ from results based on a certain audit rate.

Nevertheless, without announcing the probability of audit, Spicer and Thomas (1982) and Alm and McKee (2006) found an insignificant relationship between audit rate and tax non-compliance. Moreover, Spicer and Thomas (1982) argued that when the audit rate is uncertain, taxpayers use guesswork in making tax compliance decisions. Furthermore, experimental results suggest that some taxpayers make tax compliance decisions on the basis of perceived probability of audit as some participants were compliant even at zero audit rates (Alm, McClelland, & Schulze, 1992). In short, the audit rate is one of the most important tax compliance enforcement tools.

Audit and penalty rates are related because non-compliant taxpayers are mostly penalised after being detected through audit. In this regard, the majority of prior research has established that high tax penalties could increase tax compliance rates (Friedland, Maital, & Rutenberg, 1978; Klepper & Nagin, 1989; Park & Hyun, 2003). High tax penalties might increase tax compliance because taxpayers are unwilling to lose much from the attendant tax penalty (Kahneman & Tversky, 1979; Dharni & al-Nowaihi, 2007). Still some literature has found an opposing result (Webley, 1987; Cadsby *et al.*, 2006). Webley (1987), for example, manipulated tax penalty of 2 - 6 times of unpaid taxes with audit rates ranging between 17% and 50%. Webley (1987) only found a positive significant impact of audit rates on reported income.

Furthermore, the application of the personal tax income model for corporate taxpayers came up with inconclusive results. Slemrod (2004) argued that the model is not appropriate in large corporations because the corporates are more likely to have well-diversified portfolios. This diversification might make large corporates risk-neutral rather than risk-averse. Subsequently, the income tax compliance under risk-neutral attitude requires a relatively large difference between the expected costs and the expected benefits of tax non-compliance (Slemrod, 2004). Specifically, Slemrod (2004) proposed that the risk-neutral attitudes leads to a 100 percent tax compliance level when the expected costs is more severe in comparison to the expected benefit of tax non-compliance and zero percent tax compliance level when the expected costs are not relatively severe. Also, the separation of control can induce tax managers to be risk-neutral as they might lack a strong financial connection to corporates (Slemrod, 2004).

Similarly, Kamdar (1997) using corporate compliance data from the US Internal Revenue Service established that high penalty rates may not lead to high corporate income tax compliance. Likewise, a controlled field experiment indicated that threats of audit and penalty may have no bearing on tax compliance behaviour of large corporates and the value-added tax taxpayers (Ariel, 2012).

Thus, Slemrod (2004) claimed that the personal tax income model is only appropriate in small corporations whereby owners run the corporates and the corporates have less diversified investment portfolios. Moreover, where owners run their corporates, the owners would have a strong connection to the corporates' financial outcome and the owners' financial position becomes inseparable from that of their corporates (Slemrod, 2004). Then, according to Slemrod (2004), small corporates are more likely to behave as individual taxpayers in risk-averse ways. Still less diversification leaves other unsystematic risks uncovered, so small corporates might be risk-averse (Slemrod, 2004). Consequently, the expectation is:

H1_a Owner-manager run corporates are tax compliant than manager run corporations.

However, Clinard Yeager and Clinard (1980) argued that the every corporate has its own behaviour developed from interaction with its separate parties. Likewise, a decrease in tax rate charged on medium-sized corporate income was found to have no impact on corporate tax income compliance (Rice, 1990). As such, the personal income tax model might not be appropriate even in small corporates. In sum, given the limited corporate income tax literature available it is hard to conclude whether the personal income tax model works well in a corporate setting.

The debate over the appropriateness of the personal income tax model in a corporate setting remains unavailable. Subsequently, studying how corporate income tax penalty incidence relates to corporate income tax compliance is vital.

Corporate Income Tax Penalty Incidence

The presence of two main separate legal entities in corporate setting causes the corporate income tax penalty incidence problem. Actually, corporates and tax managers represent separate legal entities. In this regard, a government aimed at maximising corporate income taxes has two options when considering the imposition of corporate income tax penalty in a corporate income tax non-compliance case: the first option is to penalise a corporate and the second is to penalise a responsible tax manager (Slemrod, 2004).

Penalising the corporate for corporate income tax evasion is appropriate under strict limited liability. The strict limited liability is concerned with assigning liabilities and crimes only to the corporations (Slemrod, 2004). In fact, the Supreme Court case between New York Central R. Co. v. United States - 212 U.S. 481 implies tax managers can impute corporate income tax non-compliance to corporations (New York Central R. Co. v. United States - 212 U.S. 481, 1909). Moreover, corporate income tax penalty imposed on corporations might be desirable as the corporate income tax non-compliance can benefit shareholders (Lipatov, 2012). Consequently, Lipatov (2012) proposed imposing corporate income tax penalty on the corporates to reduce the corporate income available to shareholders, so that the shareholders in return can penalise tax managers. The penalty on the managers might force the managers to maximise shareholders' wealth by increasing corporate income tax compliance.

However, Lipatov's (2012) argument has two major potential problems. First, it depends on shareholders being aware of the corporate income tax penalty being paid; if shareholders are not aware of it then the penalties on managers might not happen (Crocker & Slemrod, 2005). The second problem is that, even if shareholders are aware that the corporate penalty income tax penalties were paid, the shareholders might not penalise the tax managers when the possibility of corporate income tax non-compliance was considered by offering low salaries to

the tax managers (Crocker & Slemrod, 2005). Also, the shareholders might not mind when they have well-diversified portfolios (Crocker & Slemrod, 2005).

Indeed, a corporate income tax penalty imposed on tax managers can be appropriate for three reasons. First, tax managers know when they are breaking tax laws (Crocker & Slemrod, 2005). So penalising responsible tax managers can force them to comply with tax laws. Second, Phillips (2003) reported that managers' performances are increasingly being linked to corporates' effective tax rates and the linkage creates a corporate income tax non-compliance incentive. Moreover, collusion between tax managers and owners might increase tax non-compliance incentives (Chen & Chu, 2005). Subsequently, although the tax managers may not comply with tax laws intentionally, tax non-compliance is attributed to corporates (Conley & O'barr, 1997). Appropriately, corporate income tax penalties imposed on managers are justifiable and might reduce the incentive to reduce corporate income tax compliance.

Third, government-imposed corporate income tax penalties on tax managers might be more severe than those imposed by owners on the tax managers, primarily because governments might include tax administration costs and jail sentences when determining penalties (Polinsky & Shavell, 1993). Costs incurred by tax authorities when enforcing tax laws are known as tax administration costs (Sandford & Hardwick 1989). Hence, the penalties imposed on tax managers can have a significant impact on corporate income tax compliance. So Crocker and Slemrod (2005) proposed that governments should directly penalise tax managers for the penalty to create conflict with shareholders, and probably the resolution of the conflict might result in enhanced corporate income tax compliance.

Nevertheless, Crocker and Slemrod's (2005) proposal also has potential limitations. First, when tax managers are aware of potential corporate income tax penalties managers can demand high emoluments to compensate for any foreseeable losses (Lipatov, 2012). Second, when owners and tax managers collude, the owners might reimburse the penalty and eliminate any purported impact (Chen & Chu, 2005). Third, corporate income tax penalty on managers might be contended in court and, probably, dismissed by judges under strict liability rules (Slemrod, 2004). However, the judges could find it difficult to dismiss a case if income tax laws impose corporate income tax penalties on managers. For example, the Tanzania Value Added Tax Act, 1997, section 51, provides penalties for individuals implicated in corporate value-added tax non-compliance.

In fact, hypothetical experiments suggest that tax preparers might abide by tax laws and be less aggressive when they are penalised (Newberry, Reckers, & Wyndelts, 1993; Hansen & White, 2012). However, results from hypothetical experiments are limited as Chang, Lusk and Norwood (2009) found that market

shares of retail products in retail hypothetical choices differed significantly from real market shares of the products. Similarly, tax compliance level improved after communicating corporate excise tax penalty for non-compliance and requiring responsible persons to be held accountable for corporate tax compliance (Sanders, Reckers, & Lyer, 2008). Then penalising tax managers for corporate income tax non-compliance might encourage corporate income tax compliance. Thereupon, other three hypotheses are following:

H2_a In manager-run corporations, corporate income tax penalties charged for managers are more positively associated with corporate income tax compliance than corporate income tax penalties charged for the corporates.

H3_a In owner-run corporations, corporate income tax penalties charged for owners are more positively associated with corporate income tax compliance than corporate income tax penalties charged for the corporates.

H4_a Corporate income tax penalties charged for managers are more positively associated with corporate income tax compliance than corporate income tax penalties charged for the corporates.

Demographic Variables and Corporate Income Tax

Tax managers' demographic variables might play important roles in their tax compliance decisions. Many studies indicated that female were more compliant than male taxpayers (Friedland *et al.*, 1978; Spicer & Hero, 1985; Cadsby *et al.*, 2006). The uneven compliance level might be attributable to men being more likely to take more risk than women (Hawley & Fujii, 1993).

Similarly, young taxpayers have been found to have low tax compliance rates than older taxpayers (Clotfelter, 1983; Kirchler, 1999; Fjeldstad & Semboja, 2001) because older taxpayers are more risk-averse than younger ones (Chang *et al.*, 1987). Moreover, Kirchler (1999) suggested that attitudes towards tax compliance improve overtime as correspondingly younger taxpayers are more likely to have negative attitudes to tax systems than older taxpayers, and hence the younger taxpayers might have lower tax compliance levels. Finally, because young taxpayers are mostly energetic and have less family responsibilities, they can stay longer in hiding than older taxpayers (Fjeldstad & Semboja, 2001).

Yet education can either increase or decrease tax compliance level. Education can raise the tax compliance level when taxpayers understand the fiscal policy of tax systems (Jackson & Milliron, 1986; Dubin & Wilde, 1988; Dubin *et al.*, 1990; Richardson, 2006; Saad, 2010). As an illustration, highly educated taxpayers are more likely to file tax returns than less educated ones in a complex tax system (Dubin *et al.*, 1990).

On the other hand, highly educated taxpayers can exploit loopholes in tax laws to reduce their tax liabilities (Jackson & Milliron, 1986; Dubin *et al.*, 1990). Moreover, highly educated taxpayers may perceive income tax payments as loss per prospect theory; as a result, they may reduce income tax compliance levels

(Chang *et al.*, 1987). The implication is that demographic variables of a tax manager can explain the corporate income tax compliance level. In the current study, the experiment deployed Bachelor of Commerce second-year students with almost similar education levels and age groups, but with different genders.

The hypothesis 5 is:

H5_a Women-run corporates are more tax compliant than men-run corporates.

Methodology

Method

To study corporate income tax penalty incidence, a laboratory experimental method was selected. Tax non-compliance can be socially undesirable behaviour and a survey method might not produce reliable data as respondents might not reveal their true tax compliance behaviour (Feld *et al.*, 2006; Alm, 2010). Although a field experiment has more generalisable results, it is more expensive and does not allow experimenters to control many variables (Torgler, 2002; Alm & Torgler, 2011). Also getting co-operation with tax authorities in a field experiment is hard (Levitt & List, 2009). Likewise, archival data on corporate income tax penalty incidence is scant.

Accordingly, the laboratory experiment was considered appropriate because it offers control over the tax rate, audit rate, penalty rate, income, and participants' preferences to get highly internally valid data necessary in causality-effect claims. Internal validity refers to ability of study to explain a causality relationship between dependent and independent variables (Loewenstein, 1999). Moreover, privacy and language of instructions are vital in getting internally valid data. Privacy validates independent data as participants work independently, and might cause participants to reveal their true tax compliance behaviour (Smith, 1982). Furthermore, it is advisable for laboratory experimenters to avoid using tax terminologies in experimental instructions to hide the context of studies as context provides additional information that enriches the study (Wartick *et al.*, 1999; Alm, 2010). Finally, the experimental rewards should be variables, which vary in accordance with the participants' behaviour, and the rewards should be significant enough to offset any attendant participation costs (Smith, 1982). For instance, participants who report more income pay more taxes and participants get less after tax income.

Laboratory experiments have several weaknesses. First, if the laboratory experimental environment differs significantly from non-laboratory environments, results may not apply in the non-laboratory environment (Smith, 1982). Subsequently, the imitation of real tax systems might improve the usefulness of results from laboratory experiments (Spicer & Thomas, 1982).

Second, many laboratory experiments use students as proxies of taxpayers when they are not necessarily good representatives of taxpayers although no evidence affirms that taxpayers' responses differ from those of students (Alm *et al.*, 2010).

Participants, Experimental Design and Procedure

Initially, the study intended to recruit SME owners and managers who had benefited from training workshops at the University of Dar es Salaam Entrepreneurship Centre (UDEC). Despite getting full support from the UDEC and two weeks' recruitment efforts by phone, only 15 people attended the experiment largely because of low participation compensation. This number of participants was deemed too small for an experiment with four treatments (Mitchell & Janina, 2013). Consequently, the study used students to increase sample size, and because, Alm, Bloomquist and McKee, (2015) established that there was no significant difference between tax compliance behavior of students and non-student participants in laboratory experiments. In all 100 Bachelor of Commerce second-year students at the University of Dar es Salaam participated in the experiment. They were invited via two weeks of class announcements. Of these, 80 were men. The mean age was 23 and age standard deviation was 1.25. The participants were told that they could earn up to Tanzania shillings (Tshs) 20,000² depending on income declared by each participant and experimental treatment facing him or her, but the average pay was Tshs 13,000.

First, the participants were randomly assigned into two groups: managers and owner-managers and then the two groups were subdivided randomly into two groups based on corporate income tax penalty incidence: corporate income tax penalty imposed on managers, and one imposed on corporates. Correspondingly, the experiment design was a 2 x 2 design and each participant participated only in one cell (see Table 1). Therefore, 100 participants were subsequently divided into four groups. Each participant from each group was required to pick any envelope from those prepared for their respective group. The envelopes contained consent forms, tax return forms in duplicate³, and instruction sheets.

After the participants had read participant information sheet and signed the consent forms, the researcher read out the common instruction information⁴ in tax terminology without allowing the participants to read theirs. The common instructions were on verification of documents, confidentiality and independence, corporate income and manager's salary, taxation, and auditing. The confidentiality was emphasised and the participants were told to work independently and only communicate with supervisors.

² Tshs 2500 =£ 1 and students daily allowance was Tshs 7,500.

³ The duplicate tax return was retained by participants and it was used for payment of the experimental token.

⁴ Some items differed as experimental treatments.

Participants knew the tax rate, income, penalty rate and audit rate. These parameters were kept constant throughout the experiment because they affect tax compliance (Kirchler, Hoelzl, & Wahl, 2008; Hanlon & Heitzman, 2010). A tax rate of 30% was applied for both corporate net income and managers’ salary with corporate income tax penalty rate being two times the unpaid corporate income taxes⁵ and an audit rate of 10% was implemented through probability with replacement. Besides, the participants were instructed to report correctly gross income, salary and pay correct corporate income taxes otherwise they would face corporate income tax penalty according to everyone’s experimental treatment. The corporate gross income was TAZ 1,000,000 per session whereas the managers’ gross salary was TAZ 600,000 per session paid from the corporate income. TAZ was explained as a laboratory currency exchangeable with actual money at TAZ 150 for 1 actual Tanzania shillings (Tshs) at the end of the experiment.

Table 1
Experimental Design

		Management status	
		Managers	Owner-managers
		Hypothesis 1	
Corporate income tax Penalty on:	Managers	Hypothesis 2	Hypothesis 3
	Corporates		

The experimental treatments caused the two instructions to differ. As such, they were read by participants individually. The first difference was that some of the participants acted as managers (treatment 1 and 2) whereas others served as owner-managers (treatment 3 and 4). Both the manager’s and the owner-manager’s role was to file tax returns on behalf of the corporate; the managers were only paid taxable⁶ salaries whereas owner-managers got both taxable

⁵ Corporate tax and penalty rate reflected Tanzania’s income tax structure.
⁶ Taxing salaries might have given an incentive to managers to defraud corporations by understating salary amount ending paying high corporate income

salaries and corporate residual income. The second difference was some corporate income tax penalties were deducted from the managers' salary after tax (treatment 1 and 4) and others from corporate residual income (treatment 2 and 3).

In short, the experiment involved four steps: learning details of income, tax rate, audit rate, penalty and corporate income tax penalty incidence; filling a tax return; filing the tax return, not the duplicate; some of the participants underwent audit, and penalty if any was noted on the duplicate tax return, a round ended and a new round started. The experiment lasted for three rounds which were preceded by the question-and-answer session and a practice round. The experiment took almost 80 minutes and ended with a brief debrief⁷.

Findings

Data Screening and Analysis Approach

After data screening, 61 observations of gross income exceeded TAZ 1,000,000 per session and so they were dropped, hence leaving 239 (61 for treatment 1, 60 for treatment 2, 58 for treatment 3, and 60 for treatment 4) observations for analysis. Because these participants might have intended not to comply with tax, the magnitude of tax non-compliance cannot be ascertained. However, the dropped observations were almost equally distributed across the treatments. Also, two observations in manager-run corporates did not indicate the gender of the participants and were treated as a separate gender category in addition to female and male.

The analysis of variance (ANOVA) was employed to test the hypotheses. ANOVA is a powerful tool in determining the differences of two or more means of independent variables when there is a single dependent variable (Verboon & van Dijke 2011; Mitchell & Janina 2013). Testing differences of two or more means of independent variables can also be done using multivariate analysis of variance (MANOVA), but MANOVA is useful when dependent variables are multiples (Hair *et al.*, 2010; Mitchell & Janina, 2013). In this study, the independent variable was tax compliance whereas the dependent variables were corporate income tax penalty incidence, gender, management status and their interactions. Furthermore, ANOVA mainly assumes homogeneity of variance, normal distribution of data, and independence of subjects (Chen *et al.*, 2002; Hair *et al.*, 2010).

For an aligned rank transformed data (ranking data in ascending order before analysis) ANOVA was used because the Shapiro Wilk test of normality on all sets of data indicated the data were not normally distributed, $p < .001$, and homogeneity of variance assumption was violated, Levene's test $p < .001$.

taxes; however, the data shows that no corporation overstated its corporate income tax liability.

⁷ Data collection instruments are available upon request.

Conover and Iman (1981) showed that rank transformed data works well with parametric methods when non-parametric methods are absent. Also, the rank transformed data solves the heteroscedasticity problems by stabilising variances of the ranked data (Timothy *et al.*, 1985). Consequently, the rank transformed data might be distribution-free data (Conover & Iman 1981; Timothy *et al.*, 1985; D'Amato *et al.*, 1994).

Finally, partial eta squared (η_p^2) was used to indicate the significance of independent variables, where $\eta_p^2 = .01$ the effect is small size, when $\eta_p^2 = .06$ the effect is medium size and when the $\eta_p^2 = .14$ the effect is large (Cohen, 1988). On this measure, the overall effects of significant variables were medium-sized.

Findings and Discussions

Corporate income tax compliance was measured in terms of net income i.e. income-declared less salary-declared. To test hypotheses 2 and 5, a 2 x 2 between subjects ANOVA of gender (female, male) x corporate income tax penalty for managers, corporates in manager-run corporations was conducted (see Table 2). Corporates net income were significantly higher when corporate income tax penalty was imposed on managers than on corporate, which is

consistent with hypothesis 2, $F(1, 116) = 7.11$, $p = .009$, $\eta_p^2 = .058$. Thus, the mean rank of corporate net income of 73.39 when corporate penalties were for individual managers differed significantly from the mean rank of corporate net income of 61.73 when corporate income tax penalties were imposed on corporates.

Table 2
Analysis of Variance

Dependent Variable: Rank of Net Corporate income

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8491.845	3	2830.615	3.383	.021	.080
Intercept	213879.203	1	213879.203	255.647	.000	.688
Corporate income tax penalty incidence	5951.601	1	5951.601	7.114	.009	.058
Gender	520.665	1	520.665	.622	.432	.005

Corporate income tax penalty incidence	859.414	1	859.414	1.027	.313	.009
Gender						
Error	97047.655	116	836.618			
Total	544769.500	120				
Corrected Total	105539.500	119				

Adjusted R Squared = .06

However, hypothesis 5 was not supported as the main effect of gender was insignificant: $F(1, 116) = .62, p = .432, \eta_p^2 = .005$. Likewise, an interaction between gender and corporate income tax penalty incidence was insignificant: $F(1, 116) = 1.03, p = .313, \eta_p^2 = .009$. On the other hand, to test hypotheses 3 and 5, a 2 x 2 between subjects ANOVA of gender (female, male) x corporate income tax penalty imposed on manager, corporate in owner-run corporations was run (see Table 3).

Table 3
Analysis of Variance

Dependent Variable: Rank of corporate net income						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5149.43	3	1716.477	2.717	.048	.067
Intercept	159727.878	1	159727.878	252.805	.000	.691
Corporate income tax penalty incidence	4589.410	1	4589.410	7.264	.008	.060
Gender	231.489	1	231.489	.366	.546	.003
Corporate income tax penalty incidence * gender	3910.379	1	3910.379	6.189	.014	.052
Error	71396.068	113	631.824			
Total	483822.500	117				
Corrected total	76545.500	116				

Adjusted R Squared = .04

As expected in hypothesis 3, ranked corporate net income was significantly higher when corporate income tax penalties were deducted from owner-managers' salaries than when the corporate income tax penalties were deducted

from corporate residual income: $F(1, 113) = 7.26, p = .008, \eta_p^2 = .060$.

Specifically, when corporate income tax penalties were imposed on corporates the mean rank of corporate net income was 46.75, which was significantly lower than the mean rank of corporate net income of 65.84 when the corporate income tax penalties were imposed on individual managers.

Nonetheless, the main effect of gender on tax compliance was insignificant

against hypothesis 5: $F(1, 113) = .37, p = .546, \eta_p^2 = .00$. However, Figure 1 shows that when corporate income tax penalties were imposed on managers women-run corporations complied more than men-run corporations. In the meantime, when the corporate income tax penalties were charged on the corporates, women-run corporations complied less than men-run corporations: F

$(1, 113) = 6.19, p = .014, \eta_p^2 = .05$. This result implies that the impact of corporate income tax penalties may depend on the gender of tax managers.

Finally, to test hypotheses 1, 4 and 5, a $2 \times 2 \times 2$ between subjects ANOVA of corporate income tax penalty imposed on managers and corporates x management status (manager, owner-managers) x gender (female, male) of aggregated data were conducted. Table 5 shows that consistent with hypothesis 4, participants' compliance levels were significantly higher when corporate income tax penalties were deducted from their salaries than when the penalties

were deducted from the corporate net income: $F(1, 231) = 14.18, p < .001, \eta_p^2 = .06$.

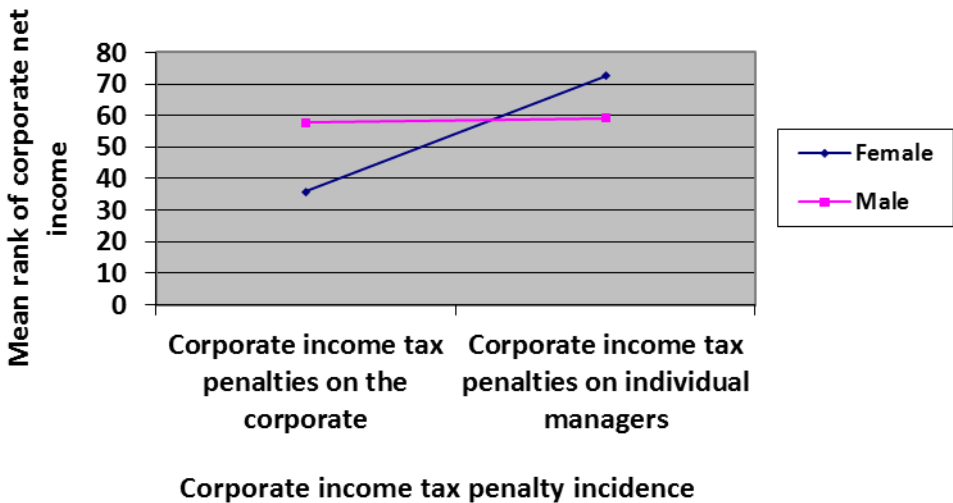


Figure 1
Female Vs Male Run Corporate Income Tax Compliance

Thus, when corporate income tax penalties were imposed on individuals the mean rank of corporate net income was 138.95, which differed significantly from the mean rank of corporate net income of 109.35 when corporate income tax penalties were imposed on corporates.

Nevertheless, against what was expected in hypothesis 1, the main effect of management status was insignificant: $F(1, 231) = .10, p = .757, \eta_p^2 = .00$. Also its interaction with gender was insignificant: $F(1, 231) = .58, p = .448, \eta_p^2 = .00$.

Table 5
Analysis of Variance

Dependent Variable: Rank of Net Corporate income							
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	
Corrected Model	57419.336	6	9569.889	3.236	.005	.078	
Intercept	1527530.269	1	1527530.269	516.482	.000	.691	
Gender	136.129	1	136.129	.046	.830	.000	
Corporate income tax penalty	41950.030	1	41950.030	14.184	.000	.058	

incidence							
Management status	284.135	1	284.135	.096	.757	.000	
Gender *	18998.985	1	18998.985	6.424	.012	.027	
Corporate income tax penalty incidence							
Gender *	1706.872	1	1706.872	.577	.448	.002	
Management status							
Corporate income tax penalty incidence*	4506.056	1	4506.056	1.524	.218	.007	
Management status							
Error	683197.664	231	2957.566				
Total	4139316.500	238					
Corrected Total	740617.000	237					
Adjusted R Squared = .05							

Furthermore, the interactions between corporate income tax penalty incidence and management status was insignificant: $F(1, 231) = 1.52, p = .218, \eta_p^2 = .00$. Likewise, an insignificant main effect of gender on compliance was observed: $F(2, 231) = .05, p = .83, \eta_p^2 = .00$. This result does not support hypothesis 5. Yet, Figure 2 indicates that when the corporate income tax penalty was charged for managers, women-run corporations' corporate net income was significantly higher than men-run corporations' corporate net income. On the other hand, when corporate income tax penalty was imposed on corporates women-run corporations' corporate net income was lower than men-run corporations' corporate net income: $F(1, 231) = 6.42, p = .012, \eta_p^2 = .03$.

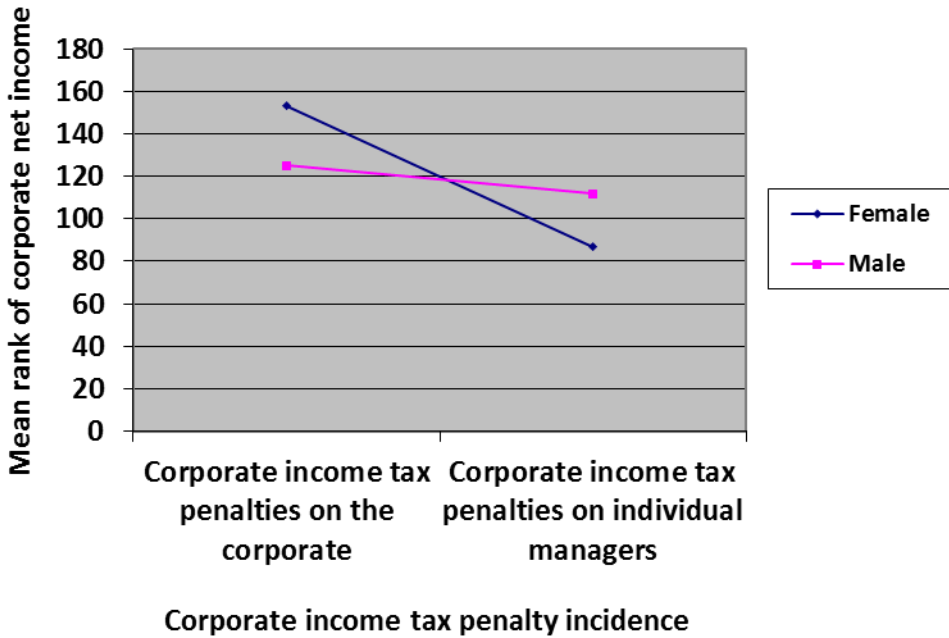


Figure 2
Gender * Corporate Income Tax Penalty Incidence

Conclusion

The simple act of changing the target of corporate income tax penalty deductions altered corporate income tax compliance levels. Taken together, the study suggests that corporate income tax penalties imposed on managers may be more effective in enhancing corporate income tax compliance in both manager and owner-manager run corporations. Two reasons can explain these results. First, in manager-run corporations, lack of economic benefits from corporate income tax non-compliance can explain managers' behaviour. Second, in both owner-manager and manager-run corporations, it seems participants were increasingly unwilling to be personally liable for corporate income tax non-compliance. This result is consistent with the prior literature (for example, Slemrod, 2004; Crocker & Slemrod, 2005), but does not support Lipatov's (2012) claims to the effect that corporate tax penalties imposed on corporates are more effective than those imposed on tax managers. This result suggests that corporates' behaviour might differ from individual behaviours irrespective of whether the individuals are owners or non-owners of these corporations.

Additionally, women-run corporations complied almost equally as men-run corporations except in owner-run corporations. During the experiment, women-run corporations' compliance rates were significantly higher than those of men-run corporations when corporate income tax penalties were imposed on individuals. But women-run corporations' compliance rates dropped sharply than men-run corporations' compliance rates when the penalties were taken from corporate residual income. The former finding is consistent with Cadsby *et al.*'s (2006) finding that gender was insignificantly linked to tax compliance. On the other hand, it is difficult to explain the latter finding because both men and women had the same economic benefits. Probably, the pattern may be related to risk attitudes i.e. women may be more risk-averse than men when corporate income tax penalties are directed at individual tax managers than at corporates, and vice-versa. These findings have a clear implication for policy-makers interested in boosting corporate income tax compliance; they might reconsider their current corporate income tax penalty incidence. Nevertheless, more research on this topic needs to be undertaken before the association between corporate income tax incidence and gender is clearly understood.

This study makes five contributions to tax compliance literature. First, it provides the first experimental evidence on the relevance of corporate income tax penalty incidence. Second, many laboratory experiments have only used income declared to measure tax compliance whereas tax compliance decisions consider, among other things, income and expenses (Elffers, Weigel, & Hessing, 1987; Alm, 1999). Thus, Alm (1999) and Webley and Halstead (1986) proposed that future experiments should provide multiple ways of measuring tax compliance as those available in actual situation. To this effect, the study has used three variables: gross income, salary and net income to measure corporate income tax compliance. Third, it required participants to comply fully as opposed to many laboratory experiments with the exception of a study by Cadsby, Maynes and Trivedi (2006) which allowed participants to report from 0 to actual income received (Moser, Evans Iii, & Kim, 1995; Alm, 2010). Consequently, these studies provide less external valid results (Webley & Halstead, 1986; Cadsby *et al.*, 2006) as tax authorities demand full compliance. Moreover, the study adds to the scarce corporate income tax compliance literature and to the few studies that have been conducted in developing countries. Finally, the study also contributes to limited corporate income tax literature, particularly in helping to reconcile the mixed results of prior theoretical research given fixed incentives: the corporate income tax penalty imposed on managers is more favourable than those slapped on corporates.

As the study has used students as proxy of corporate managers and owner-managers, this sample might not represent the real corporate managers and owner-managers. Thus, future researchers can replicate it and substitute students with real corporate managers and owner-managers. Moreover, the small sample size used in this study might limit the application of the study findings to non-

laboratory settings. Also, the statistical powers of the models are not more than adjusted R-squared .05. Thus, the tested independent variables might not explain more than five percent after taking into account numbers of independent variables, of change in tax compliance probably because the impact of income tax penalty on income tax compliance is itself, arguably, low (Alm & Torgler, 2011; Ariel, 2012). Subsequently, the findings should be interpreted with care. An important question that remains unanswered is: How can collusion between managers and owners influence corporate income tax penalty incidence in manager-run corporations? Indeed, the collusion may make owners refund corporate tax penalties paid by managers, and the refund may stridently affect the ability of the penalties to induce corporate tax compliance (Lipatov, 2012). Also, it is important to explore empirically probable why corporate tax penalties imposed on corporates are more or less effective than those imposed on tax managers.

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