UNIVERSITY OF SOUTHAMPTON

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SMEs' Corporate Income Tax Compliance in Tanzania

by

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ABSTRACT

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Many governments are struggling with inadequate tax revenue and increasing tax gaps. Consequently, changing behaviour of non-compliant taxpayers as small and medium enterprises (SMEs) because of their tax revenue potential and non-compliance behaviour is essential. This thesis examined the impact of corporate income tax penalty incidence, retributive justice, procedural justice, the interaction between retributive and procedural justice on corporate income tax compliance behaviour. Also, the thesis analysed whether corporate income tax compliance costs affect SMEs tax compliance behaviour.

Laboratory experimental methods found corporate income tax penalties levied on individual tax managers might be more effective than corporate income tax penalties charged on corporates. Also high tax compliance costs may decrease tax compliance levels. Likewise, a survey method discovered perceptions of retributive and procedural justice might associate with tax compliance behaviour. However, a perception of procedural justice can moderate the relationship between retributive justice and tax compliance.

Conclusively, tax authorities may increase SMEs' corporate income tax compliance by imposing corporate income tax penalties on tax managers, but these penalties should be perceived to fit the crime of corporate tax non-compliance and imposed through fair procedures. Also, the authorities may increase SMEs' corporate tax compliance by decreasing tax compliance costs. Shortly, the thesis contributes to the limited tax literature on corporate income tax compliance, procedural and retributive justice and usage of real taxpayers in an experiment.

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DECLARATION OF AUTHORSHIP

I, **Deogratius Ng'winula Mahangila** declare that this thesis titled **SMEs' Corporate Income Tax Compliance in Tanzania** and the work presented in it are my own and has been generated by me as the result of my own original research. I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed:..

Date:..

Acknowledgements

Corporate Income Tax Penalty Incidence Matter? and The Impact of Tax compliance Costs on Tax Compliance respectively.

Definitions and Abbreviations

ANOVA– analysis of variance

Df– degree of freedom

EM– equation modelling

MANOVA– Multivariate Analysis of Variance

MCAR– missing completely at random

MDG– millennium development goals

PCA– principle component analysis

SD– standard deviation

SMEs– small and medium enterprises

SPSS– Statistical Package for the Social Sciences

TCMP– tax compliance measurement program

TRA– Tanzania Revenue Authority

Tshs– Tanzania shillings

VIF– variance inflation factor

Chapter 1: Introduction

1.1   Overview of the Chapter

This chapter presents the research problem, research objectives, research questions and an overview of tax compliance literature. Furthermore, it provides justification for the thesis, briefly discusses research methods used in the study, explains delimitation of the study, provides an outline of the thesis and ends with a summary of the chapter.

1.2   Statement of the Problem

In the current global economy tax compliance has become a central issue for many governments as tax non-compliance can have many devastating effects to both developed and developing countries. Taxpayers signify compliance when they fulfill their taxpayers' responsibilities (Kirchler, 2007). Tax non-compliance may impact abilities of governments to provide public services negatively because it reduces tax revenue. Subsequently, in case of limited tax revenue governments may raise revenue through other ways as money printing, seeking finance donors and borrowings (Fischer and Easterly, 1990; Schmitt-Grohé and Uribe, 2004).

However, all these ways of raising additional government revenue have some limitations. Money printing increases inflation as money circulation increases in an economy (Fischer and Easterly, 1990; Schmitt-Grohé and Uribe, 2004). While, too much dependence on foreign development assistance decreases sovereignty of the recipient countries as contributors might determine where money should be spent, so the assistance might be incompatible with the

recipient countries' needs (Devarajan *et al.*, 2006) and may lead to non-implementation of some projects when the aid does not materialise (Towards Human Resilience: Sustaining MDG progress in an age of economic uncertainty, 2013). Furthermore, given the ongoing financial crisis, donor countries aid to developing countries is dwindling as developed countries are now fighting austerity. Hence, tax compliance is increasingly becoming important to all countries. On the other hand, loans need to be paid at some point in the future; repayment of loans might depend heavily on tax revenue.

Moreover, tax non-compliance makes inequality among taxpayers who comply and those who do not, and evaluation of tax policy impacts on an economy where some taxpayers are not complying is complex (Alm, 1999; Slemrod, 2007). Also, governments may use many resources in enforcing their tax laws (Slemrod, 2007), when tax compliance enforcement strategies fail to raise enough tax revenue, government revenue is reduced further by tax administration costs (Pope, 1995). Tax administration costs are costs incurred by tax authorities in enforcing tax laws (Pope, 1995). Therefore, there is no denying that without satisfactory tax compliance levels, many governments' services may be severely affected and the impact may affect governments' existence as happened to Georgios A. Papandreou's government in Greece in 2012. Also unsatisfactory tax revenue levels might be associated with tax non-compliance either through tax evasion or avoidance. When taxpayers reduce their tax liabilities illegally, that kind of tax non-compliance is known as tax evasion, whereas when the reduction in tax liabilities is done legally it is called tax avoidance (Slemrod, 2007).

This thesis investigated SMEs' corporate income tax in Tanzania. In Tanzania, a small enterprise has 5 to 49 employees or investment capital exceeding

Tanzania shillings (Tshs) 5 million (£ 2,000) to 200 million (Tshs £80,000). While if an enterprise has 50 to 99 employees or investment capital above Tshs 200 million (£80,000) to Tshs 800 million (£320,000) it is known as medium enterprise (*Small and Medium Enterprise Development Policy*, 2003). Tanzania is an interesting case because it collects below 30% of tax revenue from SMEs, despite SMEs being over 90% of taxpayers in the country (Kimungu and Kileva, 2007).

Moreover, it is increasingly difficult to ignore the importance of SMEs in both developed and developing countries in the term of employment contributions, turnover and their potential to provide public revenue (Arachi and Santoro, 2007; Bennett, 2008). For instance, in the United Kingdom, large businesses account only 1% of all businesses and they contribute half of employment and turnover (Bennett, 2008). Whereas, in Indonesia 56% of the gross domestic product and almost 20% of exports are attributed to SMEs (Padmadinata, 2007). However, SMEs tax non-compliance is widespread and substantial (Arachi and Santoro, 2007; Gatti and Honorati, 2008).

Additionally, there is an extensive literature about personal income tax compliance, though little attention has been paid to either corporate income tax compliance or compliance generally in developing countries (Hanlon and Heitzman, 2010). Also literature about retributive and procedural justice in tax compliance is still scarce. Retributive justice calls for penalising law breakers with penalties which fit their committed crimes, whereas procedural justice needs unbiased processes in arriving at a decision (Barrett-Howard and Tyler, 1986; Wenzel *et al.*, 2008). But, in general tax compliance literature is constantly growing; necessitating a holistic and comprehensive review of tax

compliance literature to understand the current status of this field (Kirchler, 2007).

Also, because tax non-compliance may be illegal tax research participants might withhold information and even cheat tax researchers (Slemrod, 2007). Subsequently, a proper selection of research method is required. However, tax research areas have only one tax research method philosophical book, edited by Oats (2012). Specifically, this book mainly explains how tax research can be done from different point of views: from accounting, laws, sociology, and accounting perspectives, for instance. Also, it discusses general (not so much related to taxation) qualitative and quantitative approaches, but largely biased to qualitative research as how to: perform interview and case studies and to analysis qualitative data. Therefore, tax researchers generally depend on generic research method books which might not be useful to them because of illegal nature of tax noncompliance; consequently, putting tax compliance research methods in an article might be an invaluable contribution. Therefore, this thesis aims at achieving the following research objectives and questions.

1.2.1   Research Objectives

a)   To examine the impact of a corporate income tax penalty incidence on corporate income tax compliance behaviour.

b)   To investigate whether charging corporate income tax penalties which fit the crime (retributive justice) is associated with tax compliance.

c)   To test whether having a fair procedure (procedural justice) in imposing penalties that fit the crime may encourage tax compliance.

d)   To examine the potential interaction effect of procedural and retributive justice on tax compliance behaviour.

e) To analyse whether corporate income tax compliance costs affect SMEs tax compliance behaviour.

f) To synthesise corporate tax compliance literature, individual tax compliance, and a shadow economy, complexity of tax laws and tax compliance costs literature.

1.2.2 Research Questions

a) Does the change in corporate income tax penalty incidence produce changes in corporate income tax compliance levels?

b) What is the relationship between retributive justice and tax compliance?

c) What is the relationship between procedural justice and tax compliance?

d) Does procedural justice explain the relationship between retributive and tax compliance level?

e) Do levels of tax compliance costs influence SMEs' corporate income tax compliance levels?

I conclude that corporate income penalties directed on managers responsible for corporate income tax compliance increase corporate income tax compliance more than fines imposed on corporates themselves. Further, both perceptions of retributive and procedural justice and lower tax compliance costs can be positively related to tax compliance. Finally, it has been found that a relationship between retributive justice and tax compliance may depend on levels of respondents' perceptions of procedural justice.

1.3   An Overview of Theoretical Foundation and

Literature Review

A considerable amount of literature has been published on tax compliance behaviour. The first analysis of the tax compliance behaviour model was done by Allingham and Sandmo (1972) and Srinivasan (1973). The model is generally known as an economic or deterrent tax compliance model or theory. The model considers an individual taxpayer who has exogenous income and who is faced with a taxable income declaration decision. The taxpayer can report from zero to the true level of taxable income. Furthermore, the tax liability is only computed on the disclosed income. So the tax liability grows with an amount of income reported. However, the taxpayer might be penalised if the covered income is detected by a tax authority. The detection rate depends on an audit rate which is known by both a taxpayer and a tax authority. The audit rate refers to chance that a tax authority may select a taxpayer for tax audit (Allingham and Sandmo, 1972).

Given a taxpayer's true income, and known tax rate, audit rate and penalty rate the taxpayer is assumed to be maximising his / her utility function when deciding how much to or not to report to a tax authority. Additionally, the model assumes that the taxpayer is a risk averse; complying when expected tax non-compliance costs is at least equal to expected benefits from tax non-compliance.

Accordingly, this model suggests that tax non-compliance, particularly tax evasion could be solved only by increase both tax penalties for tax non-compliance and audit rates while reducing tax rates (Allingham and Sandmo, 1972; Srinivasan, 1973). Because, the increase in tax penalties increases the expected costs of tax non-compliance whereas increasing the audit rate

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increases the chance of uncovering covered income; when these variables are simultaneously increased tax non-compliance becomes more expensive. Conversely, decrease in a tax rate, both reduces the expected benefit of tax non-compliance and increases the income retained by a taxpayer. However, the model fails to show clearly how change in income level may affect tax compliance behaviour (Allingham and Sandmo, 1972; Yitzhaki, 1974). For instance, Allingham and Sandmo, (1972) found changes in income level can increase income reported when the relative risk of aversion is an increasing function of income, while the same changes of income may decrease income reported when the relative risk of eversion is a decreasing function of income.

Yet, several researchers expanded the economic tax compliance model as will be discussed in Chapter 2. However, only a few researchers have examined how this individual model can be used in a corporate setting (Chen and Chu, 2005; Crocker and Slemrod, 2005; Lipatov, 2012). One area of interest has been whether changing corporate income tax penalty incidence from managers to corporates or vice versa has any impact on corporate tax compliance behaviour. In fact, Lipatov (2012) theoretically showed that corporate income penalties imposed on the corporates rather than on managers is advantageous. Yet, Crocker and Slemrod (2005) in another theoretical study discovered that charging corporate income tax penalties on managers instead of corporates is beneficial. This theoretical disagreement misses empirical evidence to substantiate the effect of corporate income tax penalty incidence on corporate tax compliance.

Despite this growth of this model, it has been criticised over emphasising on an income tax penalty rate, and an audit rate (Alm and Torgler 2011) and a tax rate as major determinants of tax compliance. Because, tax compliance levels have been found to be high regardless of small audit rates, and therefore, the

deterrence theory fails to give a full explanation of tax compliance behaviour of taxpayers (Andreoni *et al.*, 1998; Alm, 1999; Torgler, 2002; Torgler, 2005; Alm and Torgler 2011).

Consequently, there has been great effort in looking at alternative explanations of tax compliance behaviour. This effort has culminated in the discovery of other determinants of tax compliance mainly known as non-economic or psychological factors (Jackson and Milliron, 1986; Alm *et al.*, 1995; Fjeldstad and Semboja, 2001; Frey and Torgler, 2007).

According to a study by Chau and Leung (2009) these factors can be summarised into four groups: the first group includes demographic variables which include age, gender and education. The second group includes tax non-compliance opportunities as income source and types of occupation. The next group includes the tax system / structure characteristics, namely complexity of the tax system. Finally, the fourth group includes taxpayers' attitudes and perceptions of fairness of the tax system (procedural, retributive, vertical, horizontal and fiscal exchange justice), culture and peer influence.

Nevertheless, to date there has been little focus on how procedural and retributive justice relates to tax compliance behaviour. Similarly, many studies have focused mainly on measuring tax compliance costs and studying their nature rather than focusing on how tax compliance costs affect tax compliance behaviour.

1.4 Justification for Research

Answering the foregoing research questions and objectives, the thesis has nine contributions. First, many studies in the field of tax compliance have only focussed on the impact of tax penalties on tax compliance on individual

taxpayers rather than corporate taxpayers (see Chapter 2 and 4 for more details). In fact, a few researchers have theoretically investigated how the presence of legal entities in a corporate setting and separation of ownership may affect the relationship between tax penalties and tax compliance (Crocker and Slemrod, 2005; Lipatov, 2012); their findings are conflicting and are based on theoretical arguments. Hence, the thesis attempts to reconcile these contradicting results by testing how corporate tax penalty incidence may affect tax compliance level in a laboratory experiment.

Second, taken together the limited research on retributive justice in the tax compliance literature has compared the perceptions of taxpayers of seriousness of crimes, including tax non-compliance (see Chapter 5). However, how retributive justice relates to tax compliance behaviour remains under-researched. Further procedural justice research in tax compliance areas is scarce. Uncovering, how procedural and retributive justice on one hand and tax compliance on the other are related is important to tax authorities when setting and imposing tax penalties.

Third, although extensive research has been carried on tax compliance costs, according to my best knowledge no single study exists which investigated how tax compliance costs affect tax compliance level, instead the focus is traditionally on estimating tax compliance costs. Tax compliance costs are those costs paid by taxpayers necessary to ensure compliance with tax laws (Sandford and Hardwick, 1989). Understanding this relationship is important, especially when countries are attempting to include SMEs and informal sectors in tax bases, because, the burden of tax compliance costs decreases with an increase in firms' sizes indicated by assets or turnover (Evans, 2003).

Fourth, as said before the majority of research on the tax compliance focus on

individual taxpayers, therefore, this study adds to limited corporate income tax compliance research.

Fifth, the thesis puts together previously dispersed tax research methods: experiments, survey methods, and archival data, which are mainly used in studying tax compliance areas. Further, it evaluates each method and suggests when a particular method might be useful (see Chapter 4).

Sixth, it synthesises corporate tax compliance literature, individual tax compliance literature, and a shadow economy, a complication of tax laws and tax compliance costs literature. Synthesis of tax compliance literature of this size is rarely done.

Seventh, it has a methodological contribution as in both of the experiments in Chapter 4 and Chapter 6 tax terminologies have been used to increase the external validity of the results. As many laboratory experiments have not used tax terminologies to increase the internal validity of their results (Alm, 2010). Internal validity refers to the ability of an independent variable to influence changes in a dependent variable (Smith, 1982). Tax terminologies refer to words directly associated with tax compliance, for instance, referring to tax payments instead of contribution and tax audit instead of scrutiny (Alm *et al.*, 1992d; Alm, 2010).

Eighth, as will be discussed in the Chapter 2, tax compliance literature from developing countries is still scarce, so conducting a tax compliance study in Tanzania has contextual contributions.

Finally, results from this thesis will be useful to tax policy makers and tax administrations while devising tax compliance strategies to increase tax compliance as well as it serves as a keystone for future research.

1.5   Research Methods

With the exception of a research objective (f) above which was addressed using a desktop research method, the remaining research objectives were answered using primary data and quantitative approaches. Particularly, to examine the impact of a corporate income tax penalty incidence on corporate income tax compliance, a laboratory experiment with 100 students was run[1]. A laboratory experiment was chosen to study a causal and effect relationship between tax compliance and a corporate income tax penalty incidence (Alm, 1991; Mitchell and Janina, 2013). Additionally, analysis of variance (ANOVA) technique was employed in the analysis of this data.

Similarly, to analyse the effect of corporate income tax compliance costs on SMEs tax compliance behavior, 75 SMEs managers participated in another laboratory experiment for the same reason as above and the data were analysed using ANOVA. Finally, 300 SMEs were surveyed in an endeavor to investigate whether tax penalties perceived as being fair and following fair procedures when imposing those penalties encourage tax compliance. The survey method is appropriate in studying attitudes and perceptions of taxpayers (Torgler and Schneider, 2007; McGee *et al.*, 2008; Alm and Torgler 2011) and provides rich demographic and social economic data of taxpayers (Alm and Torgler 2011). However, survey studies might not claim a causal and effect relationship (Mitchell and Janina, 2013). Lastly, three hierarchical regressions were conducted to analyse the survey data after reducing and summarising the raw data with the help of principal component analysis (PCA).

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[1] The initial plan was to use actual SME managers. However, after arranging the laboratory experiment an insufficient number of managers attended.

1.6   SMEs' Corporate Income Tax System in Tanzania

Tanzania Revenue Authority (TRA) is responsible for administering corporate income tax collections among other taxes. Specifically, corporate income tax is payable on self-assessment, but all corporate taxpayers are required to have their tax returns signed by tax consultants (*The Income Tax Act*, 2004). Also, corporates are still financially penalized when they do not comply with income tax laws. A corporation is any company, incorporated or unincorporated association of persons excluding partnership (*The Income Tax Act*, 2004). From this definition, corporate taxpayers include corporate of all size (small, medium and large). Thus, corporate SMEs and large corporates are grouped in one group. However, this thesis considers corporate SMEs taxpayers who have corporate status as previous defined. Tanzanian corporate SMEs have to keep complete records regardless of their annual sales levels, which may increase their tax compliance costs. However, the authority is reducing tax compliance costs by increasing usage of information technology for filing tax returns online and paying taxes using mobile banking; therefore, saving time and money of taxpayers.

However, in terms of retributive and procedural justice all taxpayers (including corporate SMEs) follow the same appellate systems which include: the Tax Revenue Appeals Board, Revenue Appeals Tribunal and the Court of Appeal, in addition to the Tanzania Revenue Authority which charges tax penalties and interest for tax non-compliance (*The Tax Revenue Appeal Act,* 2006). Also, they can appeal to the appellate systems when the taxpayers disagree with the Tanzania Revenue Authority (*The Tax Revenue Appeal Act,* 2006). Moreover, Tax Revenue Authority is currently attempting to improve retributive and

procedural justice by publishing tax audit process and tax appeal process on its website.

1.7   Delimitations and Scope

The main objective of this thesis was to examine SMEs' corporate income tax compliance. A review of the tax compliance literature suggested that tax compliance can be predicted by both economic and psychological factors (Kirchler *et al.*, 2008). As it can be seen in the second chapter, economic factors may include: tax income, tax rates, tax penalties, audit rates and economic incentives offered to compliant taxpayers. Inversely, psychological factors may consist: demographical variables of taxpayers or representatives of taxpayers, fairness consideration: procedural, vertical, horizontal, fiscal exchange and retributive justice, social norms, complexity of tax laws and tax compliance costs. It is also possible that SMEs' corporate income tax compliance may be reduced by complexity of tax laws, when complexity of tax laws leads to unintentional tax non-compliance.

However, because the majority SMEs are said to be non-compliant (Arachi and Santoro, 2007), they are more likely to be victims of corporate income tax penalties imposed by tax authorities. It is important to know which corporate income tax penalty incidence is effective in increasing SMEs' corporate income tax compliance. Also, it is paramount to investigate whether imposing corporate income tax penalties which fit the crime and in conformity with procedural justice might reduce tax non-compliance. Moreover, corporate income tax compliance costs were included because of its nature; it bears badly on SMEs than on larger taxpayers. Finally, the research deals with corporate income because of scarcity of corporate income tax compliance literature. Chapter seven explains limitations of the study in detail.

1.8 Outline of the Thesis

The overall structure of the thesis takes the form of seven chapters, including introduction and conclusion chapters. Chapter 2, 3, 4, 5 and 6 are presented in the form of independent papers, but tax compliance is the central theme of them all. This section introduces the arrangement and content of the seven chapters as follows.

Chapter 1: Introduction explains the research problem, research objectives, research questions, and it provides an overview of tax compliance literature. Furthermore, it presents a brief discussion of research methodologies, delimitation of the study, an outline of the thesis and significance of the thesis.

Chapter 2: Tax Compliance Puzzle presents a synthesis of tax compliance literature, and identifies research gaps. Specifically, it reviews the expected utility theory, behavioural and psychological models, and applications of economic and non-economic factors in the corporate setting, complexity of tax laws, shadow economy and it presents a model explaining a tax compliance puzzle. The tax compliance puzzle is concerned with why taxpayers comply with tax laws more than they should do as predicted by tax enforcement strategies (Alm *et al.*, 1992d).

Chapter 3: Tax Compliance Research Methods: Past, Present and Future Challenges discusses various tax compliance research methods focusing on advantages and disadvantages of the research methods and suggesting where a particular method may be more appropriate.

Chapter 4: Does the Corporate Income Tax Penalty Incidence Matter? presents experimental investigation about the effectiveness of corporate income tax penalties imposed on individual managers and corporates in case of corporate

income tax evasion. In general charging corporate income tax penalties on managers significantly increases levels of compliance compared to penalties imposed on corporations.

Chapter 5: Analysis of Procedural and Retributive Justice in Tax Compliance contains cross sectional research about whether procedural justice moderates the relationship between retributive justice and tax compliance, and an examination of individual effects of procedural and retributive justice on tax compliance. It presents evidence suggesting that strengthening both procedural and retributive justice should increase tax compliance. Furthermore, the results suggest that tax compliance would increase with perceptions of retributive justice of tax penalties when the perceptions of procedural justice is high or moderate, but when the perceptions of procedural justice is low, tax compliance might decrease with an increase in retributive justice.

Chapter 6: The Impact of Tax Compliance Costs on Tax Compliance examines the impact of tax compliance costs on SMEs' tax compliance levels experimentally. Taken together, these results suggest that high levels of tax compliance costs do have a negative effect on a tax compliance level.

Chapter 7: Conclusions discusses the empirical findings, the theoretical and policy implications of the thesis's findings. Also, it presents limitations and contributions of the thesis and identifies future research areas.

1.9 Conclusion

This chapter explains the basis of the thesis. Because, it explained the research problem, research objectives, research questions to be answered and it provided an overview of the tax compliance literature. Furthermore, it presented a brief discussion of research methodologies, delimitation of the study, an outline of research and significance of research. Based on this chapter, subsequent chapters extend the research problem in details.

Chapter 2: Tax Compliance Puzzle

Abstract

Tax compliance puzzle is why taxpayers comply with tax laws because actual tax compliance levels are higher than expected using existing tax compliance models. Additionally, taxpayers respond to tax compliance enforcement strategies inconsistently. This chapter reviews tax compliance factors to explain the tax compliance puzzle. The prevailing evidences suggest the tax compliance puzzle can be explained by the behaviour of older and female taxpayers, high tax morale, positive social norms, overstatement of audit rates, lack of tax non-compliance opportunities and errors resulting in high tax compliance. Finally, the chapter identifies future research venues; which may complete tax researchers' understanding of the tax compliance puzzle.

Keywords: tax avoidance, tax compliance, tax evasion, tax morale

2.1　Introduction

Tax compliance is important for provision of public services because without adequate tax revenue the quality of public services may deteriorate. Tax compliance means fulfilling taxpayers' obligations (Kirchler, 2007). Yet having enough tax revenue is a problem facing many countries because of tax evasion and avoidance. Tax evasion is a deliberate illegal act intended to reduce someone's tax liabilities while, actions taken to achieve a legal reduction of tax liabilities is tax avoidance (Alm, 1999; Slemrod, 2007). Also tax compliance may be more important today than before because many countries are tackling budget deficits. Moreover, tax compliance is important in achieving fairness and enhancing resource allocation (Alm, 1999).

Consequently, tax authorities should be able to explain the tax compliance puzzle: according to Alm *et al.* (1992d) the puzzle is why taxpayers comply with tax laws because tax compliance levels exceed expected compliance levels. However, answering that the question "requires a full house of theories, each explaining the behaviour of different individuals at different times" (Alm 1999:32). Subsequently, a comprehensive review of tax compliance literature is required to build the full house of tax compliance theories. Further, new evidences about tax compliance behaviour are growing and need to be integrated into a model of tax compliance behaviour (Kirchler, 2007). Additionally, previous reviews are mainly limited to individual tax compliance, for instance, reviews by Andreoni *et al.* (1998), Alm (1999) and Kirchler *et al.* (2008). Therefore, this article synthesises corporate tax compliance literature, individual tax compliance literature, and a shadow economy, complexity of tax laws and tax compliance costs literature. Along the way, policy implications are discussed.

Moreover, this prior literature was searched from academic databases as Google scholar, web of science, reference lists of articles, research journal database, library catalogue of University of Southampton and individual electronic research journals. The search included terms as: 'tax compliance', 'tax compliance research', 'tax complexity', 'tax compliance costs', 'corporate income tax compliance', 'shadow economy', 'cause of shadow economy', 'economic and non-economic tax literature', 'SMEs tax compliance', 'review of tax compliance research' and others.

Also, reference list provided in a book by Kirchler (2007), were concerted and annotated bibliographies of tax compliance research (Evans, 2003; Ahmed *et al.*, 2005; James and Edwards, 2010). Besides, currency, objectivity of authors, accuracy of research evidenced by peer review articles, and relevance of article to tax compliance areas identified before were factors used to select previous literature.

Section 2.2 discusses expected utility theory. Section 2.3 reviews the behavioural and psychological models. In section 2.4 applications of economic and non-economic factors in the corporate setting are examined. Section 2.5 covers complexity of tax laws and section 2.6 looks at tax compliance costs. Also section 2.7 covers shadow economy, section 2.8 presents a model explaining a tax compliance puzzle, and finally section 2.9 concludes.

2.2   Expected Utility Theory

The theory considers an individual taxpayer who is rational, risk averse and has a cardinal utility function (Allingham and Sandmo, 1972; Srinivasan, 1973). The cardinal utility function assigns utilities in numbers enabling an individual to measure the utilities as income) (Van and Bernard, 1991). The rational

individual is able to select the best option to maximise the utility function (Tversky and Kahneman, 1986). While the risk averse individual prefers certain but small to uncertain but high returns (Kahneman and Tversky, 1979).

The theory also assumes the individual's income is unknown to a tax authority, and the individual is faced with an income declaration problem, given a tax rate, an audit rate, and a penalty rate. The theory is communicated as:

Maximise E[U] = [1 – P]U(W – TX) + PU[W – TX – B(W – X)]

Where E[U] = expected utility, P =audit rate, X = reported income, W = actual income, B = penalty rate and T = tax rate.

Accordingly, the theory takes tax compliance decision as a portfolio problem comparing benefits and cost of tax non-compliance to maximise the utility function. However, the impact of these factors on a tax compliance decision is inconclusive and the following section summarises research findings on these factors.

2.2.1 Tax Audit Rates

Many studies reported that audit rates and tax compliance are positively related (Dubin *et al.*, 1987; Dubin *et al.*, 1990; Kamdar, 1997; Fjeldstad and Semboja, 2001). Indeed, Dubin *et al.* (1990) found a decrease in tax audit rate significantly reduced tax compliance, and estimated that without reducing the audit rate in 1997, the US' tax revenue would have raised by $15 billion. Similarly, Kamdar (1997) discovered audit rates were significant positively associated with the level of corporate tax compliance.

However, Andreoni *et al.* (1998) observed a weak relationship between tax compliance and tax audit rates. The weak impact of an audit rate on tax compliance can somehow be attributed to institutional uncertainty.

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Institutional uncertainty occurs when tax, audit and penalty rates are not certainly known by taxpayers (Alm *et al.*, 1992b). Research mainly agrees that tax non-compliance declines with an increase in certain audit rates (Alm and McKee, 2006; Appelgren, 2008; Kleven *et al.*, 2011). Alm and McKee (2006) discovered tax compliance rates significantly increased when participants knew with certainty they were going to be audited, while tax compliance rates significantly dropped when participants were told they would not be audited. Subsequently, since almost all tax authorities do not announce their audit rates the observed tax compliance tax rates might not follow the economic theory.

Still, certain audit rates may affect taxpayers with different levels of income differently because income may determine taxpayers' ability to pay for tax preparers' services. Specifically, in a controlled field experiment which alerted taxpayers that their tax returns would be closely examined found the low and middle income taxpayers declared more income despite having tax non-compliance opportunities, while wealthy taxpayers lowered their tax compliance levels (Slemrod *et al.*, 2001). Ineffective tax audit programmes might have caused wealthy taxpayers to decrease their tax compliance levels (Slemrod *et al.*, 2001). However, field experiments cannot control many factors affecting tax compliance behaviour; for instance, large taxpayers are more highly regulated, and more likely to be required to keep complete accounting records than small ones hence large taxpayers may have nothing to add as a result of audit threat.

Nevertheless, an analysis of individual taxpayers' data showed audit rates increased tax compliance rates, but a greater impact of audit rates were discovered in high income earners, though, at a depreciating rate (Ali *et al.*, 2001). This finding is inconsistent with the result by Slemrod *et al.* (2001), may

be because Ali *et al.* (2001) used data comprising of audited tax returns which are not likely to be representative of self-employed taxpayers, because Andreoni *et al.* (1998) reported that selection for audit is mainly done after suspicion of tax non-compliance. This non-random selection of taxpayers for auditing purpose may cause samples selected to be not representative of population they are drawn from (Mitchell and Janina, 2013). Furthermore, archival data uses uncertain audit rates as tax authorities conceal them.

Yet, Cadsby *et al.* (2006) observed that a reduction of a certain audit rate from 25% to 1% did not reduce tax compliance levels significantly. However, taxpayers overstate small actual audit rates so actual audit rates used in experiment studies for example, may not be important but perceived audit rates are (Alm *et al.*, 1992d). Also, some research has indicated certain audit rates might not improve tax compliance because taxpayers may consult tax preparers to avoid taxes (Alm *et al.*, 1992b; Ariel, 2012). Importantly, Ariel (2012) tested the effectiveness of audit rates on corporate value added tax compliance behaviour and discovered a tax compliance level of the control group was not significantly different from the experimental group.

Similarly, 99.7% of income that could be verified by third party information was reported after communicating audit rates, compared to only 63% of income which could not be independently verified (Kleven *et al.*, 2011). Consequently, lack of cheating opportunities can also explain a tax compliance puzzle (Slemrod, 2007; Kleven *et al.*, 2011).

On the other hand, actual auditing can increase or decrease future tax compliance. Previous studies have revealed experience of being audited can improve subsequent tax compliance (Tversky and Kahneman, 1974; Spicer and Hero, 1985). Spicer and Hero (1985) found a significant positive impact of

actual audit on future tax compliance. Also Tversky and Kahneman (1974) associated the increase in future tax compliance with a heuristic effect of tax audit. By heuristic they meant that taxpayers are unable to predict perfectly a value of future tax audit rate because of its uncertainty; this failure increases tax compliance when perceived audit rates are overstated.

Additionally, a proper timing of auditing may improve its positive impact on future tax compliance. Guala and Mittone (2005) discovered participants were more compliant when they were audited in early than late rounds. Guala and Mittone (2005) audited participants either in the first or last 30 rounds; the experiment had over 60 rounds in total. Participants who were audited in the first 30 rounds, portrayed high tax compliance rates throughout the experiment even in the last 30 rounds where they were not audited (Guala and Mittone, 2005). While participants who were audited in the last 30 rounds did no improve their compliance levels despite being audited (Guala and Mittone, 2005). May be early audits rise perceptions of tax authorities' tax audit effectiveness. Accordingly, the authorities can increase tax compliance by auditing taxpayers immediately after registration.

Nonetheless, the bomb crater effect is one of the negative impacts of actual audit on future tax compliance. The bomb crater effect refers to soldiers who hide in a bomb crater believing subsequent bombs might not hit the same place (misperception of chance) (Guala and Mittone, 2005). So the bomb crater effect suggests misperception of chance causes tax non-compliance immediately after being audited, whereas continuous audits kept compliance rates high despite whether participants were penalised or not (Guala and Mittone, 2005; Maciejovsky et al., 2007; Kastlunger et al., 2009). However, Maciejovsky et al. (2007) found participants declared less income after being

audited and slowly increased their tax compliance levels thereafter. Thus the misperception of chance decreases overtime.

Likewise, the quality of actual tax audit might cause decline in future tax compliance. When tax audit is insufficiently planned it might increase taxpayers cheating as failure to discover tax non-compliance practices lowers the risk of detection (Tversky and Kahneman, 1974). Therefore, tax authorities must strengthen their audit schemes to uncover substantial tax non-compliance practices. This improvement of tax audit may focus on the use of third party information and tax auditors training.

In summary many studies propose tax authorities can increase tax revenue by increasing audit rates. However, the increase requires significant resource commitment, with the determination of optimal audit rate remaining a question for future research.

2.2.2   Tax Penalties

Evidence shows that income tax penalty rates induce high tax compliance rates (Klepper and Nagin, 1989b; Park and Hyun, 2003). Results from laboratory experiments indicated tax penalty rates positively affected tax compliance (Park and Hyun, 2003). Nonetheless, in such experiment the penalty rates ranged from 3 to 5 times unpaid taxes which might be too high. Additionally, the study involved 15 participants only, so random errors might affect the findings (Mitchell and Janina, 2013). The positive impact of penalty rates on tax compliance is related to taxpayers' unwillingness to pay high penalties (Kahneman and Tversky, 1979; Dhami and al-Nowaihi, 2007).

But, some literature has found opposite results (Webley, 1987; Kamdar, 1997; Cadsby *et al.*, 2006). To illustrate, Webley (1987) investigated how income tax penalty rates relate to tax compliance and discovered income reported was insignificantly affected by income tax penalties of 2 and 6 times an unpaid amount. Correspondingly, tripling the tax penalty rate of 50% of unpaid taxes, tax compliance level could not improve significantly (Cadsby *et al.*, 2006).

Conclusively, because income tax penalties are imposed only after detection of tax evasion, a correct combination between audit and penalty rates is required to enhance compliance (Alm *et al.*, 1995). Tax administration can also benefit from investigative media and whistle blowers to uncover tax frauds. It is interesting if researchers study how tax authorities can effectively use these methods of detection which might be even cheaper than ordinary tax audits. Consequently, the effect of tax penalties on tax compliance may increase.

2.2.3   Marginal Tax Rates

The marginal tax rate plays a significant role in tax compliance. Koskela (1983) and Yitzhaki (1974) argued for a positive impact of the tax rate on tax compliance, because the costs of tax non-compliance increase as tax rates rise when income tax penalty is a function of unpaid taxes. But, many researchers have shown high tax rates adversely affect tax compliance (Friedland *et al.*, 1978; Clotfelter, 1983; Ali *et al.*, 2001). Clotfelter (1983) analysed individual tax returns and found tax non-compliance increased as income tax rates were raised. Nevertheless, Clotfelter (1983)'s analysis excluded an audit rate; its exclusion may have affected the result because the audit rate is positively correlated with reported income as seen previously. Equally, Friedland *et al.*

(1978) revealed that after raising the tax rate from 25% to 50% the amount of concealed income almost doubled.

Three reasons can explain why tax compliance decreases with an increase in tax rates. First, taxpayers may compensate the loss of income from the increase in tax rates (Park and Hyun, 2003). Second, a penalty for tax non-compliance might be mild compared to the current benefit of tax non-compliance after tax rate increases (Park and Hyun, 2003; Cadsby *et al.*, 2006). Consequently, Cadsby *et al.* (2006) suggested that increase in tax rates should be accompanied by an increase in tax penalty to discourage tax non-compliance. Finally, benefits of tax non-compliance rise with tax rates (Allingham and Sandmo, 1972). In conclusion, high tax rates appear to weaken tax compliance, so governments should charge acceptable tax rates or adopt other compliance strategies as raising audit rates to reduce the loss of revenue after tax rate increases.

2.2.4 Income Levels

The relationship between income level and tax compliance is mixed. An experiment by Anderhub *et al.* (2001) indicated that high income earners tend to be less compliant than low income earners. However, the results could have been different if the researchers had not used fixed penalty level across all participants, with its regressive nature; participants with high income may evade more as the penalty rate was not positively correlated with unpaid taxes (Yitzhaki, 1974).

Nevertheless, tax compliance level can vary positively with income level (Rice, 1990; Alm *et al.*, 1992c). For instance, Alm *et al.* (1992c) reported a positive relationship between income level and tax compliance. Similarly, Rice (1990)

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claimed low income earners might attempt to improve their income by paying less tax. Yet Park and Hyun (2003) found participants reported almost the same amount of income despite having different levels of income.

Given limited research it is hard to predict how taxpayers' income level affects tax compliance behaviour. Intuitively it can be said that low income earners may cheat more because taxes can cause financial difficulty while larger income earners may cheat because of progressive taxes. Consequently, tax authorities should pay more attention to larger taxpayers as they are likely to contribute much of tax revenue in a progressive tax system but the progressive system may cause them to cheat. Finally, middle income earners might have the mixture of behaviour indicated above. However, these intuitions cannot be substantiated without further research to enable clear policy decisions.

2.2.5   Positive Rewards

While non-compliant taxpayers face tax penalties, compliant taxpayers in a few countries, for instance, Tanzania are being rewarded. So, positive rewards are closely related to economic tax compliance theory, though, not all rewards are in monetary terms. Indeed, the psychologist, Skinner (1958) advocated positive rewards to strengthen desirable behaviour. In tax areas desirable behaviour is tax compliance.

Truly, positive rewards can induce tax compliance behaviour (Falkinger and Walther, 1991; Alm *et al.*, 1992a; Torgler, 2003a). Falkinger and Walther (1991) suggested rewarding compliant taxpayers can influence tax compliance behaviour under two conditions. First, the reward should be small just showing an appreciation of good behaviour otherwise it may be discounted by

taxpayers. Second, eligibility for the reward should base on consistent tax compliance avoiding taxpayers who initially underreport income then report correctly. Furthermore, Alm *et al.* (1992a) added, rewards should be given immediately to have significant impact. Moreover, Torgler (2003a) discovered the highest compliance rate came from two groups which were rewarded Colones[2] 500 and 1000, respectively, though only 7 participants were used in this treatment.

Largely, the relationship between positive rewards and tax compliance is under researched despite its importance. Positive rewards can induce tax compliance at low costs because taxpayers themselves may voluntarily pay taxes. Future research may inform us to what extent positive rewards can be an alternative tool of tax compliance enforcement strategies. Further, it is unknown whether financial and non-financial rewards have similar impacts on tax compliance. Also, researchers in the future may find selection criteria for awarding compliant taxpayers which first encourage voluntary tax compliance and second increase tax revenue.

2.3   Behaviour Models

While the economic theory mainly views tax compliance as a function of external stimuli, behavioural models consider tax compliance originating within taxpayers. Behavioural models have identified several factors which are important in understanding tax compliance behaviour. This section summarises those variables.

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[2] Colon is a national currency of Costa Rica.

2.3.1   Justice

Tax compliance literature has categorised tax justice into distributive, procedural and retributive justice. Distributive justice occurs when there is an equitable exchange of resources between governments and taxpayers or fair sharing of tax burden and government provided goods among taxpayers (Wenzel, 2002; Kirchler, 2007). Accordingly, distributive justice is sub-divided into fiscal exchange, vertical and horizontal justice. Fiscal exchange justice occurs when governments provide goods and services to taxpayers in return for their taxes (Wenzel, 2002; Kirchler, 2007). While, vertical justice refers to differential treatments among taxpayers with different ability to pay and finally, horizontal equity requires similar treatments of taxpayers with equivalent purchasing power (Adams, 1965; Kinsey and Grasmick, 1993).

Retributive justice occurs where there is an acceptable imposition of appropriate penalties on lawbreakers relative to their crimes with the aim of reinstatement of fairness, prevention, and to deter future offences (Wenzel and Thielmann, 2006; Wenzel *et al.*, 2008). Lastly, procedural justice occurs where there are fair procedures of allocating public-produced goods and tax burden (Thibaut and Walker, 1978; Leventhal, 1980). A fair procedure applies the same procedures to all taxpayers overtime, unbiased, with high accuracy, has a clear appeal process, high participation and guided with ethical consideration (Leventhal, 1980).

2.3.1.1 Horizontal Justice and Tax Compliance

A good tax system considers abilities of taxpayers, because tax non-compliance might be a function of perceived horizontal injustice (Dean *et al.*, 1980; Spicer and Becker, 1980; Kinsey *et al.*, 1991). For instance, Spicer and

Becker (1980), manipulated perceptions of identical tax rates, by telling participants tax rates were average, lower or higher. The results showed participants who were informed their tax rates were lower portrayed the highest compliance level, while those who believed that their tax rates were higher cheated more, while those who were told that their tax rates were average had moderate compliance level (Spicer and Becker, 1980).

However, a study by Webley *et al.* (1988) conducted two experiments where prices, spending, and varying tax free allowances called lower, equal and higher than average were manipulated, found no relationship between tax compliance and horizontal equity. This result is inconsistent with that of Spicer and Becker (1980) who manipulated perceptions of tax rates while Webley *et al.* (1988) manipulated tax free allowances. Furthermore, the tax payment context used by Spicer and Becker (1980) differed from the shopping context of Webley *et al.* (1988); in the latter people choose which goods to buy or where to buy, but in the former tax is compulsory so participants might have brought in their real life experience in the experiments.

2.3.1.2 *Vertical Justice and Tax Compliance*

A perception of vertical injustice may reduce tax compliance (Kinsey *et al.*, 1991; Roberts and Hite, 1994; Braithwaite, 2003). To demonstrate, Kinsey *et al.* (1991) investigated the impact of Tax Reform Act 1986 in the US using three studies: taxpayers' attitude towards tax compliance was tested in the first study; the second and third study examined taxpayers' future tax evasion intentions. The comparison of survey responses between pre and post publication of the act revealed taxpayers who perceived vertical justice were more likely to be compliant.

Nevertheless, Saad (2010) found taxpayers can comply even when a tax system is perceived to be vertically unfair since taxpayers comply because of fear of tax penalties and audit. However, the sample used may be unsuitable because workers have no opportunities to evade due to the withholding system. It is reasonable to consider that the participants' experience of complying with the withholding system may have influenced their responses to the impact of fairness. Therefore, the existence of vertical inequity in a tax system may indeed reduce tax compliance. Yet a challenge exists on setting appropriate progressive tax rates as dramatic rise in tax rates may increase tax non-compliance.

2.3.1.3 Fiscal Justice and Tax Compliance

Fiscal exchange fairness might change attitudes of taxpayers toward tax compliance. Tax compliance may increase when taxpayers perceive fair fiscal exchanges (Spicer and Lundstedt, 1976; Porcano, 1988; Bordignon, 1993). Spicer and Lundstedt (1976) revealed a negative relationship between tax compliance and fiscal exchange injustice, so argued quality produced public goods and services may raise tax compliance. Similarly, Porcano (1988) found unfair fiscal exchange might have a positive correlation with tax non-compliance

But taxpayers may perceive fiscal exchange justice differently. An experimental study showed participants who considered fiscal equity as a significant factor declared more income than those who viewed it as an unimportant factor in compliance decisions (Kim, 2002). However, the experiment did not consider a saliency criterion because all participants were paid Lira 10,000 for participation. The saliency criterion requires experimental participants to be paid according to their performance, for instance, if a person evades but is not

audited, they should get the benefit of evasion, but when cheating is detected they bear the costs of evasion as in real life (Smith, 1982).

Furthermore, the fiscal injustice decreases tax compliance by lowering tax morale (Bordignon, 1993). Tax morale describes individuals' inclinations towards tax compliance; this inclination may not be subject to approval or disapproval by others (Alm and Torgler, 2006). Consequently, it might be worth for governments explaining how tax money is spent perhaps through media, taxpayer education programmes, and billboards. It is valuable to get empirical evidence to what extent these programmes enhance tax compliance.

2.3.1.4 Retributive Justice and Tax Compliance

Both compliant and non-compliant taxpayers consider retributive justice. Compliant taxpayers demand punishment of non-compliant taxpayers; conversely the non-compliant taxpayers are worried about the fairness of tax penalties relative to their crimes (Wenzel, 2002). Subsequently, a tax authority may be tempted to charge a small tax penalty in the name of fairness, but the small tax penalty may not discourage non-compliant behaviour (Stella, 1991). On the other hand, an imposition of harsh tax penalty may discourage non-compliant behaviour (Stella, 1991), but courts may consider harsh tax penalty inequitable (Slemrod, 2007). Further, even when severe penalties are implemented they may be seen unfair and discourage future compliance (Wenzel *et al.*, 2008).

A few researchers have considered retributive justice in the tax compliance area. Generally, results showed taxpayers do not perceive tax non-compliance as a serious crime (Vogel, 1974; Song and Yarbrough, 1978; Evans and Kelley, 2001; Burton *et al.*, 2005). For instance, Burton *et al.* (2005) surveyed the

perceptions of tax crimes, including tax evasion in the US and discovered tax evasion and violation of a minimum wage law were ranked in the same group in term of severity, well below welfare fraud, inside dealing, child labour and accounting fraud. Warr (1989) suggested perceptions of seriousness of a crime depends on how the crime affects a person directly, so as tax non-compliance does not affect individuals directly it is likely to be seen as mild offence.

Furthermore, perceptions of retribution justice might be affected by taxpayers' financial position, and level of government revenue. Kaplan *et al.* (1986) manipulated financial positions and public services, revealed that taxpayers might feel victimised after being punished for tax non-compliance when they had financial problems when complying. Moreover, the researchers found participants recommended severe penalties when public services were perceived to be in high demand. These results imply taxpayers sometimes rationalise their actions.

Besides, tax amnesties need to be considered in the context of retributive justice because the latter demands punishment for tax non-compliance, however, pardoning them is against the concept of retributive justice. Conversely, a tax amnesty may have both negative and positive impacts on tax compliance behaviour. While, the prospect of tax amnesty may encourage tax non-compliance (Andreoni, 1991; Stella, 1991), raising audit and tax penalty rates when granting a tax amnesty can prevent a fall in tax compliance (Stella, 1991; De Koker, 2007). Further, compliant taxpayers can perceive a tax amnesty as an injustice and reduce their compliance (Andreoni, 1991; Hasseldine, 1998). Nonetheless, a tax amnesty might increase revenue from non-compliant taxpayers (Andreoni, 1991).

In general, it is too early to provide any useful policy implication on this aspect; further work is needed as all tax authorities rely on tax penalties as a last alternative method to increase tax compliance.

2.3.1.5 Procedural Justice and Tax Compliance

There is little evidence that procedural justice improves tax compliance (Alm *et al.*, 1993; Feld and Frey, 2002; Feld and Frey, 2007; Verboon and van Dijke, 2011). For instance, when participants were allowed to choose tax penalties for tax non-compliant participants the participants complied more than when tax penalties were imposed (Feld and Frey, 2002). Consequently, procedural fairness improves tax compliance by strengthening tax authorities' legitimacy (Verboon and van Dijke, 2011).

Thus these findings call for great scrutiny of how tax authorities and parliaments relate. Generally, parliaments have power to influence on distribution of tax burden by enacting tax laws, and approving and discussing government budgets, which includes provisions of public goods and services. It is unclear how tax authorities influence parliaments' decisions especially on these two things, which may affect tax authorities' ability to collect tax revenue.

2.3.2   Demographic Factors

2.3.2.1 Gender and Tax Compliance

Women and men taxpayers comply differently. Women comply more than men (Chang *et al.*, 1987; Cadsby *et al.*, 2006; Alm *et al.*, 2010b). This tendency may be because women are more risk averse than men (Bordignon, 1993). However,

the compliance gap may decline overtime as women are becoming more liberated (Jackson and Milliron, 1986; Chang *et al.*, 1987).

2.3.2.2 Ages and Tax Compliance

Research has reported younger taxpayers comply lesser than older ones (Clotfelter, 1983; Kirchler, 1999; Fjeldstad and Semboja, 2001). To illustrate, Fjeldstad and Semboja (2001) found people aged between 18–29 years were lesser compliant than older ones in case of the development levy in Tanzania.

Three factors can cause this pattern of tax compliance. First, younger taxpayers take more risks than older ones (Chang *et al.*, 1987). Second, younger taxpayers might have negative attitudes about tax system because they are not used to the system (Kirchler, 1999). Third, Fjeldstad and Semboja (2001) suggested younger taxpayers are able to hide longer from tax authority than older taxpayers because, the first group is likely to have energy to physically run away from tax collectors and have less family responsibilities.

2.3.2.3 Education and Tax Compliance

Educating taxpayers have both negative and positive impacts on tax compliance. Education increases tax compliance by improving fiscal knowledge of taxpayers (Kasipillai *et al.*, 2003; Saad, 2010). Specifically, the comparison of students' attitudes to tax compliance before and after undertaking a taxation course shows tax education might have positive impact on tax compliance (Kasipillai *et al.*, 2003). Comparatively, Dubin *et al.* (1990) suggested the complexity of tax laws could prevent poorly educated taxpayers to file tax returns.

Nevertheless, education can reduce tax compliance too. Dubin *et al.* (1990) and Jackson and Milliron (1986) suggested educated taxpayers are more likely to avoid tax leaving tax evasion for less educated taxpayers. Also, Chang *et al.* (1987) argued highly technical tax knowledge can cause a taxpayer to perceive tax payment as a loss; because the taxpayer knows many ways of avoiding taxes and according to prospect theory, the taxpayers tends to evade more.

Generally, despite some inconsistency much research advocates young, men and educated people are more likely to be non-compliant taxpayers. Therefore, tax authorities can classify individual taxpayers according to these demographic factors and focus their enforcement strategies on young taxpayers, men and educated ones.

2.3.3   Social Norms and Tax Morale

A social norm is "disposition of behaviour that is judged in a similar way by others and therefore sustained in part by social approval or disapproval" (Alm, 1999:9). Several researchers have found a significant positive association between social norms and tax compliance (Fjeldstad and Semboja, 2001; Park and Hyun, 2003; Traxler, 2010). Taxpayers with non-compliant peers are more likely to be non-compliant taxpayers too (Fjeldstad and Semboja, 2001). Alike, participants in an experiment were taught about undesirable consequences of tax non-compliance before some of the sessions, a comparison of results from pre and post education indicated a significant improvement of tax compliance attitude after the education program (Park and Hyun, 2003).

Social norms are said to be highly related to tax morale. Prior research overwhelmingly agrees tax morale is important in fighting tax evasion (Alm and Torgler, 2006; Cummings *et al.*, 2009). Cummings *et al.* (2009) presented

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finding indicating that impact of tax audit and penalty rates on tax compliance were higher in Botswana than in South Africa. The researchers suggested Batswana has higher tax morale than South Africans when measured by a level of governance. Furthermore, Alm and Torgler (2006) showed tax morale in the US and in Switzerland exceeds tax morale of European countries, and tax morale was positively correlated with tax compliance. Equally, trust in government and legal systems are highly positively correlated with tax morale (Torgler, 2003b; Cummings *et al.*, 2009). So tax morale and social norms can be affected by political institutions available to taxpayers.

Nevertheless, government actions might not affect social norms and tax morale. Blumenthal *et al.* (2001) sent letters to two groups: one of the letters invited a group to pay taxes to support provision of public services; another letter invited a group to join the complaint majority. They found compliance levels of three groups including a control group, was not significantly different, implying tax morale and social norms may be endogenous.

Shortly, research agrees tax morale and social norms are important in enhancing tax compliance behaviour. Subsequently, future researchers may investigate how tax non-compliance can be made less socially acceptable in a society or within individuals. Meanwhile, tax authorities can continue influencing tax morale, and social norms through fair distribution, appropriate retributive and procedural justice and educating taxpayers.

2.4 Application of Individual Economic and Non-Economic Tax Compliance Factors in Corporate Setting

Corporate tax non-compliance is quite significant. Slemrod (2004) reported that corporate tax non-compliance cost $29.9 billion, and tax paid by corporate taxpayers was $142.4 billion in the US. Also, Slemrod (2004) reported that tax non-compliance of individual taxpayers in the US was $148.8 billion, and tax paid voluntarily by individual $930.1. Consequently, in relative terms corporates underreported more than the amount underreported by individual taxpayers (17.4% vs 13.8%). Underreporting was given by "calculated as underreported tax divided by receipts plus underreported tax" (Slemrod, 2004:3).

Yet corporate tax compliance literature is limited, and available individual theories are arguably not sufficient to explain why corporations pay taxes (Slemrod, 2004). Chen and Chu (2005) attributed the scarcity of corporate tax compliance literature to lack of empirical data and analysis difficultness. This section focuses on contentious issues of corporate tax compliance as to why economic and non-economic factors may not be relevant in a corporate setting.

Slemrod (2004) argued the risk averse attitude aspect of economic theory cannot apply in large corporates. According to Slemrod (2004) large corporates can diversify their diversifiable risks which may include risks of being penalised for corporate tax non-compliance. But small corporates may fail to diversify all of their diversifiable risks because of financial constraints (Slemrod, 2004). Subsequently, large corporates might be risk neutral instead

of risk averse (Slemrod, 2004). The risk neutral attitude only assures tax compliance when tax penalties are so severe compared to the benefits of tax non-compliance (Slemrod, 2004); severe tax penalties may be irrelevant in tax compliance as discussed before.

Moreover, Slemrod (2004) suggested only small companies can follow the economic model because owners can affect tax filing decisions, unlike in large corporates where owners often delegate tax compliance decisions to managers. Managers in larger corporates may not be risk averse if they are not directly connected to companies' financial affairs (Slemrod, 2004).

Slemrod (2004)'s arguments have some supports. Demonstratively, Joulfaian (2000) studied the influence of managers' personal income tax compliance behaviour on companies' income tax compliance using audited corporate SMEs' income tax returns. It was discovered companies managed by non-compliant managers, evaded 3 times the evasion of companies managed by compliant managers. So, managerial preferences can determine the tax compliance behaviour of small corporates.

Further corporates are debatably not comparing costs and benefits of tax non-compliance, but they compare the loss of internal controls and benefits of tax non-compliance (Chen and Chu, 2005). Because, tax non-compliance might weaken internal controls as it may involve falsification of records (Chen and Chu, 2005). Moreover, even where two sets of records are kept: one for a tax authority and another for owners; the practice may be expensive and the owners might mistrust their set of records (Chen and Chu, 2005). These authors argued that doubts over the records may reduce the incentive of owners to evade or avoid taxes. Consequently, Chen and Chu (2005) argued the level of corporate tax evasion might be based on the comparison of

internal control efficiency loss and the amount of unpaid taxes. This conclusion is based on the assumption that a non-owner manager manages a corporate and an owner uses internal controls including accounting records to control the manager's behaviour. So, weakening internal controls because of tax non-compliance reduce the ability of the owner to oversee activities of the manager who might personally benefit from weak internal controls (Chen and Chu, 2005).

Perhaps, the main problem in applying economic models to corporates is who should pay corporate tax penalties between managers and the corporates if the corporates evade tax. The available but limited literature on this issue is contradictory. Penalising managers instead of corporates when the corporates evade or avoid tax might increase corporate tax compliance as the penalties reduce managers' income (Slemrod, 2004; Crocker and Slemrod, 2005). However, owners may refund the penalties when the owners were also involved in the corporates' tax non-compliance, or possible corporate tax non-compliance tax penalties might be considered when managers are negotiating their salaries with owners (Lipatov, 2012).

Therefore, corporates should be punished for the corporates' tax non-compliance, thereafter, the corporates may recover penalties from managers; the recovery of the penalties might subsequently increase corporate tax compliance (Lipatov, 2012). But, the recovery of the penalty might occur only after the discovery of payments of corporate tax penalties, and the corporates may not decide to recover the corporate tax penalties where the penalties were considered when hiring managers (Slemrod, 2004). Still, there is no empirical evidence about either of the arguments.

Little is known about the application of non-economic variables in corporate settings since the factors depend on individuals' perception and willingness to pay. Slemrod (2004) suggested these factors are only applicable in small businesses when owners are likely to be running their corporates and the personal factors might affect corporates' performance. Moreover, a study by DeBacker *et al.* (2012) found a positive relationship between tax evasion level and perceived corruption levels of home countries among the US foreign controlled corporate SMEs, the extent of the correlation decreased as the size of the corporates increased.

Notwithstanding, in large companies, ownership becomes more diverse and owners are less involved in daily activities of companies and the application of non-economic factors becomes more difficult (Slemrod, 2004). Thus, it is hard to decide whether tax morale of owners or managers is important in corporate tax compliance (Slemrod, 2004). For instance, if the owners' tax morale is more influential than that of managers'; the owners may not even know what managers are doing in respect of taxation. While managers are just working on behalf of the owners or both the owners and managers' tax morale are paramount in corporate tax compliance. Future researcher may solve that problem.

2.5 Complexity of Tax Laws

Many taxpayers may not comprehend tax laws. The complexity of tax laws results from governments' activities and taxpayers' evasion or avoidance activities (Quandt, 1983; Paul, 1997; Forest and Sheffrin, 2002; Oliver and Bartley, 2005). To exemplify, governments use tax policies not only to raise revenue but also to achieve equity through exemption, progressive taxes,

efficiency; minimising tax administration costs, regulating social issues as controlling alcohol and preventing tax avoidance and evasion (Quandt, 1983; Oliver and Bartley, 2005).

Moreover, governments can enact complex tax laws when taxpayers are either avoiding or evading taxes (Quandt, 1983; Oliver and Bartley, 2005). This government response to non-compliant taxpayers lead to a game of 'cat and mouse' where the cat representing a government and the mouse is a taxpayer or tax preparer (Picciotto, 2007). The complexity of tax laws also comes from ambiguity in tax laws, inconsistent training of tax return preparers, assessors, and constant changes in tax laws (Alm *et al.*, 1992b; Picciotto, 2007).

However, the impact of complexity of tax laws on tax compliance is mixed. Milliron (1985) showed attitudes towards tax compliance increased when complex tax scenarios offered exemptions to under privileged taxpayers. Equally, Cuccia and Carnes (2001) observed when participants were given complex hypothetical tax provisions without justifications and few economic benefits; the participants reacted negatively compared to the justified ones and with many economic benefits. However, the latter study did not involve tax compliance decisions.

Confusingly, tax authorities prefer ambiguous tax laws because faced with the ambiguous tax laws taxpayers cannot determine the true income with certainty; so they might pay more taxes to avoid tax penalties (Scotchmer, 1989). Also, the ambiguous tax laws can increase the chances of not losing tax cases (White *et al.*, 1990). Nevertheless, these arguments are based on the assumption that taxpayers take pessimistic positions when faced with ambiguous laws; the assumption has no empirical backing. Moreover, complex tax laws are sources of tax avoidance and involuntary tax non-compliance

(Milliron, 1985; Mills, 1996; Spilker *et al.*, 1999). Importantly, complex tax laws may cause tax avoidance when tax preparers take advantages of ambiguous tax laws in the interest of their clients (Spilker *et al.*, 1999). Further, taxpayers may not understand the requirements of tax laws when the tax laws are complex consequently may evade involuntarily (Kirchler *et al.*, 2008).

Also, Kirchler *et al.* (2006) surveyed compliant and non-compliant Australian taxpayers and tax officials; they found a negative relationship between complex tax laws and fairness perception. They argued highly complex tax laws are likely to reduce tax compliance. Similarly, Richardson (2006) found complex tax laws were associated with low tax compliance.

2.6   Tax Compliance Costs

Tax compliance costs are ones of by-products of complexity of tax laws. Tax compliance costs are expenses paid in fulfilling taxpayers' responsibilities (Pope, 1993; Evans, 2003). Tax compliance costs have been found to be significant and regressive (Sandford and Hasseldine, 1992; Pope, 1995; Alexander *et al.*, 2005; Schoonjans *et al.*, 2011). Comparatively, Alexander *et al.* (2005) kept records of time and money spent in complying with tax laws by small firms in New Zealand for two months and found a similar pattern.

Similarly, Ismail *et al.* (1997) estimated tax compliance costs incurred by corporations. The corporations were grouped into 3 groups: those with sales: not exceeding $100 million, between $100 million and $500 million, and exceeding $500 million. Results showed tax compliance costs of companies with sales more than $500 million was 4.76 times tax compliance costs of companies with sales below $100 million. Although, literature agrees tax

compliance costs are significant and regressive, the question of how tax compliance costs affect tax compliance behaviour is ignored. It is interesting to examine how tax compliance costs and tax compliance behaviour are related to evaluate the effectiveness of tax simplification programmes.

2.7   Shadow Economy

Shadow economy activities include: illegal production, informal sector production, tax evasion and production by households for their own final uses (Braithwaite *et al.*, 2003). Many factors are considered as influencing the level of the shadow economy. High tax rates and social security obligations may drive people out of formal economies (Frey and Weck–Hanneman, 1984; Davis and Henrekson, 2004; Schneider, 2007). Exemplifying, Davis and Henrekson (2004) estimated that when variance of tax rate changes is 1.64% the working hours per annum in a formal market may decrease by 122. Similarly, Schneider (2007) reported tax liabilities, social security obligation and labour regulations positively affect sizes of shadow economies.

The qualities of government institutions also determine the existence of the shadow economies. Certainly government bureaucracy, corruption and weak legal systems in a formal economy may increase sizes of a shadow economy (Dreher *et al.*, 2009). The authors argued that when government officials demand corruption, people would desert the formal economy for the shadow economy; in a sense, the shadow economy and corruption are substitute.

Likewise, bureaucratic governments might restrict peoples' access to formal markets, and then people go for the more accessible market which is the shadow market (Dreher *et al.*, 2009). While, weak legal systems may encourage the shadow economy by failing to capture and impose penalties on

perpetuators (Dreher *et al.*, 2009). Additionally, Frey and Weck–Hanneman (1984) and Torgler and Schneider (2009) discovered tax morale decreases with shadow economy.

However, estimation of shadow economy is difficult. Direct or indirect methods and modelling can be used to measure the extent of shadow activities (Frey and Weck–Hanneman, 1984; Schneider, 2003). Interviews, surveys and tax audits are direct methods, whereas national accounts and labour supply discrepancies, cash demand and relationship of electricity consumption with gross net product are called indirect methods (Frey and Weck–Hanneman, 1984; Schneider, 2003).

National account based methods compare income and expenditure values which theoretically are supposed to be equal; therefore, any inconsistency between them indicates a shadow economy especially when expenditure exceeds income account (Frey and Weck–Hanneman, 1984; Schneider, 2003). Additionally, once a labour supply is constant, a decrease in a labour engagement in official markets implies people have moved to informal labour markets (Frey and Weck–Hanneman, 1984; Schneider, 2003). Further because of the illegal nature of a shadow economy, many shadow activities are in cash transactions so an increase in cash demand may mean an increase in the shadow economy (Frey and Weck–Hanneman, 1984; Schneider, 2003).

Also, the amount of a shadow economy may be a difference between general economy growth and an official gross net product. Finally, a modelling approach considers causes of a shadow economy (Frey and Weck–Hanneman, 1984). However, all methods arguably provide the lowest estimate of shadow activities because it is impossible to discover all shadow economy activities (Frey and Weck–Hanneman, 1984; Schneider, 2003).

Yet shadow economy activities affect each country differently. Typically, estimates of the shadow economy done by Schneider (2007) showed the proportions of the shadow economies to gross domestic products in developing countries can be as high as 68%, while, in developed countries may raise to 31.5%. Also the effects of shadow economy activities are not always negative. Schneider (2003) found only 30% of income produced in the shadow economy remains in the shadow economy. Moreover, the shadow economy might decrease corruption demand as supply sides can easily shift from formal to unofficial activities (Schneider, 2007; Dreher *et al.*, 2009). This benefit is based on the assumption corruption is more damaging than the affects of the shadow economy. Nevertheless, the shadow economy causes losses of taxes, pension funds, poor public services and unfair tax systems (Schneider, 2007).

Consequently, shadow economy activities should be controlled. An institution with less bureaucracy and powerful legal systems may win people's support and discourage shadow activities (Dreher *et al.*, 2009). Lastly, governments should consider all factors which might increase the shadow economy in their countries (Schneider, 1994).

2.8   Tax Compliance Model

The preceding discussions can be presented in the following model to explain a tax compliance puzzle. The model depicts committed tax compliance and capitulate tax compliance. McBarnet (2003) described taxpayers who pay taxes voluntarily as committed taxpayers hence committed tax compliance, where those who pays involuntarily as capitulated compliant taxpayers (see Figure 2.8.1).

As seen before older taxpayers, females, taxpayers with high tax morale are more likely to voluntarily comply as taxpayers in a society where the social norms are dominated by voluntary tax compliance. Whereas fear of tax audit and penalty rates, lack of non-compliance opportunities and errors may increase tax compliance levels of taxpayers who otherwise could have not complied voluntarily.

Thus, capitulated and committed tax compliance may explain why actual tax compliance exceeds expected tax compliance (tax compliance puzzle) from estimation which uses actual audit rate, actual tax rate, actual income level, and actual tax penalty rate. Because, the capitulated and committed tax compliance may be higher than what can be expected by (or without) changing audit rate, tax rate, income and tax penalty. From the model it can be noted that, these recently mentioned factors are not include in the model because are they ones mostly used in estimation of expected tax compliance levels.

Figure 2.8.1:Tax Compliance Model
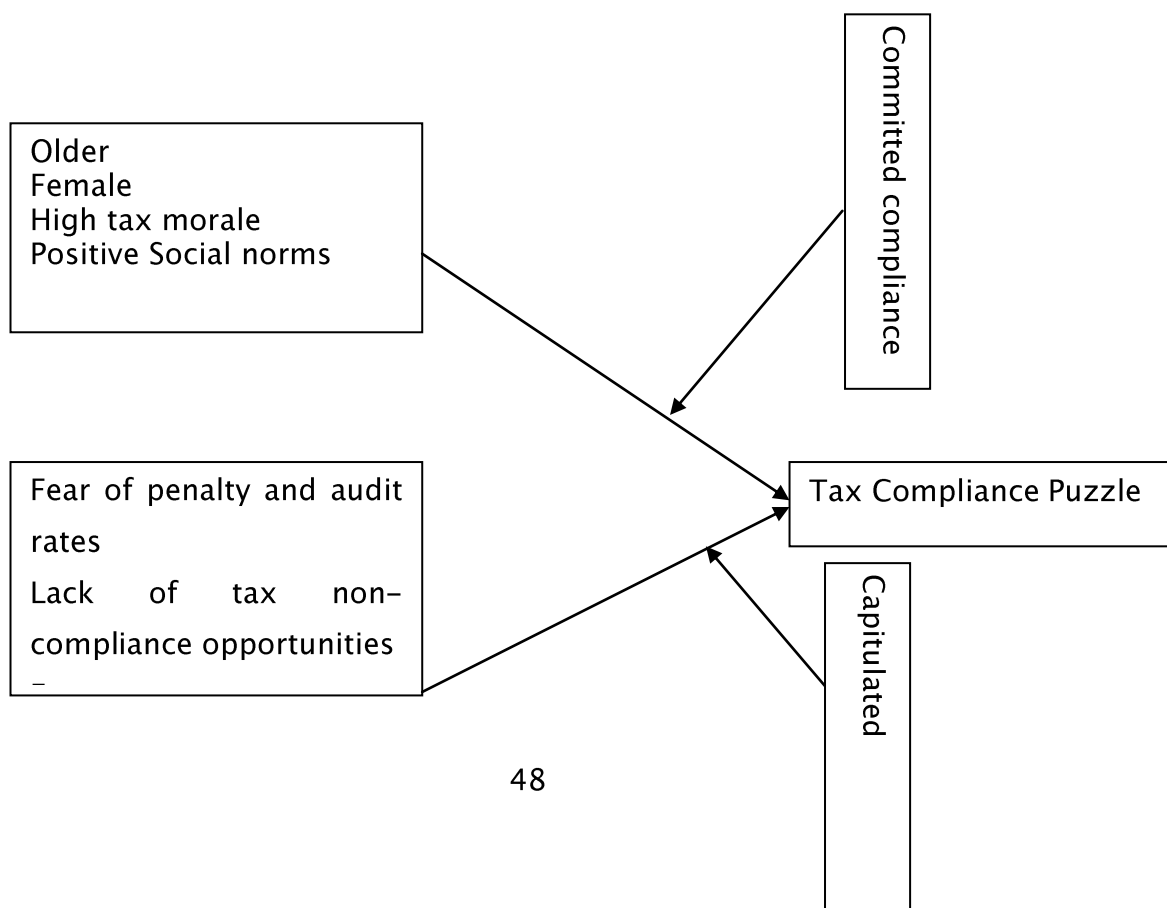
2.9   Conclusion

So far tax economic literature is a mature area but social and psychological areas are growing too. Despite these developments a lot remains to be done to improve our understanding of the tax compliance puzzle. So, five areas are identified which might be important topics for future research.

First, corporate tax compliance research is still limited despite corporates contributing a large share of tax revenue and having a significant level of tax evasion (Slemrod, 2004). Indeed, enforcement strategies which work on individual taxpayers might not work on corporate taxpayers as discussed before. We need more research to test the effectiveness of these policies issues.

Second, institutional factors are important in determining how taxpayers behave. Yet tax literature is limited to institutional fairness, ignoring factors as corruption, and political willingness to tackle tax non–compliance which might affect tax compliance behaviour negatively. Particularly, special attention should be paid on how tax authorities and police work or should work together to reduce corruption.

Third, most research is still concerned with individual income tax, while ignoring the other types of taxes as value added taxes, land taxes, and customs taxes, implying factors which affect income taxpayers may be applicable to other forms of taxes. Nevertheless, income taxes differ from

other taxes, for example, true income is only known after tax audit while tax bases of customs taxes might be known more easily when market prices of goods are known. So, further analysis of tax compliance of other taxes is essential.

Fourth, the impact of complexity of tax laws on tax compliance is mixed. Nonetheless, there is no disagreement that complexity of tax laws increase tax compliance costs. It is important to study how tax compliance costs relate to tax compliance behaviour.

Finally, much tax research comes from developed countries as little research has been done in the developing world and as the shadow economy, cultures and social factors matter, but differ across countries, therefore under researched areas are good target for future research.

Chapter 3: Tax Compliance Research Methods: Past, Present and Future Challenges

Abstract

Many research methods can be used to study tax compliance. Nevertheless, tax researchers lack guidelines on how to select an appropriate research method. This chapter examined the applications of experiments, surveys and archival data methods in studying tax compliance. Further it discussed the usefulness and challenges of each tax compliance research method, suggested when a particular method may be useful and identified areas for future research to improve the tax compliance research methods. In general, while archival data, survey methods and experimental methods can be used in tax compliance research, laboratory and field experiments are most appropriate in studying many areas of tax compliance.

Keywords: archive data, experiment, tax avoidance, tax compliance, tax evasion, survey method

3.1 Introduction

Tax compliance literature has grown enormously and its growth has not left behind the development of tax research methods. Tax compliance happens when taxpayers adhere to tax laws (Kirchler, 2007). Tax compliance literature has employed theoretical analysis, surveys, archival data and experimental methods. However, excluding generic research method text books and a book edited by Oats (2012) tax researchers lack a comprehensive guide to research methods. The book by Oats (2012) is concerned with philosophical issues in tax research methods. Specifically, this book mainly explains how tax research can be done from different point of views, for instance from: accounting, laws, sociology, and accounting perspective, but largely. Also, it discusses general (not so much related to taxation) qualitative and quantitative approaches, but largely biased to qualitative research as how to perform interview and case studies, how to analysis qualitative data. Therefore, lacking of tax research literature leaves tax researchers with only generic research method books which might not be useful to them. Because tax non-compliance may be illegal, tax research participants might withhold information and even cheat tax researchers (Slemrod, 2007).

Subsequently, a proper selection of tax research method is required, but currently, as discussed before guides on how to select an appropriate method for a particular research problem is missing and inaccurate selection of research tax research methods may provide misleading research findings. Thus, this chapter responds to this research gap; actually the study has three main contributions. First, it puts together mainly used previous scattered tax experiments, surveys and archival data methods. Further it discusses the usefulness of these methods and suggests ways of reducing their problems.

Second, it proposes research areas where each of the discussed approach might be suitable, so helping tax researchers in selecting appropriate data collection methods. Finally, it highlights research gaps to improve tax compliance research methods.

The literature about tax research methods was obtained from Google scholar, 'library catalogue of University of Southampton', web of science, reference lists and other research journal databases. In fact, articles were searched using terms such as: 'tax compliance research methods', 'tax compliance experiments', 'tax compliance surveys', 'problems of survey in tax compliance, 'hypothetical experiments, 'uses of archival data in tax research', and 'review of tax research methods'. Also, the literature was included in this article if they relate to the research methods mentioned before.

The remaining part of the chapter is organised as follows: section 3.2 discusses the usefulness and limitations of archival data and section 3.3 reviews the experimental methods. In section 3.4 applications of survey methods in tax compliance research are examined. Section 3.5 is an overall conclusion.

3.2   Archival Data

Many a time researchers use previously collected data; these data are known as archival data (Parry and Mauthner, 2004). So the archival data are the cheapest method of collecting data as the data are already available, and provides highly external valid data because the method collects data from natural occurrences. Smith (1982) defined the external validity of data as its ability to be generalised beyond study samples. Relevant archival data to tax compliance

research includes tax returns, tax collection statistics, national accounts, tax amnesty data and companies' financial records.

Tax authorities provide both tax returns and collection statistics; still the former information is highly confidential. Because tax returns are confidential few researchers has used this method, for instance, Joulfaian (2000) and Elffers *et al.* (1987). In contrast, normally a national statistics agency publishes national accounts and the information is usually publicly available. So publicly available information as tax collection statistics and national accounts may be very useful in tax compliance.

Certainly Pommerehne and Weck–Hannemann (1996) used tax compliance information and national income accounts to study tax compliance levels of 25 Swiss Cantons. The results showed cantons with high tax rates experienced high tax evasion levels. Tax evasion describes illegal ways of reducing tax liabilities (Kirchler *et al.*, 2006). Moreover, state and district level data depicted a negative relationship between audit rate and tax revenue in the US (Dubin *et al.*, 1990). These results demonstrate archival data are useful because the results are similar to the results obtained from other methods.

Subsequently, available tax collection data, presents opportunity for future research to study the influences of tax compliance enforcement strategies. These strategies are not necessarily confidential. For example, the introduction of compulsory acquisition of electronic fiscal devices in Tanzania in 2010 to increase accuracy of accounting records and verification of receipts may have affected tax compliance positively. Besides, emphasis on the importance of paying taxes, a taxpayer education campaign, and improvement of taxpayers' services are in public knowledge. What is required on the part of a researcher is to keep a good track of tax authorities' actions.

Additionally, financial statements of companies can also be used to study tax compliance especially tax avoidance. Tax avoidance is minimisation of tax liabilities legally (Kirchler *et al.*, 2006). Also, as tax evasion practices are illegal and punishable, taxpayers hide tax evasion practices (Andreoni *et al.*, 1998). Nonetheless, tax avoidance may possibly be seen in published financial statements. Undeniably, a transfer pricing technique is obvious, but a tax under payment is not presented in consolidated financial statements. Consequently, published financial statements are useful to researchers interested in the tax avoidance area.

Finally, changes in tax compliance can be measured through tax amnesty data. Tax amnesty might invite non-compliant taxpayers to voluntarily declare their evasion and pay their dues may be without paying tax penalties. Tax amnesty data when available provides good measures of the extent of tax non-compliance probably which was not detected by a tax authority, therefore the data may complement tax audits data (Alm and Torgler 2011).

3.2.1 Challenges of Archival Data

Notwithstanding, the insights from archival data, the data has known limitations. Tax audits might under estimate tax non-compliance levels when some tax evasions are not detected (Alm, 2010). Moreover, all tax audits discoveries might be attributed to intentional tax non-compliance while others can be genuine errors (Alm, 2010). The genuine errors could only be relevant in studying the complexity of tax laws; since taxpayers may make errors when complying with complex tax laws. So the inclusion of unintentional errors could be misleading, for instance, portraying the ineffectiveness of tax compliance strategies against intentional tax non-compliance practices

(Andreoni *et al.*, 1998; Alm and Torgler, 2006; Alm and Torgler 2011). Likewise, data from tax amnesty programs are incomplete because only some non-compliant taxpayers may voluntarily disclose their illegal acts (Andreoni *et al.*, 1998; Alm and Torgler, 2006; Alm and Torgler 2011).

Furthermore, the taxpayer compliance measurement program (TCMP)'s data in the US; the most accurate available archival data, is said to exclude final amendments consequently underreporting or over-reporting tax non-compliance (Andreoni *et al.*, 1998; Alm and Torgler 2006; Alm and Torgler, 2011). The under or over-reporting of tax non-compliance may happen because rarely do tax auditors have an identical understanding of tax compliance issues. Indeed, Elffers *et al.* (1991) conducted experiments to examine whether a peer group of tax auditors arrive at identical conclusions after assessing tax returns, but the researchers found disagreements of 40% among the tax auditors. Therefore, the exclusion of the final adjustments might have significantly reduced the value of TCMP's data. Further, TCMP's data available to tax researchers did not contain demographic information to allow rigorous analysis of tax compliance behaviour, as demographic variables affect tax compliance too (Andreoni *et al.*, 1998).

On the other hand, tax authorities disclose tax collection statistics, which show only collected taxes so all changes in tax collections may be attributed to introduced tax compliance strategies. Several factors might cause variation in tax compliance level. For instance, while a booming economic condition can increase tax compliance level without an increase in tax audit rate, a recession can decrease tax compliance level without changing tax audit rate. So researchers should use other sources of data as national statistics information to control for inflation, economic growth, changes in the numbers of taxpayers

and social cultural factors. Nevertheless, this process of controlling other factors makes the analysis difficult and without extra information from a tax authority other factors as audit rates remain uncontrolled.

Likewise, research based on national development and social-economic data has limitations too. The data are accused of compounding "measurement errors, they attribute all discrepancies to unreported income, and are only applicable to estimated changes in unreported income overtime not its absolute level" (Alm 1999:3). Moreover, the data are normally aggregated preventing tracing how taxpayers at individual level react to tax law enforcement (Alm and Torgler, 2006). Additionally, income and expenditure comparison methods may not be useful where some taxpayers are exempted from both paying taxes and filing tax returns. The exemption cause discrepancy between incomes reported by tax authorities and in the national accounts but not because of tax non-compliance.

Conclusively, archival data methods are the cheapest with high external validity, but some of the data are extremely confidential and incomplete. However, the presence of archival data presents an invaluable and rich source of data; nonetheless their incompleteness and restricted access have turned researchers to experimental methods.

3.3   Experiments

An experiment involves a system of actions conducted to study causal and effect relationships among variables (Mitchell and Janina, 2013). Experiments can be classified according to their objectives and contexts. Roth and Kagel (1995) divided experiments into 'speaking to theorists', 'searching for facts' and 'whispering in the ears of princes'. Where an experiment is conducted to

test theory and give feedback to theoretical works that experiment is named speaking to theorists; representing conversation between experimenters and theorists (Roth and Kagel, 1995). Moreover, Roth and Kagel (1995) defined an experiment as search for facts when is related to previous experiments in that sense experimenters are talking to each other and searching for facts about the impact of variables not well articulated in theory. Finally, researchers can undertake experiments to inform policy makers, this kind of experiments according to Roth and Kagel (1995) is called whispering in the ears of princes.

However, Harrison and List (2004) provided a classification of experiments based on the contexts of experiments, which includes a conventional laboratory experiment where students are normally participants facing abstract framing and controlled environments. Next, very close to the conventional laboratory experiment is an artefactual field experiment which differs from the former only by using non-student participants, but keeps abstract instructions and controlled environments (Harrison and List, 2004). Then, a framed field experiment is a laboratory experiment which uses tax terminologies in experimental instructions. The last category is a natural field experiment in which participants are not aware they are in an experiment (Harrison and List, 2004). This experiment differs from the framed field experiment in the sense that in the latter participants know they are in an experiment and their behaviours are monitored, but in the former participants are not aware of their participation (Harrison and List, 2004). However, this article divides experimental methods into a laboratory, a field and a hypothetical experiment.

3.3.1 Laboratory Experiments

A laboratory experiment is a process of creating an actual microeconomic structure in a laboratory which is related to the environment under investigation (Alm, 2010). Over the past three decades, tax researchers have significantly used laboratory experiments (Wartick *et al.*, 1999; Torgler, 2003a; Alm *et al.*, 2010b). Several reasons explain this trend. First, Alm (2010) supposed data from the natural environment may be unreliable, unsuitable for the problem under investigation or unavailable.

Second, laboratory experiments offer control over variables; control of the variables is unavailable in surveys neither in archival data. Indeed, control over institutions and incentives enables laboratory experimenters to study the impact of variables singly or as a group, on tax compliance (Harrison and List, 2004; Alm, 2010). Chiefly, institutional variables as audit and tax rates can be changed singly to determine a causal and effect relationship between tax compliance and independent factors. Consequently, flexibility obtained in laboratory experiment is huge where researchers can design a study to test variables in consistent ways (Alm, 2010). Also, controls enable replication of studies (Harrison and List, 2004).

Finally, laboratory experiments can produce internal and externally valid data in a short time and inexpensive ways so long as experimental instruments and participants are accessible (Baldry, 1987). Results are internally valid when they are influenced only by a manipulated factor(s) (Loewenstein, 1999). Given these advantages, a laboratory experimental method can study many things.

However, laboratory experiments must be conducted in scientific ways to ensure the internal and external validity of results. Actually, Smith (1982) and

Smith (1976) provided outlines in which a well-organized laboratory experiment operates. Smith (1982) suggested laboratory experiments should control participants' preference and Smith (1976) claimed control can be achieved through a good rewards structure. Also nonsatiation, saliency, reward dominance, and privacy are important in controlling participants' preference (Smith, 1982).

Nonsatiation refers to a situation where participants prefer more to fewer rewards medium based on the claim human beings are rational and prefer more to less when faced with several alternatives with equal costs (Smith, 1982). This condition provides more internally valid result and control over participants' preferences when rewards are linked to independent variables under investigations. Consequently, saliency does not allow fixed rewards but the rewards should depend on participants' decisions; if they pay taxes they reduce their disposal income and if not they might face tax penalties (Smith, 1982). Rewards dominance calls for sufficient rewards to offset any subjective costs or benefits participants place in participating (Smith, 1976; Smith, 1982). So the rewards should be large enough comparable to payments, participants should get in an alternative setting. For instance, when the wage rate is £ 8, an hour experimental rewards should be at least £ 8. Finally, privacy means each participant should work independently; this condition is important in ensuring independent data (Smith, 1982; Alm, 2010).

Moreover, laboratory experiments should be short to avoid boring participants, and done in scientific ways, for replication purpose (Alm, 2010). Further, the experimental terms should be trusted by participants and actually followed (Davis and Swenson, 1988; Alm, 2010). The experimental terms are information given to participants about dependent and independent variables

which are under test, and the participants should believe the variables are actually used by experimenters (Davis and Swenson, 1988). For example, an experiment will fail to achieve its objectives when participants think the audit rate is different from the announced one.

Also, experiments should have clear and understandable instructions to avoid misleading participants, and the instructions should be in neutral languages i.e. avoiding referring to tax compliance terminologies, for example, taxes are referred as contributions (Davis and Swenson, 1988; Alm, 2010). Comparatively, use of neutral language in laboratory experiments has been largely accepted. Neutral language avoids divulging contexts of studies, because the context might bring more information to the participants that are not provided in instructions (Davis and Swenson, 1988).

Likewise, Smith (1982) added parallelism to ensure the external validity. Parallelism refers to an application of laboratory findings in a comparable non-laboratory environment (Smith, 1982). It is achieved when tax laboratory experiments imitate voluntary self-assessment systems and use real world tax policy variables (Spicer and Thomas, 1982). So the parallelism ensures the external validity of experiments' results. Truly, Brookshire *et al.* (1987) compared results from a field and laboratory experiment and found similar patterns of demand and supply after using field variables in a laboratory. So, experimental conditions should parallel targeted environments.

Finally, Levitt and List (2007) suggested laboratory experiments should gather qualitative information to provide more understanding of human behaviour, and a combination of a laboratory and natural setting data may improve the useful of laboratory experiments' findings.

3.3.1.1 Challenge of Laboratory Experiments

Many tax compliance laboratory experimenters have tended to emphasis more on internal than external validity. For example, the experimenters have usually used high tax penalties and audit rates than the expected rates, for instance, a tax penalty of 10 times evaded amount and an audit rate of 15% (Park and Hyun, 2003; Cadsby *et al.*, 2006). Because, in Tanzania, for example, tax penalty may not exceed 2 times unpaid tax (*The Income Tax Act*, 2004), and audit rate in the US may not exceed 1% (Alm, 1991).

Another factor which increases the internal validity of tax laboratory experimental data at the expense of external validity is the use of neutral language to mask a context of research. As explained before, the context of a study provides additional information which enables participants to prioritise important information and select a course of action (Haynes and Kachelmeier, 1998). Then, the context can boost the impact of decision made and the context leads to retrieval of experiences with the context (Haynes and Kachelmeier, 1998). Thus, these effects may reduce the internal validity of experiments because other factors apart from the manipulated factors might affect tax compliance. Consequently, use of abstract words enhances the internal validity of study because causal effects become more traceable (Schram, 2005).

Indeed, researchers have debated over whether neutral language or tax terminologies should be used in laboratory experiments. Neutral language hides settings of experiments, and enforces control of subjects' preferences because the neutral language does not involve mental scripts (Alm, 1991). Mental scripts refer to how an individual knows or reacts to a particular situation, for example, tax compliance; this behaviour is likely to be repeated

whenever an individual hears tax compliance (Alm, 1991; Moser *et al.*, 1995). Furthermore, Wartick *et al.* (1999) found significantly low income was reported in neutral than in tax language treatment and the authors argued the depicted tax compliance levels in tax context experiments was consistent with real world tax compliance levels. Furthermore, participants aged 25 or more nearly doubled their tax compliance levels in the tax context experiment compared to their tax compliance levels in the neutral language experiment (Wartick *et al.*, 1999). While the younger group showed a small improvement in tax context compared to its tax compliance level in the neutral language context (Wartick *et al.*, 1999). So the authors concluded by arguing tax context actually plays a role in laboratory experiments and may depend on personal experience, belief and background.

Nevertheless, other evidence showed no significant differences between results from a neutral language and tax language experiments (Alm *et al.*, 1992c). In the neutral language experiment; payments, disclosed, scrutiny and short–falls were used to refer taxes, reported income, tax audit and the amount evaded respectively in the tax terminology experiment. Alm *et al.* (1992c) concluded tax terminology has a role only when complete and precise information is not given, so a person's world experience is required to complete the information. However, experimental design differences might cause Alm *et al.* (1992c)'s finding to differ from Wartick *et al.* (1999)'s results. While, the latter used different subjects, the former used repeated measures design; first subjects completed the neutral language experiment, then the tax terminology experiment, thus the results of the second experiment may have been affected by the first experiment.

Decisively, the context of studies is crucial but its application depends on objectives of a study; if the study is testing a theory with no intention to refer to an external environment, neutral languages are preferable (Alm *et al.*, 1992c; Wartick *et al.*, 1999). Nevertheless, tax context is appropriate for policy related studies because tax authorities use tax languages when demanding tax compliance (Cadsby *et al.*, 2006; Alm *et al.*, 2010b). Therefore, usage of neutral languages restricts the application of experimental findings in improving tax compliance.

Uniquely, since many tax laboratory experiments used mainly undergraduate student participants as proxy for taxpayers, the majority of laboratory experiments' results have questionable external validity. Three reasons explain why experimenters depend on student participants. First, non-student participants are not readily accessible. Second, it is cheaper to use student than non-student participants (Plott, 1987). For example, in an experiment students were paid up to $ 18 and staff got $ 28 (Alm *et al.*, 2010b). Lastly, when non-student subjects are used in experiments more data must be collected and analysis should deal with heterogeneity variables as age and education while students tend to be more homogeneous (Gächter, 2009).

Notwithstanding, the suitability of students in studying tax compliance is still controversial. Alm *et al.* (2010a) compared the results from student participants and worker participants in an experiment aimed at studying the impact of complexity of tax laws, income tax credits, and unemployment benefits on tax compliance. Alm *et al.* (2010a) found no significant differences between students and non-students' responses. Meanwhile, Alm (2010) and Webley *et al.* (1991) supported the use of students but warned results should be used with care.

Categorically, studies are needed before arriving at a conclusion whether students and taxpayers' responses differ significantly. Previous studies have compared students and workers' responses, while, the workers have no tax evasion opportunities in withholding tax systems. Therefore, workers might not be suitable representatives for taxpayers who operate in self-assessment system. Meanwhile, laboratory experimenters might increase the external validity of laboratory experiments' results by targeting businesses related students or those engaged in businesses while studying.

Nonetheless, even a laboratory experiment might fail to produce internally valid data. Levitt and List (2007) argued human being participants can be influenced not only by monetary rewards but also by other factors as individual ethics. Additionally, participants may behave differently when they know their behaviour will be later analysed; the problem can be increased by lack of anonymity (Levitt and List, 2007). Furthermore, participants are more likely to be inexperienced taxpayers and they are not allowed under privacy condition to seek help from experts apart from supervisors (Levitt and List, 2007). This restriction may increase errors and time of experiments.

Still, Levitt and List (2007) proposed participants may change their behaviour to pro-social behaviour in a laboratory setting or may become more obedient to authority than in natural settings. Behaviour is pro-social when it is viewed by people in a society as desirable, so many people in the society associate themselves with the desirable behaviour even when they do not behave in that way (Alm and Torgler 2011). But, the association with pro-social behaviour can be reduced through assured anonymity. Indeed, Alm *et al.* (2010b) did not require participants to sign the consent forms because they wanted to increase

anonymity and correct responses. Consequently, these factors discussed above might affect how dependent and independent variables are related.

However, cross-country laboratory experiments have problems too Roth and Kagel (1995) identified three problems in conducting cross-country experiments. First, different supervisors can be used who may have uncontrolled different personalities, yet use of the same experimenters can solve this problem. Second, the language effect may arise when the instruments are translated, but use of international languages can clear this problem. Finally, difference currencies may be used in experiments leading to a currency effect which might affect experimental incentives. Still researchers might use international acceptable currencies as the US dollar ($) or Britain pound (£) to avoid currency effect.

Furthermore, many laboratory experiments have taken tax compliance decision as a declaration of income, rather than a series of actions aimed at determining taxable income, calculating tax deductions, and consideration of third party information in verifying reported income (Elffers *et al.*, 1987). So more realistic experiments where participants are given many ways of evading taxes are needed (Webley and Halstead, 1986). However, inclusion of many variables in experiments may complicate data analysis and interpretation of results (Cowell, 1991).

Additionally, many laboratory experiments demand participants to maximise their income after tax and penalty (Spicer and Thomas, 1982; Alm *et al.*, 2010b). Maximising income means evading (Webley and Halstead, 1986; Cadsby *et al.*, 2006). Accordingly, these studies do not mimic real world situations where taxpayers are required to comply (Cadsby *et al.*, 2006).

Consequently, these laboratory experiments report lower tax compliance levels than those depicted in the real world (Cadsby *et al.*, 2006).

Also tax experiments are mainly computer based; few laboratory experiments have been done manually (Torgler, 2002). As an example, both Torgler (2003a) and Cadsby *et al.* (2006) used manual instructions. Actually, a laboratory experiment conducted manually need participants with adequate clerical capacity to compute tax liabilities. Also manually conducted laboratory experiments need to have few rounds otherwise it could bore participants. Likewise, it can be impractical to use complicated procedures, for instance, conditional audit rates as the method requires usages of tax returns information to select auditees; using tax returns information in manually done experiments might consume more time. However, the time spent on verifying tax audits must be compensated by increasing experimental rewards, which in turn raises study costs.

Though computer experiments reduce time spent they may affect experimental results. Torgler (2002) argued when computer simulations are seen as a gaming machine; findings from the computer simulations may be biased. Whereas, Cowell (1991) was specifically worried about computer user interfaces; if they resemble gambling machine interfaces, the exercise may be considered gambling than tax compliance. However, nowadays some countries have allowed online tax returns filings (Torgler, 2002). Therefore, may be the same tax authorities' user interfaces should be used when laboratory experiments are conducted with computers.

Additionally, many laboratory experiments use self-select small sample size. But, random errors affect findings from a small sample size (Mitchell and Janina, 2013), limiting both the generalisation of experimental results and the

internal validity of data (Elffers *et al.*, 1987). Moreover, self-select samples are debatably not representative of targeted populations (Torgler, 2002; Alm *et al.*, 2010a). It is interesting to research whether responses of self-select samples differ significantly from the randomly selected sample. Finally, laboratory experiments cannot implement jail terms in a laboratory and fail to incorporate real life social pressures (Torgler, 2002). These failures may produce less external valid results.

In summary laboratory experiments provide control over participants and experimental environments, are flexible and allow replication of studies to test the vigour of results. In addition, laboratory experiments do not require permission from a tax authority unlike many tax field experiments.

3.3.2   Field Experiments

Unlike a laboratory experiment, a field experiment does not use an artificial environment to control the environment in which the field experiment takes place. Then field experiments take place in normal occurrences where participants do their daily activities (Carpenter *et al.*, 2005). Consequently, in the field experiments, researchers can randomly select participants who are experienced in subjects under study (Levitt and List, 2009). Though randomisation is also possible in laboratory experiments (Harrison, 2013) participants in the laboratory experiment normally first self-select themselves.

Further, the field controlled experiments have more external validity than laboratory experiments because the field experiments use taxpayers in real targeted environments (Levitt and List, 2009), and the field experiments are likely to use sizable samples. So the field experiments are in a good position of

informing tax policy makers on the application of various tax compliance policy instruments.

3.3.2.1 Challenges of Field Experiments

Field experiments have many challenges. They require tax theories to guide researchers, without tax theories the researchers may lack focus (Levitt and List, 2009). Also, costs of running the field experiments might be massive. Likewise the field experiments may be biased when they take months or years to complete because some participants may drop out (Levitt and List, 2009). Again, the field experiments measure the impact of tax compliance enforcement strategies on tax compliance only by looking at changes in income reported following the introduction of compliance enforcement strategies (Alm, 2010). Subsequently, a field experiment research can hardly estimate how individual tax compliance level changes with a tested tax compliance strategy because many independent variables can remain uncontrolled (Alm, 2010).

To illustrate, where a researcher collaborates with a tax authority, sends letters to taxpayers emphasising the importance of tax paying, the taxpayers can perceive an increase in audit rate. But, total changes in tax compliance level might be attributed to the letters sent previously. Because the separation between the impact of the tested variable and that of the change in perceived audit rate is difficult, as the researcher may not know to what extent the perceived audit rate changed. So the field experiments have weak internal validity and researchers in the future might develop more guidelines on how to increase the internal validity of the field experiments.

Furthermore, replication of field experiment studies is difficulty as many factors are uncontrollable (Levitt and List, 2009). However, Levitt and List (2009) discussed three ways of replicating field experiments. The first method is through re-analysing field data aimed at confirming old results. The second method to test the results is through doing a similar field experiment using the same procedures but may involve different participants. The final method is through testing the results using different research methods.

Beyond these shortcomings, field experimenters can rarely influence participants' preferences, as controls of the preferences as discussed before, are achieved through reward structure. Thus, some control of participants' preferences can be achieved through rewarding participants (Levitt and List, 2009). Yet the introduction of rewards in field experiments may make the experiments not field experiments because field experiments occur in natural settings.

Lastly, field experiments are limited in their use because of limited cooperation between tax authorities and researchers (Levitt and List, 2009). Consequently, researchers may need to align their research objectives to tax authorities' programmes to get the support of the tax authorities (Levitt and List, 2009), and actually only a few field experiments have taken place (Blumenthal *et al.*, 2001; Hasseldine *et al.*, 2007; Lipatov, 2012).

Conclusively, field experiments provide high externally valid data, but they require tax authorities' cooperation. Also field experiments are expensive consequently; researchers with limited funds are using laboratory experiments, and hypothetical experiments to study causal and effect relationships.

3.3.3 Hypothetical Experiments

An experiment is hypothetical when it measures people's reactions to independent variables using 'what if' case scenario questions without involving financial commitment such as payment of taxes (Johansson-Stenman and Svedsäter, 2003). Specifically, a hypothetical experiment attempts to assess cause and effect relationships between variables without following all accepted laboratory experiment criteria. Indeed, it does not control participants' preferences through financial incentive as elaborated before.

Several hypothetical experimental studies exist (Newberry *et al.*, 1993; Bobek *et al.*, 2007; Hansen and White, 2012). Hypothetical experiments can give external valid data when done in real settings (Bergstrom and Stoll, 1989); it may have larger sample sizes and can be cheaper since no financial commitments are involved. However, the method is prone to some challenges.

3.3.3.1 Challenges of Hypothetical Experiments

First, hypothetical experiments may be subject to hypothetical bias. The hypothetical bias refers to inconsistency between what respondents in hypothetical studies say they would do and what they actually do in a real setting (List, 2001; Chang *et al.*, 2009). Indeed, a hypothetical experiment was unable to predict but non-hypothetical ranking experiments provided close estimation of real market shares of 15 products (Chang *et al.*, 2009).

Likewise, participants asked to indicate their intentions of buying or not buying goods in a hypothetical experiment and then, the goods were offered for actual purchase in a laboratory experiment; the hypothetical results differed significantly from real experiment results (Cummings *et al.*, 1995). Additionally,

bidding values in real payment experiments were significantly lower than those of hypothetical experiments (Neill *et al.*, 1994). A lack of actual financial commitment in hypothetical payment experiments may cause the hypothetical bias (Neill *et al.*, 1994).

Nevertheless, a hypothetical bias has no solutions. List (2001) tested whether an explicit warning to participants to act, as in real life could convince the participants to behave in that way. The author used experienced dealers and non-dealers of sport cards, and found dealers portrayed a hypothetical bias in contrast to the non-dealer participants. Accordingly, experience establishes behaviour which is difficult to be changed by hypothetical experimental design (Cummings *et al.*, 1995). So it is possible to convince inexperienced persons to behave as in real life, but not experienced ones.

However, hypothetical studies might produce reliable data in studies of public goods. Carlsson and Martinsson (2001) recruited 37 students to investigate the ability of a hypothetical experiment to predict actual choices of environmental projects. The authors found no significant differences between hypothetical choices and real choices of donation and where to donate. It was suggested the consistency of participants' decision was because environmental projects and public goods are closely related or the projects themselves are public goods (Carlsson and Martinsson, 2001). Then, a decreased private benefit may reduce incentive to cheat. Yet this argument may be questionable against the free rider problem. The free rider problem is the ability to benefit from public goods without paying because individuals cannot be excluded once the public goods are produced (Stigler, 1974; Carpenter, 2007). Therefore, perhaps Carlsson and Martinsson (2001)'s study was affected by pro-social issues or the inexperience of students in environmental projects.

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Finally given increasing reliance on hypothetical experiments and the research finding that the hypothetical experiments are more likely to suffer from hypothetical bias than not, future researchers should investigate how the bias can be reduced. Temporarily, hypothetical experiments should be avoided where experimental designs include financial commitments. Instead, the method may be useful in surveying fairness perception, tax morale, and social norms where no financial commitment is required.

3.4   Survey Methods

Survey studies collect data from people by asking questions and getting responses, including interview and questionnaires. Many researchers have turned to survey methods to study tax compliance issues (Dean *et al.*, 1980; Fjeldstad and Semboja, 2001; Kirchler *et al.*, 2006). Survey studies have benefits too. Survey studies gather many socio-economic, demographic and attitudinal data which are very useful in studying tax compliance behaviour (Andreoni *et al.*, 1998).

Moreover, survey methods are useful in studying taxpayers' perception because the perception does not necessary involve recalling processes, pro-social issue and not susceptible to over or under reporting of tax compliance level (McGee *et al.*, 2008; Alm and Torgler 2011). Uniquely, survey studies might produce more external valid data because of gathering data in a natural setting from samples which probably representatives of target populations. Also, it is easily to have sizeable samples in survey studies and finally, doing survey research is relatively cheap (Mitchell and Janina, 2013).

3.4.1   Challenges of Survey Research

Nonetheless survey methods have negative points too. Survey methods may give unreliable data when taxpayers conceal their tax compliance behaviour (Torgler, 2002; Kleven *et al.*, 2011). Possibly, it is the most disadvantage of the survey method when a survey study involves serious issues as tax non-compliance, apart from low response rates. Therefore, surveys' findings are subject to participants' cooperation and faithfulness because some may even cheat or simply not cooperate (Klepper and Nagin, 1989a).

Self-reporting is the second problem of survey methods. Self-reports can lead to underreporting or denial of socially deviant behaviour; the unacceptable behaviour in a society which can include tax evasion and over reporting of pro-social behaviour (Elffers *et al.*, 1987). Indeed, Elffers *et al.* (1987) discovered survey responses from 155 residents in the Netherlands whose the tax returns of 1981 and 1982 were audited had almost zero correlation with their self-reported tax compliance levels. Also, it was found only 20% of the participants in the US accepted their involvements in tax evasion in the last five years; the finding was a half of the results of TCMP which suggested 40% of people evaded taxes (Andreoni *et al.*, 1998).

Moreover, unclear definition of tax evasion can also cause the failure of survey methods to depict true levels of tax evasion (Andreoni *et al.*, 1998). However, this argument is questionable because respondents in Elffers *et al.* (1987) and Hessing *et al.* (1988) knew they had been accused of tax evasion and had paid the tax evaded and penalties before the survey but still did not respond truthful in the survey probably because tax evasion is considered antisocial behaviour.

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However, a few researchers have suggested how to reduce response bias. Andreoni *et al.* (1998) recommended survey methods work well when government tax audit data complement the survey approaches. Likewise, Wolfe (1974) conducted a random roadside breath testing survey, and discovered that only 3% of participants who were drunk provided wrong responses to a survey asking how much alcohol the participants drank, the rest of the participants provided correct responses. The author claimed the correct responses were provided because the responses could have been compared to the breath analysis test results. However, since taxpayers' tax returns are confidential, tax researchers may not depend on this approach to induce correct responses or validate self-reported data. Even when the tax returns are available to tax researchers, the availability of tax returns can have no impact on taxpayers' responses as the taxpayers are aware their tax returns are highly confidential and are not expecting researchers to have access to them.

Additionally, survey methods' response bias can be reduced by distributing positive and negative items throughout questionnaires (Kirchler *et al.*, 2006). This distribution of questions may provide check and balance of respondents' responses (Kirchler *et al.*, 2006). Also, ensuring respondent confidentiality through anonymity and emphasising the importance of honest responses might improve the level of honest responses. Still, literature on how the confidentiality and anonymous clauses impact self-reported survey responses is limited.

The third problem of survey methods is some respondents give wrong responses unintentionally. After finding self-reported scores explaining just a quarter of the variance on behavioral measures, Brislin and Olmstead (1973) argued respondents did not know what kind of phosphate detergent, the

respondents were using, because some detergent products did not include content information. Specifically, Brislin and Olmstead (1973) compared self-reported behaviour to actual usage of low washing phosphate detergents. In Brislin and Olmstead (1973)'s survey, detergent brand name and phosphate content were included. So samples in survey studies should represent targeted populations and samples should be expected to have a reasonable understanding of subject under study, otherwise studies should provide additional information about the subject.

Memory decay can cause wrong responses too. Cash and Moss (1972) found correct responses were function of time, where the shorter the time interval between an event and a survey the more correct the responses were. These authors interviewed 590 individuals who had accidents in the previous year and discovered 8% of them denied accidents when the time between accidents and interviews were less than 1/2 year, while when the time exceeded 1/2 year denial rates increased to 21%. Again, Farrington (1973) did a follow up interview of a study two years earlier had found a significant correction between self-reported and official records of misbehaving 405 youths. The follow up study involved 397 boys and found almost half of the boys who in a previous survey admitted their involvements in theft and physical aggression denied involvement when surveyed subsequently.

Cash and Moss (1972) and Farrington (1973)'s findings imply where recalling of past tax compliance behaviour is required; researchers in the future should time their studies before participants forget their compliance actions. Particularly, when a survey aims at estimating how many taxes taxpayers have evaded, doing the survey immediately after a tax year end can reduce the recall problem. In other words, if taxpayers file tax returns, say at the end of March

every year, surveys done in April or May concerning the previous year tax compliance is desirable. Equally, researchers interesting in tax compliance costs can use the method used by Alexander *et al.* (2005) who kept records of the time and money spent in complying with tax laws by small firms for two months; thereby completely avoiding the recalling problem.

Also survey methods are unable to identify causal and effect relationships among variables because the methods cannot control many factors (Alm, 1991; Kleven *et al.*, 2011). Therefore, surveys are arguably not suitable in studies aimed at determining causality relationships; for example, fairness concern might be used to rationalise past tax evasion practices instead of causing them (Alm, 1991). Additionally, the definition of internal validity in survey study is about consistency of respondents' responses over similar items in a questionnaire (Malhotra and Grover, 1998). This definition of internal validity differs from the definition of internal validity in experiment studies previously given.

Briefly the preceding discussion suggests survey methods do not work well in studying deviant behaviour, pro-social issues and where participants require the recalling of past behaviour as well as in examining the impact of independent variables on dependent ones. Yet they are powerful ways of getting social economic data.

3.5 Conclusion

Conclusively tax compliance can be studied through archival data, experiments and survey methods, but each method has both advantages and disadvantages which must be considered while selecting an appropriate technique. It was

found archival data are the cheapest and provides more external valid findings, but has little internal validity and actual taxpayers' data are confidential.

Moreover, laboratory experiments offer controls over tax compliance policies, participants' preferences and provide opportunities for replicating studies. Consequently, laboratory experiments increase the internal validity of data but their external validity remains questionable. Furthermore, experimenters interested in having highly external valid data at the expense of internal validity, can opt for field experiments; yet the experimenters need cooperation from tax authorities. Furthermore, the review reveals hypothetical experiments have a hypothetical bias when used to measure participants' intentions to pay; unfortunately to date no firm solution to the hypothetical bias is available.

Finally, despite the external validity of survey methods, they can provide misleading results when they are employed in studying pro-social, deviant behaviour and where respondents are asked to recall past behaviour. Also, the survey methods may not establish a causality relationship. In conclusion, given the problems of archival data, survey methods and hypothetical experiment; laboratory and field experiments can be used to study many areas of tax compliance because of their abilities to controls over participants' preference, tax compliance policies and their abilities to overcome their own and other methods' limitations.

Chapter 4: Does the Corporate Income Tax Penalty Incidence Matter?

Abstract

Governments normally charge tax penalties for tax non-compliance. In personal income tax, tax penalties are imposed on a person to encourage the person to increase his or her tax compliance level. While, in corporate income tax non-compliance, governments can either impose financial corporate income tax penalties on corporates or their tax managers. However, the effectiveness of these corporate income tax penalty incidence is almost unknown. In this chapter, their effectiveness is examined experimentally. The results showed imposing corporate income tax penalties on tax managers rather on corporates could increase corporate income tax compliance. Therefore, tax authorities should impose corporate income tax penalties on responsible individuals.

Keywords: corporate income tax penalty incidence, tax avoidance, tax compliance, tax evasion.

4.1   Introduction

Corporate tax penalty incidence is not considered as it should because it is becoming difficult to ignore contributions of corporations in tax collection systems. Tanzania Income Tax Act 2004 defined a corporation as any company, incorporated or unincorporated association of persons excluding partnership (*The Income Tax Act*, 2004). Besides paying corporate income taxes, they may collect pay as you earn and value added taxes. So, corporate tax non-compliance may have a devastating impact on governments' tax revenue. Tax compliance occurs when a taxpayer abides by tax laws (Kirchler *et al.*, 2007).

Yet, the effectiveness of a corporate income tax penalty incidence in particular is almost unknown. The corporate income tax penalty incidence refers to who does a tax law imposes the corporate income tax penalty between tax managers and corporates. Furthermore, Slemrod (2004:11) calls for testing of corporate tax penalty incidences: "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) and Chen and Chu (2005) and Lipatov (2012); but these contributions are theoretical, consequently empirical evidence is missing. Further, a few researchers have investigated corporate income tax compliance, and tax compliance in developing countries in general (Hanlon and Heitzman, 2010). Therefore, this chapter is investigating a corporate income tax penalty incidence experimentally with the aim of answering the question; does the corporate income tax penalty matter? The chapter that argues corporate income tax penalties imposed on corporates are less effective in increasing corporate income tax compliance than those imposed on tax managers.

This chapter makes four contributions to tax compliance literature. First, it provides the first experimental evidence on the relevance of a corporate income tax penalty incidence. Second, many laboratory experiments have only used income declared to measure tax compliance while tax compliance decisions consider among other things, income and expenses (Elffers *et al.*, 1987; Alm, 1999). Thus, Alm (1999) and Webley and Halstead (1986) proposed future experiments should provide several ways of measuring tax compliance as those available in an actual situation. The chapter 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 an exception of a study by Cadsby *et al.* (2006) which allowed participants to report from 0 to actual income received (Moser *et al.*, 1995; Alm, 2010). Consequently, these studies provide less external valid results (Webley and Halstead, 1986; Cadsby *et al.*, 2006) as tax authorities demand full compliance. Finally, it adds to scarce corporate income tax compliance literature, and to the few studies from developing countries.

The remainder of the chapter is divided as follows. Section 4.2 discusses tax compliance literature and develops hypotheses. Section 4.3 describes methodology. Section 4.4 presents results, and section 4.5 concludes.

4.2   Prior Literature and Development of Hypotheses

4.2.1   Economic Personal Income Model in a Corporate Setting

The corporate income tax penalty is based on an economic personal income tax model developed by Allingham and Sandmo (1972) and Srinivasan (1973).

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The model assumes a rational person making 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 an income tax penalty (P) for not declaring all income are known. Furthermore, the model assumes the person wants to maximise the income after payment of income tax and any income tax penalty.

The person compares expected benefit i.e. (I x T x (1-R)) vs expected costs i.e. (I x T x R x P) of income tax non-compliance, assuming the person wishes to declare nil income. Moreover, the person is assumed to prefer less but certain to high but uncertain return, so according to this model, tax compliance is assured when the expected benefit is less or equal to expected costs of tax non-compliance. Accordingly, tax authorities are advised to lower tax rates; a low tax rate lowers the expected benefit of tax non-compliance while leaving high disposal income to the maximiser taxpayer. Also tax authorities are advised to increase audit and penalty rate; increasing audit and penalty rate increases expected costs of tax non-compliance.

In general the model has some empirical supports. Certain audit rates have been found to have associations with high tax compliance (Spicer and Thomas, 1982; Kamdar, 1997; Fjeldstad and Semboja, 2001; Alm and McKee, 2006). However, a field experiment discovered a positive relationship between tax compliance rate and certain audit rate in low and middle income taxpayers despite having tax non-compliance opportunities, but low tax compliance was discovered in wealthy taxpayers (Slemrod *et al.*, 2001). Consequently, the impact of a certain audit rate on tax compliance may depend on taxpayers' income. However, not all factors are controlled in field experiments, for instance, the study did not control for use of paid tax preparers who are said to significantly affect tax compliance (Hasseldine *et al.*, 2007). Also the

perceived weakness of the revenue authority to uncover all tax non-compliance activities was suggested to cause tax non-compliance in high income taxpayers (Slemrod *et al.*, 2001).

Still, wealthy individual taxpayers were found to react more positively to audit rates than other taxpayers (Ali *et al.*, 2001). An uncertain audit rate in Ali *et al.* (2001)'s study might have caused high income taxpayers to perceive a high audit rate because tax authorities might have exclusive departments dealing with larger taxpayers. For instance, Tanzania Revenue Authority (TRA) has one; this department closely monitor larger taxpayers who are few. While low income taxpayers are many; enjoying the perceived tax non-compliance's opportunities, hence low income taxpayers may lower their tax compliance levels. Subsequently, the result based on archival tax data used in study by Ali *et al.* (2001) might differ from results based on a certain audit rate.

Nevertheless, without announcing a probability of audit Spicer and Thomas (1982) and Alm and McKee (2006) found an insignificant relationship between an audit rate and tax non-compliance. Consequently, Spicer and Thomas (1982) argued when an audit rate is uncertain taxpayers use guesswork when making tax compliance decisions. Furthermore, experimental results suggested some taxpayers make tax compliance decision basing on a perceived probability of audit as some participants complied even at zero audit rates (Alm *et al.*, 1992d). In short, an audit rate is one of the most important tax compliance enforcement tools.

Audit and penalty rates are related because non-compliant taxpayers mostly are penalised after being detected through audit. Majority of prior research has found high tax penalties could increase tax compliance rates (Friedland *et al.*, 1978; Klepper and Nagin, 1989b; Park and Hyun, 2003). High tax penalties

might increase tax compliance because taxpayers are not willing to lose much from tax penalty (Kahneman and Tversky, 1979; Dhami and al-Nowaihi, 2007). Still some literature has found an opposing result (Webley, 1987; Cadsby *et al.*, 2006). Webley (1987) for example, manipulated a tax penalty of 2 to 6 times unpaid taxes, while audit rates were between 17% and 50%. Webley (1987) found only a positive significant impact of audit rates on reported income.

Furthermore, an application of the economic personal tax income model in corporate taxpayers is inconclusive. Slemrod (2004) argued the model is not appropriate in large corporates because the corporates are more likely to have well diversified portfolios. The diversification might make large corporates risk neutral instead of risk averse. Subsequently, the income tax compliance under risk neutral attitude requires a relative large difference between expected costs and expected benefits of tax non-compliance (Slemrod, 2004). Specifically, Slemrod (2004) proposed the risk neutral attitudes leads to 100% tax compliance level when expected costs is more severe in comparison to the expected benefit of tax non-compliance and 0% tax compliance level when the expected costs is not relatively severe. Furthermore, separation of control can cause tax managers to be risk neutral as they might lack strong financial connection to corporates (Slemrod, 2004).

Similarly, Kamdar (1997) using corporate compliance data from the US Internal Revenue Service found 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 impact on tax compliance behaviour of large corporates and the value added tax taxpayers (Ariel, 2012).

Thus, Slemrod (2004) claimed the economic personal tax income model is only appropriate in small corporates where owners run the corporates and the

corporates have less diversified investment portfolios. Further, where owners run their corporates; the owners would have a strong connection to the corporates' financial outcome and 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 a risk averse way. Still less diversification leaves other unsystematic risks uncovered so small corporates might be risk averse (Slemrod, 2004). Consequently, the expectation is:

H1$_a$ Owner-managers run corporates will comply more than managers run corporates.

However, Clinard *et al.* (1980) argued that the management status of corporate is irrelevant in determining corporate behaviour as the corporate from its interaction with separate parties of the corporate, generates its own behaviour distinct from the owner's behaviour. Likewise, a decrease in the tax rate charged on medium sized corporate income was found to have no impact on corporate tax income compliance (Rice, 1990). So, the personal income tax model might not be appropriate even in small corporates. In sum, given the limited corporate income tax literature it is hard to conclude whether the personal income tax model works well in a corporate setting.

Despite, the debate over appropriateness of the personal income tax model in a corporate setting, corporate income tax penalties are imposed basing on this model as currently no economic corporate income tax model is available. Subsequently, studying how corporate income tax penalty incidence relates to corporate income tax compliance is vital.

4.2.2   Corporate Income Tax Penalty Incidence

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

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

However, Lipatov (2012)'s argument has two major potential problems. First, it depends on shareholders being aware of a corporate income tax penalty being paid, if shareholders are not aware the penalties on managers will not happen (Crocker and Slemrod, 2005). The second problem is even if shareholders are

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aware that the corporate penalty income tax penalties were paid, the shareholders might not penalise tax managers when the possibility of corporate income tax non-compliance was considered by offering low salaries to tax managers (Crocker and Slemrod, 2005). Also shareholders might not mind when they have well-diversified portfolios (Crocker and Slemrod, 2005).

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

Third, governments imposed corporate income tax penalties on tax managers might be more severe than those imposed by owners on tax managers, because governments might include tax administration costs and jail sentences when determining penalties (Polinsky and Shavell, 1993). Costs incurred by tax authorities when enforcing tax laws are known as tax administration costs (Sandford and Hardwick, 1989). Hence, the penalties imposed on tax managers can have more impact on corporate income tax compliance. So Crocker and Slemrod (2005) proposed government should directly penalise tax managers,

the penalty would create conflict with shareholders, and probably the solution of the conflict might result in improving corporate income tax compliance.

Nevertheless, Crocker and Slemrod (2005)'s proposal has also potential limitations. First, when tax managers are aware of potential corporate income tax penalties, they can demand high emoluments to compensate for any foreseeable losses (Lipatov, 2012). Second, when owners and tax managers have colluded, the owners might reimburse the penalty and eliminate any purported impact (Chen and 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, Tanzania Value Added Tax Act 1997 section 51 provides penalties to individuals in case of corporate value added tax non-compliance (*The Value Added Tax Act*, 1997).

Nonetheless, hypothetical experiments suggested tax preparers might abide to tax laws and be less aggressive when they are penalised (Newberry *et al.*, 1993; Hansen and White, 2012). However, results from hypothetical experiments are limited as Chang *et al.* (2009) showed market shares of retail products shown in retail hypothetical choices differed significantly from real market shares of products. Similarly, tax compliance level improved after communicating corporate excise tax penalty for non-compliance and requiring responsible persons to take accountability of corporate tax compliance (Sanders *et al.*, 2008). Then penalising tax managers for corporate income tax non-compliance might encourage corporate income tax compliance. Thereupon, other three hypotheses are following:

H2ₐ In manager run corporates, corporate income tax penalties charged on
managers will be more positively associated with corporate income tax
compliance than corporate income tax penalties charged on the
corporates.

H3ₐ In owner run corporates, corporate income tax penalties charged on
owners will be more positively associated with corporate income tax
compliance than corporate income tax penalties charged on the
corporates.

H4ₐ Corporate income tax penalties charged on managers will be more
positively associated with corporate income tax compliance than
corporate income tax penalties charged on the corporates irrespective of
whether the corporates are manager or owner run.

4.2.3   Demographic Variables and Corporate Income Tax

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

Similarly, young taxpayers have been depicting lower tax compliance rates when compared to older taxpayers (Clotfelter, 1983; Kirchler, 1999; Fjeldstad and Semboja, 2001), because older taxpayers are more risk averse than younger ones (Chang *et al.*, 1987). Moreover, Kirchler (1999) suggested attitudes towards tax compliance improve overtime, correspondingly younger

taxpayers are more likely to have negative attitudes towards 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 period in hiding than older taxpayers (Fjeldstad and Semboja, 2001).

Yet education can either increase or decrease tax compliance level. Education can raise tax compliance level when taxpayers understand fiscal policy of tax systems (Jackson and Milliron, 1986; Dubin and 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).

Notwithstanding, highly educated taxpayers can utilise loopholes available in tax laws to reduce their tax liabilities (Jackson and Milliron, 1986; Dubin *et al.*, 1990). Also, highly educated taxpayers may perceive income tax payments as loss per prospect theory; they may reduce income tax compliance levels (Chang *et al.*, 1987). To conclude, demographic variables of a tax manager can explain a corporate income tax compliance level. However, the experiment has used a bachelor of commerce 2nd year students who have almost similar education level and age groups, but differ in gender. Whence the hypothesis 5 is:

H5, Women's run corporates will be more compliant than men's run
      a
      corporates.

4.3   Methodology

4.3.1   Method

To study a corporate income tax penalty incidence a laboratory experimental method was selected. Tax non-compliance can be socially undesirable behaviour and 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 can be expensive and may not allow experimenters to control many variables (Torgler, 2002; Alm and Torgler 2011). Also getting cooperation with tax authorities in a field experiment is hard (Levitt and List, 2009). Likewise, archival data about a corporate income tax penalty incidence is not available, both because of taxpayers data is confidential and currently corporate income tax penalties are imposed on corporates. So, the data on corporate income tax penalties imposed on tax managers is absent.

Accordingly, the laboratory experiment was considered appropriate because it offers control over tax rate, audit rate, penalty rate, income, and participants' preferences to get highly internally valid data necessary in causality-effect claims. The internal validity of data from an experiment refers to changes in dependent variables as a result of changes in independent variables (Loewenstein, 1999).

Moreover, privacy and language of instructions are vital in getting internally valid data. The privacy assures independent data as participants work independently, and might cause participants to show their true tax compliance behaviour (Smith, 1982). Further, laboratory experimenters are advised to avoid using tax terminologies in experimental instructions to hide a context of

studies, the context adds information not provided in a study (Wartick *et al.*, 1999; Alm, 2010). Finally, the experimental rewards should be variables; varying with participants' behaviour and the rewards should be great enough to offset any attached costs of participation (Smith, 1982). For instance, participants who report more income pay more taxes and the participants get less after tax income.

Laboratory experiments have several weaknesses. First, if a laboratory experimental environment differs significantly from non-laboratory environments, results from laboratory experiments may not apply in non-laboratory environment (Smith, 1982). Subsequently, imitation of real tax systems may improve usefulness of results from laboratory experiments (Spicer and Thomas, 1982). Second, many laboratory experiments use students as proxies of taxpayers; students are doubtfully not good representatives of taxpayers, although, no evidences showing that taxpayers' responses differ from students' ones (Alm *et al.*, 2010a).

4.3.2   Participants, Experimental Design and Procedure

Initially, the study intended to recruitment SMEs owners and managers who had attended training at the University of Dar es salaam Entrepreneurship Centre. However, despite full support from the Centre and two weeks recruitment efforts by phones, only 15 people attended at the experiment; largely because of low participation compensation. This number of participants was too small for an experiment with four treatments (Mitchell and Janina, 2013). Consequently, 100 bachelors of commerce 2nd year students at the University of Dar es salaam participated in the experiment. They were invited

through two weeks class announcements. 80 were men, the mean age was 23 and age standard deviation was 1.25. The participants were told they could earn up to Tanzania shillings (Tshs) 20,000[3] depending on income declared by each participant and experimental treatment facing him or her, but the average pay was Tshs 13,000.

First, participants were randomly assigned into two groups: managers and owner-managers 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 corporates. Correspondingly, the experiment design was a 2 x 2 design and each participant participated only in one cell (see Table 4.3.1).Therefore, 100 participants were divided into four groups. Each participant from each group was required to select any envelope from envelopes prepared for them. The envelopes contained consent forms, tax return forms in duplicate[4], and instruction sheets[5].

After participants read the participant information sheet (see Appendix A1) and signed consent forms (see Appendix A2) the researcher read the common instruction information[6] in tax terminology without allowing participants to read theirs (see Appendix A3). The common instructions were about verification of documents, confidentiality and independence, corporate income and manager's salary, taxation, and auditing. Confidentiality was emphasised and the participants told to work independently and only communicate to supervisors.

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[3] Tshs 2500 =£ 1 and students daily allowance was Tshs 7,500.
[4] The duplicate tax return was retained by participants and it was used for payment of the experimental token.
[5] The study has borrowed an instrument used in a study by Cadby, Maynes and Trivedi (2006) with the consent of the authors as they performed their experiment manually and they tested the impact of audit and penalty rates on tax compliance.
[6] Some items differed as experimental treatments.

Participants knew the tax rate, income, penalty rate and audit rate, and these parameters were kept constant throughout the experiment because they affect tax compliance (Kirchler *et al.*, 2008; Hanlon and Heitzman, 2010). A tax rate of 30% was applied on both corporate net income and managers' salary while, a corporate income tax penalty rate was 2 times the unpaid corporate income taxes[7] and an audit rate was 10% implemented through probability with replacement. Besides, participants were instructed to correctly report gross income, salary and pay correct corporate income taxes otherwise they would face a corporate income tax penalty, according to everyone's experimental treatment. The corporate gross income was TAZ 1,000,000 per session, while, managers' gross salary was TAZ 600,000 per session paid from the corporate income. TAZ was explained as a laboratory currency exchangeable to actual money at TAZ 150 for 1 actual Tanzania shillings (Tshs) at the end of experiment.

Table 4.3.1: Experimental Design

		Management status	
		Managers	Owner–managers
		Hypothesis 1	
Corporate income tax Penalty on:	Managers		
	Corporates	Hypothesis 4 / Hypothesis 2	Hypothesis 3

The experimental treatments caused two instructions to differ so were read by participants individually. The first difference was some of the participants

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[7] A corporate tax and penalty rate reflected Tanzania's income tax structure.

acted as managers (treatment 1 and 2) while others as owner–managers (treatment 3 and 4). Both managers and owner–managers' role was to file tax returns on behalf of corporates but managers were only paid taxable[8] salaries whereas owner–managers got both taxable salaries and corporate residual income. The second difference was some corporate income tax penalties were deducted from managers' salary after tax (treatment 1 and 4) while others from corporate residual income (treatment 2 and 3).

In short, the experiment involved four steps: first, learning details of income, a tax rate, an audit rate, a penalty rate and a corporate income tax penalty incidence; second, filling a tax return; third, filing the tax return not the duplicate; fourth, some of the participants underwent audit, and penalised if any tax underpayment was discovered by noting on the duplicate tax return, a round ended a new round started. The experiment lasted 3 rounds which were preceded by questions and answer session and a practice round. The experiment in total took almost 80 minutes and ended with a brief debrief (Appendix A4).

4.4   Data Analysis and Results

4.4.1   Data Screening and Analysis Approach

After data screening 61 observations of gross income exceeded TAZ 1,000,000 per session so they were dropped 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, but the magnitude of tax non–compliance cannot be ascertained. However,

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[8] Taxing salaries might have given an incentive to managers to defraud corporates by understating a salary amount ending paying high corporate income taxes, however, the data shows that no corporates overstated its corporate income tax liability.

dropped observations were almost equally distributed across the treatments. Also, two observations in managers run corporates did not indicate gender of the participants and it was treated as a separate gender category in addition to female and male.

In the analysis, analysis of variance[9] (ANOVA) was employed to test the hypotheses. ANOVA is a powerful tool to examine differences of two or more means of independent variables when there is a single dependent variable (Verboon and van Dijke, 2011; Mitchell and 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 there are many dependent variables (Hair *et al.*, 2010; Mitchell and Janina, 2013). In this study, the dependent variable was a tax compliance level, while, independent 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).

However, an aligned rank transformed data (ranking data in ascending order before analysis) ANOVA was used because a Shapiro Wilk test of normality on all sets of data indicated the data were not normally distributed, p < .001, and the assumption of homogeneity was violated, Levene's test p < .001. Conover and Iman (1981) showed rank transformed data work well with parametric methods when non-parametric methods are absent. Also rank transformed data solves the heteroscedasticity problems by stabilising variances of the ranked data (Timothy *et al.*, 1985). Consequently rank transformed data might

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[9] Both results from individual rounds and the entire experiment indicated similar nature.

be distribution free data (Conover and Iman, 1981; Timothy *et al.*, 1985), and are not susceptible to outliers (D'Amato *et al.*, 1994).

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

4.4.2   Results

Corporate income tax compliance was measured in terms of net income, that is, income declared less salary declared. Descriptive statistics of the un-ranked data were: the means of corporate net income from treatment 1 was TAZ 358,666.67 (SD = 84,461.74), treatment 2 was 299,694.92 (SD = 122,933.15), treatment 3 was 335,357.14 (SD = 105,330.03) and treatment 4 was 353,333.33 (SD = 106,908.27), while, the median corporate net income for all treatments was TAZ 400,000. In totality, these descriptive statistics imply that there might be compliant and non-compliant taxpayers, no matter how corporate tax penalty incidence is changed (Andreoni *et al.*, 1998).

To test hypothesis 2 and 5, a 3 x 2 between subjects ANOVA of gender (female, male, and un-named) x a corporate income tax penalty on (managers, corporates) in manager run corporates was conducted (see Table 4.4:1). Corporates net income were significantly higher when a corporate income tax penalty was imposed on managers than on corporates; consistent with hypothesis 2, F(1, 116) = 7.12, p = .01, $\eta_p^2 = .06$. Thus, the mean rank of corporate net income of 73.39 when corporate penalties were on individual

managers differed significantly from the mean rank of corporate net income of

61.73 when corporate income tax penalties were imposed on corporates.

However, hypothesis 5 was not supported as the main effect of gender was

insignificant, $F_{(1, 116)} = .79$, $p = .43$, $\eta_p^2 = .01$. Likewise, an interaction

between gender and corporate income tax penalty incidence was insignificant,

$F_{(1, 116)} = 1.24$, $p = .31$, $\eta_p^2 = .01$.

Table 4.4.1: Analysis of Variance–Manager Run Corporates

Dependent variable: Rank of corporate net income

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected model	9008.33	4	2252.08	2.65	.04
Intercept	62818.93	1	62818.93	73.86	.00
Corporate income tax penalty incidence	6058.29	1	6058.29	7.12	.01
Gender	1446.75	2	723.37	.85	.43
Corporate income tax penalty incidence * Gender	881.15	1	881.15	1.04	.31
Error	98659.67	116	850.51		
Total	557909	121			
Corrected total	107668	120			

Adjusted R-squared = .05

On the other hand, to test hypothesis 3 and 5, a 2 x 2 between subjects

ANOVA of gender (female, male) x a corporate income tax penalty imposed on

(manager, corporate) in owner run corporates was run (see Table 4.4.2). As

expected in hypothesis 3, ranked corporate net income was significant higher

when corporate income tax penalties were deducted from owner–managers'

salaries than when corporate income tax penalties were deducted from

corporate residual income, $F_{(1, 113)} = 7.26$, $p = .01$, $\eta_p^2 = .06$. Specifically,

when corporate income tax penalties were imposed on corporates the mean

rank of corporate net income was 46.75 which were significantly lower than

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the mean rank of corporate net income of 65.84 when corporate income tax penalties were imposed on individual managers.

Nonetheless, the main effect of gender on tax compliance was not significant against hypothesis 5, $F(1, 113) = .37$, $p = .55$, $\eta_p^2 = 00$. However,

Figure 4.4.1 shows that when corporate income tax penalties were imposed on managers women run corporates complied more than men run corporates while when corporate income tax penalties were charged on the corporates, women run corporates complied lesser than men run corporates, $F(1, 113) = 6.19$, $p = .01$, $\eta_p^2 = .05$. This result implies that the impact of corporate income tax penalties may depend on gender of tax managers.

Table 4.4.2: Analysis of Variance–Owner Run Corporate

Dependent variable: Rank of corporate net income					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5149.43	3	1716.48	2.72	.05
Intercept	159727.88	1	159727.88	252.81	00
Corporate income tax penalty incidence	4589.41	1	4589.41	7.26	.01
Gender	231.49	1	231.49	.37	.55
Corporate income tax penalty incidence*gender	3910.38	1	3910.38	6.19	.01
Error	71396.07	113	631.82		
Total	483822.50	117			
Corrected total	76545.50	116			
Adjusted R-squared= .04					

Figure 4.4.1: Female Vs Male Runs Corporate Income Tax Compliance
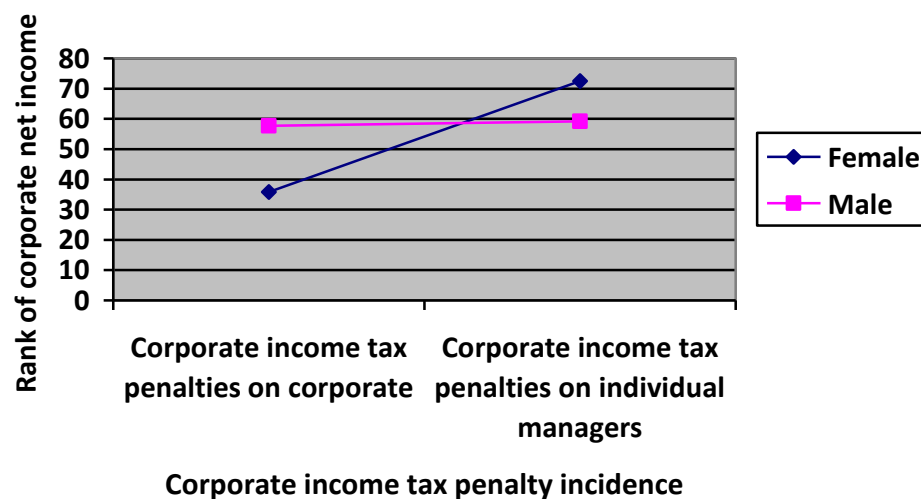
Finally, to test hypotheses 1, 4 and 5 a 2 x 2 x 3 between subjects ANOVA of a corporate income tax penalty imposed on (managers: corporates) x management status (manager: owner–managers) x gender (female, male and un–named) of aggregated data were conducted. Table 4.4.3 shows that consistent with hypothesis 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, $F_{(1, 230)} = 14.44$, $p < .001$, $\eta_p^2 = .06$. 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, $F(1, 230) = .00$, $p = .97$, $\eta_p^2 = .00$. Also the interaction between management status and gender was insignificant, $F(1, 230) = .98$, $p = .32$, $\eta_p^2 = .00$. Furthermore, the interactions between corporate income tax penalty incidence and management status was insignificant, $F(1, 235) = .01$, $p = .95$, $\eta_p^2 = .00$.

Likewise, an insignificant main effect of gender on compliance was observed, $F(2, 230) = .50$, $p = .60$, $\eta_p^2 = .00$, this result does not support hypothesis 5. Yet, Figure 4.4.2 indicates that when the corporate income tax penalty was charged to individual tax managers, women run corporates' corporate net incomes were significantly higher than men run corporates' corporate net income, while when a corporate income tax penalty was imposed on corporates women run corporates' corporate net income were lower than men run corporates' corporate net income, $F(1, 230) = 6.63$, $p = .01$, $\eta_p^2 = .03$.

Table 4.4.3: Analysis of Variance–Aggregated Data

Dependent variable: Rank of corporate net income

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	62108.38	8	7763.55	2.60	.01
Intercept	362232.04	1	362232.04	121.48	.00
Gender	2977.87	2	1488.93	.50	.61
Management status	4.12	1	4.12	.00	.97
Corporate income tax Penalty incidence	43068.55	1	43068.55	14.44	.00
Gender * management status	2923.55	1	2923.55	.98	.32
Gender * corporate income tax penalty incidence	19763.15	1	19763.15	6.63	.01
Management status * corporate income tax penalty incidence	13.97	1	13.97	.01	.95
Error	685798.62	230	2981.73		
Total	4189507	239			
Corrected Total	747907	238			

Adjusted R-squared = .05

Figure 4.4.2: Gender * Corporate Income Tax Penalty Incidence
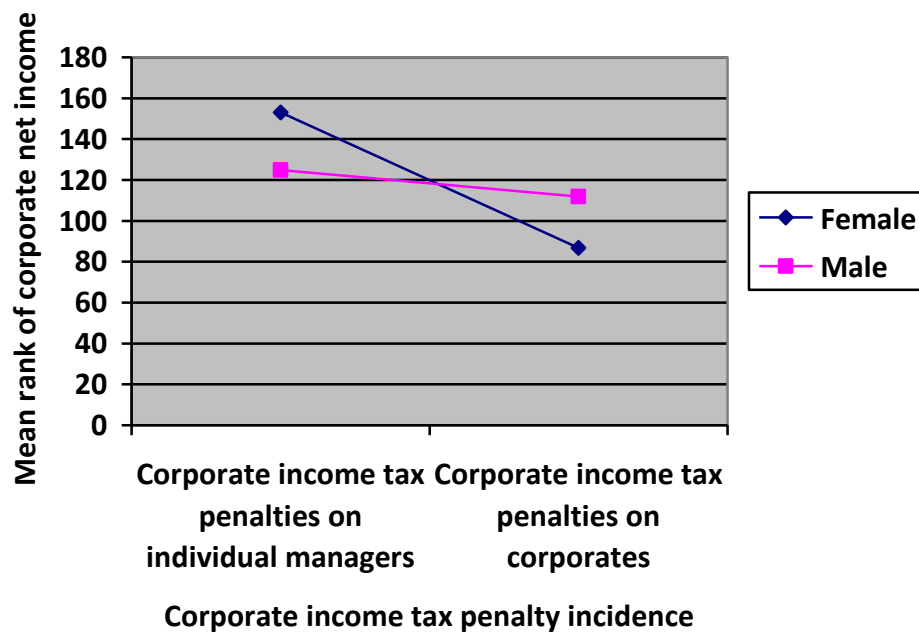
4.5   Discussion, Limitations, Future Research and Conclusion

The simple act of changing where corporate income tax penalties are deducted changed corporate income tax compliance levels. Taken together, the chapter suggests corporate income tax penalties imposed on managers may be more effective in increasing corporate income tax compliance, both in managers and owner–managers run corporates. Two reasons can explain these results. First, in managers run corporates, lack of economic benefits from corporate income tax non–compliance can explain managers' behaviour. Second, in both owner–managers and managers run corporates, it seems participants were

increasingly unwilling to be personally liable for corporate income tax non-compliance. This result is consistent with prior literature (Slemrod, 2004; Crocker and Slemrod, 2005), but not supporting Lipatov (2012)'s claims which suggested that corporate tax penalties imposed on corporates are more effective than those imposed on tax managers.

Futhermore, levels of corporate income tax compliance may not depend on management status of corporates, supporting Clinard *et al.* (1980)'s claim that organisations develop their distinct behaviour regardless of their management status, but against Slemrod (2004)'s claim that small organisations behave like owners. This result suggests that corporates behaviour might differ from individuals' behaviour irrespective whether individuals are owners or not owners of the corporates.

Additionally, women run corporates complied almost equally as men run corporates except in owners' run corporates, and in an entire experiment; where women run corporates' compliance rates were significantly higher than men run corporates' compliance rates when corporate income tax penalties were imposed on individuals. But women run corporates' compliance rates dropped sharply than men run corporates' compliance rates when the penalties were taken from corporate residual income. Imaginably, the former finding is consistent with Cadsby *et al.* (2006)'s finding who found gender was insignificantly linked with tax compliance. It is difficulty to explain the latter findings because both men and women had 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 on individual tax managers than on corporates, and the vice verse is true. However, more research on this topic needs to be undertaken before the

association between corporate income tax incidence and gender is clearly understood.

These findings have clear implication to policy makers interested in increasing corporate income tax compliance; they might reconsider their current corporate income tax penalty incidence. The study also contributes to limited corporate income tax literature, particularly in helping reconciling the mixed results of prior theoretical research given fixed incentives. The results show that, the corporate income tax penalty imposed on managers is more favorable than those charged on corporates.

The study however, has used students as proxy of corporate managers and owner-managers. This sample might not represent real corporate managers and owner-managers, so future researchers should replicate it with real corporate managers and owner-managers. Furthermore, with small sample size the findings might not be applicable in non-laboratory settings. Also, the statistical powers of the models are not more than .05 (adjusted R-squared). Thus, the tested independent variables might explain not more than 5% after taking into account numbers of independent variables of changes in tax compliance. Probably because the impact of an income tax penalty on income tax compliance is itself arguably low (Alm and Torgler 2011; Ariel, 2012). Subsequently, the findings should be interpreted with care. An important question that remains unanswered is how collusion between managers and owners can influence a corporate income tax penalty incidence of manager run corporates. Because of collusion owners may refund corporate tax penalties paid by managers, and the refund may stringently affect the ability of the penalties to encourage corporate tax compliance (Lipatov, 2012).

Chapter 5:   Analysis of Procedural and Retributive Justice in Tax Compliance

Abstract

Background. Tax research to date has tended to focus on tax penalties rather than their retributive justice and procedural justice of systems imposing tax penalties.

Aims. The chapter examined whether charging corporate income tax penalties which are perceived retributively just relates tax compliance. Also, it investigated whether implementing procedural justice in imposing those penalties is associated with tax compliance and moderates the relationship between tax compliance and retributive justice.

Method. 257 Small and Medium Enterprises [SMEs] taxpayers in Tanzania were surveyed about their perceptions of retributive justice of corporate income tax penalties for not keeping complete records and paying taxes on time, and likely impacts of penalties and procedural justice on tax compliance.

Results. Analysis showed that both perceptions of retributive and procedural justice may be positively correlated with tax compliance. Also, the perceptions of procedural justice might moderate the association between retributive justice and tax compliance.

Conclusions. Retributive and procedural justice fared significantly better in association with tax compliance and procedural justice can moderate the relationship between tax compliance and retributive justice. Therefore, it is recommended that tax authorities should strive to improve retributive justice perceptions of their tax penalties and procedural justice of systems involved in delivering tax penalties.

Keywords: procedural justice, retributive justice, SMEs, tax avoidance, tax compliance, tax evasion.

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5.1   Introduction

High tax compliance level is desirable. Tax compliance occurs when taxpayers abide by tax laws (Kirchler, 2007). However, ensuring high tax compliance levels is difficult; so governments impose tax penalties on non-compliant taxpayers to encourage tax compliance. But research has shown that tax penalties alone may not explain why taxpayers comply with the tax laws (Alm and Torgler 2011; Ariel, 2012). Other factors such as social justice consideration and social psychological factors play a major part in increasing or decreasing tax compliance levels (Hasseldine *et al.*, 2007; Kirchler, 2007; Alm and Torgler 2011; Cullis *et al.*, 2012).

Nevertheless, tax researchers have been much concerned with explaining how tax penalties impact tax compliance behaviour (Allingham and Sandmo, 1972; Kleven *et al.*, 2011; Kube and Traxler, 2011; Ariel, 2012), than with exploring retributive justice aspects of tax penalties and procedural justice in imposing those penalties. Penalties are retributively just when they fit crimes committed (Vidmar and Miller, 1980; Wenzel and Thielmann, 2006; Wenzel *et al.*, 2008). Procedural justice is concerned with a consistent application of rules, ensuring impartial and accurate decision making processes, fair appeal procedures, participation of people, and consideration of ethics in decisions making (Leventhal, 1980; Stalans and Lind, 1997).

Retributive justice is important to all taxpayers. According to Wenzel (2002) it is unfair to compliant taxpayers when non-compliant ones are not punished, but the non-compliant taxpayers expect fair tax penalties. Nevertheless, Stella (1991) and Verboon and van Dijke (2011) argued that it is hard to set appropriate tax penalties because mild tax penalties may be fair, but, may not deter tax non-compliance, yet severe tax penalties may deter tax non-compliance but may be unfair. Additionally,

severe tax penalties may not deter tax non-compliance when deemed unfair by a court of laws (Slemrod, 2007). But, severe tax penalties may increase tax compliance with authority' demands when adherents trust the authority processes of imposing tax penalties (Mulder *et al.*, 2009; Verboon and van Dijke, 2011).

Despite the roles of retributive and procedural justice in tax compliance, the relationship between tax compliance on one hand and retributive and procedural justice on the other hand is imprecise. The aim of this chapter was to address this gap in the tax compliance literature by examining whether charging corporate income tax penalties which fit crimes committed (retributive justice) associate with tax compliance in Tanzania. Besides, it investigated whether implementing procedural justice in imposing corporate income tax penalties is associated with tax compliance and moderates the relationship between tax compliance and retributive justice.

The research is based on survey data from a sample of SMEs taxpayers. Corporate income tax penalties are taken from Tanzania Income Tax Act 2004 section 98 and 100, for failure to keep complete records (scenario one) and pay corporate taxes on time (scenario two) respectively (*The Income Tax Act*, 2004). Using actual tax penalties in the study may increase transferability of the results beyond the sampled population (Alm, 2010). While many SMEs do not keep proper records (Esselaar *et al.*, 2006), they might be subjected to penalties for failure to keep records and for not paying taxes on time. The results imply that SMEs taxpayers might increase their tax compliance levels when they perceive tax penalties fit their crimes, and when the procedures of imposing tax penalties are fair. Also, procedural justice might moderate the relationship between tax compliance and retributive justice.

The present chapter has four contributions to tax literature. First, it adds to retributive and procedural justice limited tax compliance literature. Second, it contributes contextual information as the limited research on procedural and retributive justice mainly comes from developed countries. Third, much of the tax compliance literature concentrates on individual tax compliance rather than corporate tax compliance. This research adds to the rare corporate tax literature. Finally, the results have policy implication when tax penalties are used in conjunction with procedural justice to increase tax compliance.

The reminder of the chapter is presented in the following order. The second section (5.2) reviews the literature on the relationship between tax compliance and justice consideration. It also develops hypotheses. Section 5.3 provides an explanation of method, particularly, data collection method, participants and procedures. Section 5.4 present results, and finally the discussion is presented in the final section (5.5).

5.2 Tax Compliance, Justice and Development of Hypotheses

There are three main categories of tax social justice: distributive, procedural and retributive justice. According to Kirchler (2007) the fair allocation of costs or tax burdens, and benefits or public goods and services is referred as distributive justice. Distributive justice has three subgroups: horizontal, vertical and fiscal exchange fairness. When the allocation of costs and benefits is done within a homogeneous group of taxpayers the allocation is referred as horizontal fairness, conversely when a heterogeneous group of taxpayers are involved in allocation justice is known as vertical fairness (Adams, 1965; Kinsey and Grasmick, 1993). The characteristics of the groups may be measured using income, ability to pay or financial needs of taxpayers (Alm *et al.*, 1993; Kinsey and Grasmick, 1993). Yet, considering taxpayers' financial needs may complicate a tax system as it is difficult

to quantify them. Lastly, the relationship between tax financed public goods and tax revenue from taxpayers determines fiscal exchange fairness (Wenzel, 2002; Kirchler, 2007).

Many researchers have argued that horizontal and vertical fairness perception is positively correlated with tax compliance levels (Spicer and Becker, 1980; Cowell, 1992; Kinsey and Grasmick, 1993). For example, Cowell (1992) incorporated the perceived income inequity in the individual utility model, and revealed that the inequity of income, if not considered, might lead to high tax non-compliance level. Similarly, Spicer and Becker (1980) found that tax compliance rates of participants differed significantly depending on their perceived vertical or horizontal justice. In fact, those who perceived to be charged at the highest rate had the lowest compliance level, while those who perceived their tax rate was moderate had moderate compliance rate and those who perceived that their tax rate was the lowest had the highest compliance level; despite all three groups facing an identical tax rate.

Likewise, a fair fiscal exchange is paramount in increasing tax compliance. It was shown that perceived fiscal exchanges may affect the level of income declared to the tax authorities; more income was declared when participants received government services in exchange for their taxes (Spicer and Becker, 1980; Alm *et al.*, 1992c; Alm *et al.*, 1992d; Alm *et al.*, 1993; Kim, 2002; Kim *et al.*, 2005; Murphy and Tyler, 2008). It was claimed that fiscal exchange justice establishes a psychological tax contract between governments and taxpayers (Feld and Frey, 2007). Subsequently, when governments fulfil their contractual obligations, taxpayers' inclination to comply with tax laws may increase (Feld and Frey, 2007). Conversely, when there are unfair fiscal exchanges, taxpayers might reimburse

themselves by not paying taxes wherever possible for the loss suffered from unfair exchange (Falkinger, 1988; Bordignon, 1993).

Unlike other types of fairness, procedural and retributive justice has received less attention from tax researchers. Yet it has been found that procedural justice and tax compliance are positively related (Alm *et al.*, 1993; Feld and Tyran, 2002; Murphy, 2003). Alm *et al.* (1993) found that the democratic process of deciding what to do with tax revenue might increase individuals' tax compliance levels, especially, when a majority favour decisions taken. Actually, Alm *et al.* (1993) found low tax compliance rates when uses of tax revenue were not decided by a majority of participants.

Correspondingly, Murphy (2003) discovered that the Australian Taxation Office successfully recovered tax debts from suspected tax avoiders after improving its process of collecting taxes. Initially, the authority failed to collect tax debts from the suspected tax avoiders by threats of tax penalties without negotiating. Consequently, Murphy (2003) claimed that legitimacy of a tax authority improves when taxpayers are treated fairly, with respect and thus tax penalties should not be the first instrument to implement. Procedural fairness increases tax compliance by enhancing positive emotions of taxpayers about a tax authority (Murphy and Tyler, 2008). However, while these studies demonstrate that procedural justice may increase compliance with tax authorities, it is not clear how perceived procedural justice in imposing tax penalties relates to tax compliance. Yet, from these studies it is hypothesized that:

$H1_a$: There is a positive relation between the level of perceived procedural justice in imposing tax penalties and the level of tax compliance.

Still, research on retributive justice on tax compliance has centred on how severe tax non-compliance crime is compared to other crimes. Consistently, other crimes

have been perceived to be more severe than the crime of tax non-compliance (Vogel, 1974; Song and Yarbrough, 1978; Evans and Kelley, 2001; Burton *et al.*, 2005). For instance, Vogel (1974) compared the attitudes of taxpayers in Sweden towards non-compliant taxpayers and other criminals. Vogel (1974) asked participants to select most suitable penalties for various crimes, including tax non-compliance. Surprisingly, light penalties were recommended toward non-compliant taxpayers than other criminals. Indeed, for a similar monetary penalty of [$200] 53.9% participants suggested a prison sentence to housebreakers compared to only 11.7% recommending similar penalty for non-compliant taxpayers. The penalty level was used as a measure of how serious a crime was seen in Swedish society, so non-compliant taxpayers were not seen as serious as other offenders; probably, because tax non-compliant acts do not directly affect individuals as housebreaking (Warr, 1989). Likewise, Song and Yarbrough (1978) requested participants to measure the severity of several offences and found that non-compliant taxpayers were seen as violators likely to be punished by a fine and not as criminals who get prison sentences.

However, other researchers have investigated tax retributive justice in the term of tax amnesty (Andreoni, 1991; Stella, 1991; Hasseldine, 1998; De Koker, 2007; Rechberger *et al.*, 2010). Offering a tax amnesty to non-compliant taxpayers may collect tax revenue which otherwise would not have been collected (Andreoni, 1991). Subsequently, allowing non-compliant taxpayers to pay their tax debts and adding non-compliant taxpayers into the compliant population might make the tax system fairer (Andreoni, 1991). Nonetheless, non-compliant taxpayers may increase their cheating in anticipation of tax amnesty or when tax amnesties are not accompanied by an increase in tax audits and penalties (Andreoni, 1991; Stella, 1991; De Koker, 2007). Further, forgiving non-compliant taxpayers might reduce the willingness of compliant taxpayers to comply (Andreoni, 1991; Hasseldine,

1998). Summarily, previous tax research has indicated how tax non-compliance crime is perceived in relation to other crimes, and how appropriate tax amnesties are, but the link between perceived retributive justice and tax compliance remains unknown. Based on the previous discussion it is hypothesized that:

H2$_a$: There is a positive relationship between the levels of perceived retributive justice of tax penalties and tax compliance.

Retributive and procedural justice might be related. It was shown that procedural fairness can increase compliance of students and taxpayers to examination authority and tax authority respectively when penalties are high (Verboon and van Dijke, 2011). It was argued that procedural fairness improves authorities' legitimacy while severe penalties increase moral disapproval of sanctioned acts which together increase compliance to authorities' orders (Verboon and van Dijke, 2011). Additionally, Wenzel (2002) suggested that non-compliant taxpayers expect a tax audit process to be fair, considerate to them and their businesses otherwise the process will be deemed unfair; the unfairness may discourage future tax compliance. Therefore, it also hypothesized that:

H3$_a$: Procedural justice moderate the relationship between perceptions of retributive justice and tax compliance: (i) when the perceptions of procedural justice is high, the perceptions of retributive justice will have positive association with tax compliance, yet (ii) a negative relationship between the perceptions of retributive justice and tax compliance will exist when procedural justice is low.

5.2.1   Demographic Variables and Opportunities to Evade

Literature has found that male, young and taxpayers with opportunities to evade may pay less tax than female, older and taxpayers without opportunities to evade (Kirchler, 1999; Fjeldstad and Semboja, 2001; Kirchler, 2007; Kleven *et al.*, 2011).

For instance, younger taxpayers (18 to 29 years of age) were found to be less compliant than older taxpayers (above 29 years of age) (Fjeldstad and Semboja, 2001). Also, it was found that length in business was positively associated with perceptions of tax fairness; this association may increase tax compliance of taxpayers with long business experience (Kirchler, 1999). Moreover, sectors which are normally involved in cash transactions may have low compliance levels than sectors which do not use cash transactions regularly (Kirchler, 2007). Therefore, these factors might influence taxpayers' perceptions of procedural justice, retributive justice, and the association of the latter factors with tax compliance.

5.3　Method

5.3.1　Data Collection Method

The chapter utilised the survey method to seek responses from SMEs taxpayers about the retributive justice of the selected corporate income tax penalties, procedural justice of tax appeal procedures and their impact on tax compliance. Previous research has shown that a survey method is useful in studying taxpayers' attitudes and perceptions (Torgler and Schneider, 2007; McGee *et al.*, 2008; Alm and Torgler 2011) and provides detailed demographic and social economic data of taxpayers (Alm and Torgler 2011). Studying SMEs corporate income tax compliance is important because of their prospective to provide public revenue from value added taxes and income taxes because of high turnover and employment (Arachi and Santoro, 2007; Bennett, 2008). Likewise, tax evasion is common among SMEs taxpayers (Arachi and Santoro, 2007), therefore they are likely to be penalised by tax penalties dependant Tanzania government (Fjeldstad, 2001; Fjeldstad and Semboja, 2001; Luoga, 2002) and face the appellate procedures. In Tanzania, a small enterprise has 5 to 49 employees or investment capital exceeding Tanzania

Shillings (Tshs) 5 million (£2,000) to 200 million (£80,000) while if an enterprise has 50 to 99 employees or investment capital above Tshs 200 million (£80,000) to Tshs 800 million (320,000) is known as medium enterprise (*Small and Medium Enterprise Development Policy*, 2003).

5.3.2   Participants and Procedure

The participants were SMEs taxpayers who were sampled conveniently through visiting of potential participants at their places of business. It was impossible to use probability sampling procedures because of absence of a SMEs database and restricted access to Tanzania Revenue Authority's database. In the visits, research objectives were explained, questionnaires were distributed and completed. Additionally, surveys were both self-administered and investigator-administered to increase response rates as the survey of retributive and procedural justice is not so a sensitive issue. Particularly, this chapter surveyed 300 small and medium entrepreneur taxpayers in Tanzania; who had opportunities to read participant information sheet (see Appendix B1) and consent form (see Appendix B2). However, 13% (39) of the responses were dropped because they showed flat responses; Bainbridge (2009) suggested that the flat responses might indicate that respondents were either in a hurry or did not read questions carefully and therefore the flat responses are useless data. Responses are flat responses when respondents provide identical answers to all questions; for instance, the respondents may provide 'not sure' answers to all questions (Bainbridge, 2009). Furthermore, 1.33% (4) responses where dropped during missing data analyses because they had missing data over 50% (Hair *et al.*, 2010).

Consequently, the final sample size dropped to 257 of which 105 (41%) of respondents aged between 18 and 30 years while the rest of respondents 152 (59%)

aged above 30 years old; male respondents were 59.2% and female respondents were 38.1% and 2.7% did not indicate their gender; 35.7% had primary education, 62.7% had education above primary education and 1.6% did not indicate their education levels. Moreover, 93 (36.19%) of them were Trading, 30 (11.67%) of them were engaged in Agriculture, 10 (3.89%) of them were in Manufacturing, 102 (39.69%) were in Management or Services Businesses and 22 (8.56%) of the participants were in Construction Businesses.

5.3.3   Treatment of Missing Values

Some of the remaining responses had missing values as mentioned before. The diagnostic test for a level of randomness showed that data were Missing Completely at Random (MCAR) i.e. Little's MCAR test indicated a significant level of .003 for scenario 1 and .00 for scenario 2. Data missing completely at random arises when the missing data from a variable cannot be estimated using data from that variable but the missing data are determined using data from other factors (Hair *et al.*, 2010). According to Rubin and Little (2002) only Equation Modelling (EM) based methods can impute missing data in this situation. Consequently, an EM method in SPSS statistics 20 was used to estimate the missing data. However, non-metric missing data were not imputed as the imputation of "non-metric variables require an estimate of specific value, for instance, the respondent's gender rather than an estimate on a continuous scale" (Hair *et al.,* 2010:50). Moreover, excluded cases a pairwise option was chosen in the analysis to exclude cases only when missing variables are considered in the analysis to maximise the remaining data (Hair *et al.*, 2010).

5.3.4 Questionnaire

This study was concerned with the role of perceptions of retributive justice of corporate income tax penalties for failure to maintain documents and to pay taxes on due dates, and procedural justice of the processes of imposing those penalties on tax compliance. So, three constructs were involved in the survey: retributive justice, procedural justice and tax compliance. Retributive justice of two corporate income tax penalties and their associations with tax compliance were separately denoted. While the section on procedural justice of systems imposing tax penalties was applicable to both scenarios as all suspected tax non-compliant taxpayers follow the same justice legal systems.

These theoretical constructs were tested in Principle Component Analysis (PCA) with varimax rotation. PCA is used to reduce the number of variables; this reduction is accomplished by identifying structures underlying relationships among variables (Jolliffe, 2002; Hair *et al.*, 2010). Additionally, optimum structures are achieved by factor rotations which redistributes the variance explained among factors, a process termed "Varimax". The varimax rotation simplifies the columns of the factor matrix, and it is the most appropriate technique when reducing the number of variables (Jolliffe, 2002; Abdi and Williams, 2010; Hair *et al.*, 2010). Also, the variances explained by the conducted PCA are satisfactory (Hair *et al.*, 2010). Moreover, all procedural and retributive justice factors had an insignificant correlation of 0.00 (p = ns) (see Table 5.4.1 on page 140 and Table 5.4.4 on page 153), suggesting that they measure different concepts confirming the discriminant validity of the constructs (Hair *et al.*, 2010).

However, the PCA assumes that there are enough correlations among factors; this extent of correlations happens when Bartlett's test of sphericity sig. is $< .05$. As it can be seen later, the dataset has sufficient correlations. Further, it assumes

adequacy of samples which is measured by Kaiser–Myer–Olkin (KMO measure); where a value ≥ 0.80 is desirable and a value ≥ 0.50 is acceptable (Hair *et al.*, 2010). All the KMO measure in the conducted PCAs has values > 0.70.

Nevertheless, as the subsequent sections show, there were items with significant cross loadings i.e. scores above 0.35, but, for practical purpose loading should at least be 0.50 (Hair *et al.*, 2010). Therefore these items became candidates for deletion after unsuccessful attempts to eliminate them through "Quartimax", "Equimax" and "Oblimin" rotation methods. But, these items were kept as they are theoretically important in retributive and procedural justice systems and, all identified factors were uncorrelated to each other.

Further, the resulting regression factor scores were used in all analyses as the factor regression scores produce highly standardised valid estimates (DiStefano *et al.*, 2009). Also, because regression factor scores may procedure similar results as other factor score methods (Estabrook and Neale, 2013). Moreover, because calculation of regression factor scores is the best approach for reducing variables (Hair *et al.*, 2010). Also, because the factor scores use entire variables loading on the factor, but the inclusion of all variables loading on the factor complicates interpretations of results as factors may be related to each other (Hair *et al.*, 2010). Consequently, the internal consistencies of the constructs were calculated using all variables with practical significant loading on factors. The most recommended measure of internal consistency of questionnaire items is "Cronbach's α" ⩾ 0.80. However, even α of ≥ 0.60 is acceptable in exploratory study (Hair *et al.*, 2010). As shown later, most of the internal consistencies are adequate, and constructs developed from several items even with low internal consistencies are better than those indicated by single items (Dey, 2008).

Finally, demographic variables were collected which served as control variables. Briefly the survey has three main identifiable parts which are explained in detail below and the entire survey is presented in Appendix B3.

5.3.4.1 Scenario 1: Failure to Keep Complete records

Retributive justice. Seven items were used to gather information about the retributive justice of the corporate income tax penalty for failure to keep proper records (1 = definitely yes to 5 = definitely not, but items were reversed for analysis to facilitate interpretation of results). The concepts were designed from definitions of retributive justice (Vidmar and Miller, 1980; Wenzel and Thielmann, 2006; Wenzel *et al.*, 2008). These items were*:*

1. *"*I believe that the monthly penalty of Tshs 425,000 is appropriate",

2. "I believe that the monthly penalty charge is appropriate regardless of the type of documents failed to be kept (for instance, sales ledger, invoices, receipts, final accounts)",

3. "I believe that the penalty imposed is fair relative to the crime committed",

4. "Do you think taxpayers who fail to keep records are held accountable by the current tax system?"

5. "I believe that the penalty paid by taxpayers who fail to keep records restores the benefits of the common citizen",

6. " I believe that the estimated tax liability imposed on the above taxpayer who failed to keep records is appropriate", and

7. "I believe that the amounts paid by the above taxpayer (estimated tax amount and penalties) are equivalent to the amounts that would have been paid had reliable documents been kept".

Respondents considered there are two factors undying the general concepts of retributive justice, these factors were named: *retributive justice 1 and 2* respectively (see Table 5.3.1 factor 2 and 3). The constructs had insignificant correlations of 0.00 (p = ns) indicating that they represent different concepts of retributive justice (see Table 5.4.1). This result implies that adequacy of tax penalties and their appropriateness may be different parts of a retributive justice concept. Conversely, two items :" I believe that the penalty imposed is fair relative to the crime committed" and " I believe that the estimated tax liability imposed on the above taxpayer who failed to keep records is appropriate", significantly loaded to procedural justice 1 as shown in the table; possibly, because all these concepts are related to fairness of the tax system. Consequently, one needs considering these items loaded here un-expectedly while interpreting the results.

Procedural justice. To determine how the procedures of imposing tax penalties are perceived by respondents nine items were included (1 = definitely yes to 5 = definitely not but again the items were reversed for analysis and interpretation of results). These concepts were derived from components of procedural justice suggested by Stalans and Lind (1997) and Murphy and Tyler (2008). These items were:

1. "I think suspected non-compliant taxpayers are treated fairly by the tax appeal systems",

2. "I think the offenders are treated fairly by the tax appeal tribunal",

3. "I think the offenders are treated fairly by the legal proceedings i.e. court systems",

4. "I believe that the operation of the tax system maintains presumption of innocence until taxpayers are convicted",

5. "I believe that the appeal procedures are clear",

6. "I believe that the rights of suspects to be heard are clear",

7. "I believe that the appeal procedures are transparent",

8. "I believe that the rights of suspects to be heard are transparent" and

9. "I believe that the appeal procedures are actually followed in practice".

Likewise, two factor constructs were identified by the principle–component analysis (PCA) with varimax rotation with 57.01% of the variance explained (see Table 5.3.1 factor 1 and 4). The first factor is named *procedural justice 1: transparency of appeal procedures and rights* while the second is called *procedural justice 2: actual implementation of those appeals procedures and rights*. Again the constructs had insignificant correlations of 0.00 (p = ns) demonstrating that they represent different concepts of procedural justice (See Table 5.4.1 on page 140).This discovery affirms that the presence of clear and understandable appeal procedures and rights might differ from actual procedures in appellant procedures. This difference must be considered when analysing results.

Tax compliance. To determine the impact of a corporate income penalty for failure to keep records on tax compliance five items were included in the survey (1 = definitely yes, to 5 = definitely not but again the items were reversed for analysis and simplification of results interpretation process). The concepts were based on

the likely impacts of tax penalties (Wenzel and Thielmann, 2006; Alm *et al.*, 2009). These items were:

1. "I believe that appropriate punishment of taxpayers who fail to keep records will increase my compliance level",

2. "I believe that the penalty is capable of deterring future similar failure",

3. "I believe that the penalised offender above will not fail to keep records again",

4. " I believe that the penalty encourages future compliance from compliant taxpayers" and

5. "I believe that when possibility of being audited by tax authority is high, the penalty is capable of deterring future similar failure".

Similarly, the concept of tax compliance was seen to comprise: *tax compliance 1: changing tax compliance behaviour* and *tax compliance 2: keeping tax compliance behaviour* (see Table 5.3.2). There was an insignificant correlation between tax compliance 1 and 2, (r = 0.00, ns) (see Table 5.4.1 on page 140), expressing that they represent different concepts of tax compliance. It seems tax penalties may keep tax compliant behaviour of compliant taxpayers and change behaviour of non-compliant taxpayers; this difference might be taken into account when the results are interpreted.

Table 5.3.1: PCA Measure of Retributive and Procedural Justice of Penalty for Failure to Keep Complete Records

Items	Factors				M	SD
	1	2	3	4		
1 Procedural justice 1 (Cronbach's alpha .84)						
I believe that the appeal procedures are transparent.	.74	.09	.19	.16	3.10	1.35
I believe that the rights of suspects to be heard are transparent.	.72	.13	−.01	.18	3.25	1.27
I believe that the rights of suspects to be heard are clear.	.69	.01	.19	.31	3.21	1.32
I believe that the appeal procedures are actually followed in practice.	.66	.13	.01	.07	3.24	1.28
I believe that the appeal procedures are clear.	.60	.05	.46	.15	3.28	1.35
I believe that the penalty imposed is fair relative to the crime committed.	.56	.33	.25	.14	3.31	1.38
I believe that the estimated tax liability imposed on the above taxpayer who failed to keep records is appropriate.	.55	.48	22	−.11	3.13	1.35
I believe that the operation of the tax system maintains presumption of innocence until taxpayers are convicted.	.47	.04	.32	.37	3.32	1.20
2 Retributive justice 1 (Cronbach's alpha .52)						
I believe that the penalty paid by taxpayers who fail to keep records restores the benefits of the common citizen.	−.01	.69	.22	.04	3.42	1.39
I believe that the amounts paid by the above taxpayer (estimated tax amount and penalties) are equivalent to the amounts that would have been paid had reliable documents been kept.	.41	.58	.34	−.35	3.25	1.42
Do you think taxpayers who fail to keep records are held accountable by the current tax system?	.08	.58	−.13	.21	3.27	1.16
3 Retributive justice 2 (Cronbach's alpha .66)						
I believe that the monthly penalty charge is appropriate regardless of the type of documents failed to be kept (for instance, sales ledger, invoices, receipts, final accounts).	.01	.21	.80	.29	3.67	1.33
I believe that the monthly penalty of Tshs 425,000 is appropriate.	.41	.01	.74	−.01	3.83	1.34
4 Procedural justice 2 (Cronbach's alpha .60)						
I think the offenders are treated fairly by the legal proceedings i.e. court systems.	.23	.03	.22	.70	3.44	1.16
I think suspected non−compliant taxpayers are treated fairly by the tax appeal systems.	.25	.49	.06	.51	3.32	1.18
I think the offenders are treated fairly by the tax appeal tribunal.	.32	.38	−.00	.43	3.22	1.30
Eigenvalue (before rotation)	5.62	1.30	1.14	1.06		

Explained Variance after rotation (%)	23.26	12.30	11.91	9.54

Note: A principal–component analysis with varimax rotation was employed basing on 257 sample size, Bartlett's test of sphericity sig < .001 and Kaiser–Myer–Olkin (KMO) sig = .86

Table 5.3.2: PCA Measures of Tax Compliance for Failure to Keep Complete Records

Item	Factor		M	SD
	1	2		
1 Tax compliance 1 (Cronbach's alpha .64)				
I believe that the penalty is capable of deterring future similar failure.	.83	–.07	3.51	1.33
I believe that the penalised offender above will not fail to keep records again.	.74	.26	3.43	1.23
I believe that when possibility of being audited by tax authority is high, the penalty is capable of deterring future similar failure.	.63	.34	3.80	1.21
2 Tax compliance 2 (Cronbach's alpha .38)				
I believe that appropriate punishment of taxpayers who fail to keep records will increase my compliance level.	.01	.88	3.61	1.23
I believe that the penalty encourages future compliance from compliant taxpayers.	.30	.71	3.70	1.26
Eigenvalue (before rotation)	2.19	1.01		
Explained Variance after rotation (%)	34.63	29.26		

Note: A principal–component analysis with varimax rotation was employed basing on 257 sample size, Bartlett's test of sphericity

sig < .001 and Kaiser–Myer–Olkin (KMO) sig = .72

5.3.4.2 Scenario 2: Failure to Pay Corporate Income Taxes on Time

Retributive justice. Six items were used to gather information about the retributive justice of the corporate income tax penalty for failure to pay a tax on time (1 = definitely yes to 5 = definitely not but again the items were reversed for analysis and interpretation purposes). These items were:

1. "I believe that the monthly interest charge of Tshs 280,000 is appropriate",

2. "I believe that charging a full month's interest even when tax is paid late for only part of a month (for instance, 2 days) is appropriate,",

3. "I believe that the interest imposed is fair relative to the crime committed",

4. "Do you think taxpayers who fail to pay taxes on due dates are held accountable by the current tax system?"

5. "I believe that the interest paid by a taxpayer who fails to pay taxes on due dates in general restores the benefits of the common citizen" and

6. "I believe that the amounts paid by the above taxpayer (tax and interest) are equivalent to the benefits that would have been obtained had the taxes been paid on the due date".

The principal component analysis with varimax rotation with 59.10% of explained variance confirmed two constructs (see Table 5.3.3) factor 2 and 4). Also, the constructs had insignificant correlations of 0.00 (p = ns) (see Table 5.4.4 on page 140), meaning that appropriateness and adequacy of tax penalties might represent different concepts of retributive justice and one need considering these parts while interpreting the results

Procedural justice. To determine how the procedures of imposing the penalty are perceived by respondents nine items were included in the questionnaire (1 = definitely yes to 5 = definitely not but again the items were reversed for analysis). These items were:

1. "I think the offenders are treated fairly by the tax appeal tribunal",

2. "I think the offenders are treated fairly by the legal proceedings i.e. court systems",

3. "I think suspected non-compliant taxpayers are treated fairly by the tax appeal systems",

4. "I believe that the operation of the tax system maintains presumption of innocence until taxpayers are convicted",

5. "I believe that the appeal procedures are clear",

6. "I believe that the rights of suspects to be heard are clear",

7. "I believe that the appeal procedures are transparent",

8. "I believe that the rights of suspects to be heard are transparent", and

9. "I believe that the appeal procedures are actually followed in practice".

Likewise, two factor constructs were identified by the PCA with varimax rotation of 59.10% variance explained (see Table 5.3.3) factor 1 and 3). As previously, the first factor is named *procedural justice 1: transparent of appeal procedures and rights* while the second is called *procedural justice 2: actual implementation of those rights and procedures*. As in the previous scenario the perceptions of rights to appeal might differ from actual procedures in appellant procedures (r= 0.00, ns) (see Table 5.4.4 on page 153).

Tax compliance. To determine the impact of a corporate income tax penalty for failure to pay a tax on time on tax compliance five items were included in the questionnaire. These items were:

1. "I believe that the interest is capable of deterring future similar failure,",

2. "I believe that the penalised offender above will not fail to pay tax on due date in the future",

3. "I believe that when the possibility of being audited by tax authority is high the interest is capable of deterring failure to pay taxes on due date",

4. "I believe that the interest encourages future compliance from compliant taxpayers" and

5. "I believe that in general appropriate punishment of taxpayers who fail to pay taxes on due dates will increase my compliance level".

Table 5.3.3: PCA Measure of Procedural and Retributive Justice for Penalty for Failure to Pay Taxes on Time

Items	Factor				M	SD
	1	2	3	4		
1 Procedural Justice 1 (Cronbach's alpha .83)						
I believe that the appeal procedures are transparent.	.74	.08	.14	.16	3.11	1.36
I believe that the rights of suspects to be heard are clear.	.72	–.00	.19	.22	3.21	1.32
I believe that the appeal procedures are clear.	.67	.18	.10	.30	3.28	1.35
I believe that the operation of the tax system maintains presumption of innocence until taxpayers are convicted.	.67	.28	.16	–.13	3.32	1.20
I believe that the rights of suspects to be heard are transparent.	.64	–.04	.23	.33	3.25	1.27
I believe that the appeal procedures are actually followed in practice.	.63	.11	.08	–.01	3.24	1.28
2 Retributive justice 1 (Cronbach's alpha .72)						
I believe that the amounts paid by the above taxpayer (tax and interest) are equivalent to the benefits that would have been obtained had the taxes been paid on the due date.	–.01	.80	.05	.15	3.41	1.43
I believe that the interest paid by taxpayers who fail to pay taxes on due dates in general offenders restore the benefits of the common citizen.	–.01	.79	.14	.19	3.37	1.40
Do you think taxpayers who fail to pay taxes on due dates are held accountable by the current tax system?	.17	.65	.23	–.18	3.24	1.20
I believe that the interest imposed is fair relative to the crime committed.	.35	.57	–.04	.08	3.49	1.19
3 Procedural justice 2 (Cronbach's alpha .60)						
I think the offenders are treated fairly by the tax appeal tribunal.	.14	.08	.83	.13	3.22	1.30
I think suspected non–compliant taxpayers are treated fairly by the tax appeal systems.	.21	.27	.68	.12	3.31	1.17
I think the offenders are treated fairly by the legal proceedings i.e. court systems.	.45	.00	.48	–.08	3.44	1.16
4 Retributive justice 2 (Cronbach's alpha .65)						

					M	SD
I believe that charging a full month's interest even when tax is paid late for only part of a month (for instance, 2 days) is appropriate.	.10	.07	.14	.87	3.62	1.35
I believe that the monthly interest charge of Tshs 280,000 is appropriate.	.43	.22	.03	.62	3.30	1.32
Eigenvalue (before rotation)	4.87	1.80	1.18	1.02		
Explained Variance after rotation (%)	22.60	15.18	10.87	10.44		

Note: A principal–component analysis with varimax rotation was employed basing on 257 sample size, Bartlett's test of sphericity

sig < .001 and Kaiser–Myer–Olkin (KMO) sig = .80

Table 5.3.4: PCA Measure of Tax Compliance for Failure to Pay Taxes on Time

	Factor	M	SD
Item	1		
I believe that the interest encourages future compliance from compliant taxpayers.	.57	3.53	1.29
I believe that in general appropriate punishment of taxpayers who fail to pay taxes on due dates will increase my compliance level.	.62	3.65	1.25
I believe that the interest is capable of deterring future similar failure.	.76	3.87	1.25
I believe that when the possibility of being audited by tax authority is high the interest is capable of deterring failure to pay taxes on due date.	.68	3.68	1.82
I believe that the penalised offender above will not fail to pay tax on due date in the future.	.76	3.62	1.24
Eigenvalue (before rotation)	2.31		
Explained Variance after rotation (%)	46.17		

Note: A principal-component analysis with varimax rotation was employed basing on 257 sample size, Bartlett's test of sphericity sig < .001 and Kaiser-Myer-Olkin (KMO) sig = .73

All items were identified by the principle component analysis with varimax rotation with 46.17% explained variance (Cronbach's alpha .70) (see Table 5.3.4).

5.3.4.3 Demographic Variables

As the sample is heterogeneous background information of respondents was collected. These elements included: age (1= not above 30, 2=above 30 years), gender (1 = males, 2 = females), industries: trading, agriculture or similar businesses, manufacturing, management or consultancy services and construction, length in business, and education level (1 =primary school, 2=above primary education). Additionally, respondents were asked to indicate their positions in an organisation, annual turnovers and capital investment to determine the inclusion of a questionnaire as only SMEs were targeted and responses should come from owners, accountants or managers.

5.4   Results

5.4.1   Hierarchical Linear Regression

The test of the hypotheses used hierarchical linear regression as it is useful in identifying how some independent variables relate to a dependent factor, while other independent factors are controlled (Gelman and Hill, 2007). The control of the factors is managed through entering factors in a model in an order suggested by a theory (Gelman and Hill, 2007). Also, this ordering of

independent factors provides clear association between interaction effects and the dependent variable (Arnold and Evans, 1979). Actually, the model used was:

$$TC_i = \beta_1 \text{Length B} + \beta_2 \text{D\_Male} + \beta_3 \text{D\_Trade} + \beta_4 \text{D\_Agri} + \beta_5 \text{D\_Mang} + \beta_6 \text{D\_Cons} +$$
$$\beta_7 \text{D\_Age} + \beta_8 \text{D\_Pe} + \beta_9 \text{Pro 1} + \beta_{10} \text{Ret 1} + \beta_{11} \text{Ret 2} + \beta_{12} \text{Pro 2} + \beta_{13} \text{Pro 1 * Ret 1}$$
$$+ \beta_{14} \text{Pro 1 * Ret 2} + \beta_{15} \text{Pro 2 * Ret 1} + \beta_{16} \text{Pro 2 * Ret 2} + \epsilon_i$$

Where[10]: β = standardised coefficient, TC = tax compliance, Length B = Length in business, D_Male= dummy variable for males, D_Trade =dummy variable for trade, D_Agri= dummy variable for agriculture, D_Mang = dummy variable for management, D_Cons = dummy variable for construction, D_Age = dummy variable for the age between 18–30 years, D_pe= dummy variable for primary education, Pro 1 = procedural justice 1, Ret 1= retributive justice 1, Ret 2= retributive justice 2, Pro 2= procedural justice 2, Pro 1* Ret 1 = procedural justice 1* retributive justice 1, Pro 1* Ret 2 = procedural justice 1 * retributive justice 2, Pro 2 * Ret 1 = procedural justice 2 * retributive justice 1, Pro 2 * Ret 2= procedural justice 2 * retributive justice 2, and ϵ = error term.

Before actual testing of the hypotheses the assumptions of regression analysis were tested. First, the dummy variable for manufacturing was excluded from analysis as its variance inflation factor (VIF) exceeded 10 (O'brien, 2007). To assess which variable(s) might explain the dummy variable for manufacturing, the variable was regressed on the remaining variables this indicated that there was negative association between the dummy variable for manufacturing and trade variable (B=−1). Therefore, the dummy variable for the trade sector represents the dummy variable for manufacturing but in the opposite direction and the dummy variable of manufacturing was excluded from the regression

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[10] All dummy variables were coded 1 for named variables and 0 otherwise, and for consistency with standardised factor scores, demographic variables were standardised too.

analyses. All of the remaining VIFs were below 10; which may indicate lack of multicollinearity problem (O'brien, 2007; Hair *et al.*, 2010).

Second, scatter and partial regression plots were used to test the assumption of linearity; these plots indicated the data were approximately linear. Third, a test for homoscedasticity showed that the variance of errors of independent variables were heterogeneous (Breusch–Pagan / Cook– Weisberg test χ^2 (12), Prob > χ^2 =0.000). The presence of heteroskedasticity breaches the assumption of a classical linear regression model of constant variance of error terms which may result into incorrect acceptance or rejection of hypotheses (Andrews, 1991; Engle, 2002). Therefore, the regression was re-estimated using the robust option in StataSE12 to correct for heteroskedasticity (Timothy *et al.*, 1985; Stock and Watson, 2008). The robust command produces standard errors known as robust standard errors or "White" standard errors after adjusting for heteroskedasticity (King and Roberts, 2012). However, robust standard errors should not differ significantly with classical standard errors if models are not miss-specified (King and Roberts, 2012). Standard errors show how much population coefficients may differ (standard deviation) from sample coefficients (Hair *et al.*, 2010). As robust and classical standard errors were almost similar, the model used in this study may be appropriate (see Table 5.4.2 on page 142, Table 5.4.3 on page 147 and Table 5.4:5 on page 155).

Fourth, the data in the study was not normally distributed (a Shapiro Wilk test of normality, p <0 .001), but when the number of cases exceed 200, data is approximately normal and the violation of normality assumption has an insignificant effect on results (Hair *et al.*, 2010; Mitchell and Janina, 2013). Yet, normal probability plots indicated that error terms were distributed normally.

5.4.2 Descriptive Statistics

Descriptive statistics of raw data for both *Scenarios One: Failure to Keep Proper Records,* and *Two: Failure to Pay Taxes on Time* are summarised as follows. The majority of participants agreed that penalties tested may encourage tax compliance as indicated by the median figure of 4. Whereas, a majority of participants had moderate (median of 3) perceptions of procedural justice of tax systems and retributive justices of the selected tax penalties. Finally, standard deviations and means of raw data were presented in Section 5.3.4.

5.4.3 Scenario 1: Failure to Keep Complete Records

5.4.3.1 *Tax Compliance 1 and Procedural and Retributive Justice*

The correlation matrix of the first scenario is presented in Table 5.4:1. As hypothesized tax compliance 1 was correlated with many of the independent variables. As mentioned before, the hypotheses were tested using hierarchical regression analyses, and Table 5.4.2 shows the regression when the dependent variable was tax compliance 1. The first step of hierarchical regression tested how the demographic variables i.e. length in business, dummy variables for gender– male, agriculture, manufacturing and construction sector variables explain variation in tax compliance 1. In totality they accounted for 4.94% of the variation in tax compliance 1. The model was significant ($F_{(8, 248)}$ = 2.27, p =.02). Furthermore, including the variables for procedural justice 1, procedural justice 2, retributive justice 1 and retributive justice 2 in the hierarchical regression produced a change in the variance accounted for (ΔR^2) of 32.25%, statistically significantly different from zero over the demographic variables' model in step one ($\Delta F_{(4, 244)}$=32.19, p < .001).

In step three, the entry of product terms: procedural justice 1 * retributive justice 1, procedural justice 1 * retributive justice 2, procedural justice 2 * retributive justice 1 and procedural justice 2 * retributive justice 2 in the model resulted in a 3.53% increase in variance accounted for (ΔR^2), statistically significant over the impact of the factors in the previous step ($\Delta F_{(4, 240)} = 3.63$, $p = .01$). Consequently, the analysis of how these independent variables influence tax compliance 1 focuses on the complete model in step 3. This model explains 37% (adjusted R^2) of variance in tax compliance 1, a better power.

Starting with the impact of tested demographic variables on tax compliance 1: the impact of length in business on tax compliance 1 was insignificant ($\beta = -.07$, ns) as it was for dummies for management ($\beta = -.11$, ns), construction ($\beta = -.11$, ns), trade ($\beta = -.16$, ns), primary education ($\beta = -.02$, ns), agriculture ($\beta = -.05$, ns), age 18–30 ($\beta = -.02$, ns), and male ($\beta = .09$, ns).

Conversely, as expected in the hypothesis 2_a the retributive justice 1 had a significant positive association with tax compliance 1 ($\beta = .16$, $p = .003$). This means that adequacy tax penalties are associated with subsequent tax compliance levels of penalised offenders. Specifically, an increase of 1 standard deviation in the value of the measure of perceptions of retributive justice 1, results in a .16 standard deviation increase in tax compliance 1 holding other variables constant.

Also, the association of retributive justice 2 on tax compliance 1 was positive and significant ($\beta = .28$, $p < .001$) in accordance with hypothesis 2_a. This result could mean that tax penalties which are perceived to be appropriate might also induce non– compliant taxpayers to comply with tax laws subsequently, when

they are penalised. Particularly, increasing standard deviation in the value of the measure of perceptions of retributive justice 2 by 1 would increase standard deviation of tax compliance 1 by .28 when other factors are constant.

Likewise, in accordance with hypothesis 1_a procedural justice 1 had a significant positive association with tax compliance 1 (β = .40, p < .001) meaning that increasing awareness of appeal procedures and rights is associated with an increased tax compliance level of non-compliant taxpayers. Explicitly, a change of 1 standard deviation in the value of the measure of perceptions of procedural justice 1 would lead to a .40 standard deviation change in tax compliance 1 holding other variables.

Also procedural justice 2 had a significant positive association with tax compliance 1 (β = .34, p < .001), meaning that fair implementation of appeal procedures is associated with tax compliance levels of penalised taxpayers too. Exactly, raising standard deviation in the value of the measure of perceptions of procedural justice 2 by 1, standard deviation of tax compliance 1 may increase by .34, holding other variables.

Additionally, the interaction effect between retributive justice 1 and procedural justice 1 on tax compliance 1 was also significant (β = -.12, p = .03). Implying that procedural justice 1 may moderate the relationship between retributive justice 1 and tax compliance 1 in accordance with hypothesis 3_a.The slopes of association at high (+1 standard deviation (SD) above the mean), moderate (mean) and lower (-1 SD below the mean) level of procedural justice 1 were analysed using simple slope analysis (Rogosa, 1980; Aiken and West, 1991).

Table 5.4.1:Pearson Correlations between Variables Used in Scenario 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.Length B	1																		
2. Primary E	.0	1																	
3.Trade	.05	.06	1																
4.Agriculture	.05	.08	−.27**	1															
5.Manufacturing	−.08	−.02	−.15*	−.07	1														
6.Management	−.01	−.08	−.62**	−.30**	−.17**	1													
7.Construction	−.06	−.04	−.23**	−.11	−.06	−.24**	1												
8.Pro 1	−.03	−.14*	.03	−.05	.14*	−.12	.13*	1											
9.Ret 1	−.03	−.02	−.05	.00	.12	−.02	.04	0	1										
10.Ret 2	−.06	−.04	−.07	.06	.02	.00	.05	0	.0	1									
11.Pro 2	−.12	−.05	−.01	.00	.08	−.07	.08	0	.0	.0	1								
12.Tax 1	−.13*	−.08	−.06	.03	.15*	−.05	.06	.36**	.15*	.30**	.34**	1							
13.Tax 2	.03	.0	.08	−.10	.03	−.09	.12	.19**	.15*	−.07	.19**	0	1						
14.Male	−.02	.03	.08	.01	−.04	−.03	−.07	−.08	−.04	−.09	.00	.03	−.09	1					
15.Age 18–30	.03	.11	.14*	.01	.03	−.11	−.08	.01	.12	−.05	−.02	−.04	.07	−.05	1				
16.Pro 1* Ret 1	−.11	−.20**	.00	−.05	.15*	−.06	.07	.16*	.27**	.12	.02	.04	−.01	−.02	.00	1			
17.Pro 1 *Ret 2	−.02	.08	.05	−.08	.03	.01	−.03	−.20**	.12	−.05	.03	−.01	.19**	−.11	−.03	.10	1		

18.Pro 2*Ret 1	.06	−.02	.12	−.05	.03	−.12*	.05	.02	.22**	.06	−.21**	.03	.15*	.06	.03	.10	.10	1
19.Pro 2*Ret 2	−.03	−.03	−.01	.00	−.01	.04	−.04	.03	.08	−.23**	−.07	−0.2	.00	−.03	.12*	.13*	.05	.04	1

Correlation is significant at the .05 level (2−tailed).

**. Correlation is significant at the .01 level (2−tailed).

Note: Pro = procedural justice, Ret = Retributive justice, Length B= Length in business, Primary E= Primary education, and Tax = Tax compliance. Also with the exception of length in business all other demographic variables are dummies.

Table 5.4.2: Summary of Hierarchical Regression Analysis for Variables Predicting Tax Compliance 1

Variable	Model 1			Model 2			Model 3		
	B	$SE\ B^+$	β	B	$SE\ B^+$	β	B	$SE\ B^+$	β
Length B	−.11	.07(.06)	−.11	−.05	.05(.05)	−.05	−.07	.05(.05)	−.07
Primary E	−.07	.06(.06)	.07	.01	.06(.05)	.01	−.02	.06(.05)	−.02
Trade	−.37	.12(.16)	.37**	−.14	.11(.13)	−.14	−.16	.12(.13)	−.16
Agriculture	−.19	.09(.12)	−.19	−.05	.08(.10)	−.05	−.05	.08(.10)	−.05
Management	−.38	.12(.16)	−.38**	−.10	.11(.14)	−.10	−.11	.12(.13)	−.11
Construction	−.15	.08(.11)	−.15	−.10	.08(.09)	−.10	−.11	.08(.08)	−.11
Age 18–30	−.03	.06(.06)	−.03	−.04	.05(.05)	−.04	−.02	.05(.05)	−.02
Male	.03	.06(.06)	.03	.08	.05(.05)	.08	.09	.05(.05)	.09
Pro 1				.37	.05(.05)	.37***	.40	.05(.05)	.40***
Ret 1				.15	.05(.05)	.15**	.16	.06(.05)	.16**
Ret 2				.30	.06(.05)	.30***	.28	.06(.05)	.28***
Pro 2				.34	.06(.05)	.34***	.34	.06(.05)	.34***
Pro 1 * Ret 1							−.12	.06(.06)	−.12*
Pro 1 * Ret 2							.08	.05(.05)	.08
Pro 2 * Ret 1							.05	.05(.05)	.06
Pro 2 * Ret 2							−.13	.07(.06)	−.12
Constant	.00	.06(.06)		.00	.05(.05)		.00	.05(.05)	
R^2		.05			.37			.41	
Adjusted R^2		.02			.34			.37	
ΔR^2		.05			32			.04	
ΔF		2.27*			32.19***			3.63*	
Df		248			244			240	

* $p < .05$, ** $p < .01$, *** $p < .001$, + white robust standard error[11], Pro = procedural justice, Ret = Retributive justice, Length B= Length in business and Primary E= Primary education

As can be seen in Figure 5.4.1, all of the simple slopes indicate positive associations between tax compliance 1 and retributive justice 1, but the association is stronger when procedural justice 1 is low. However, only the simple slopes of the association at low and moderate values of procedural

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[11] Classical standard errors are shown in parentheses.

justice 1 were significantly positive (b = .29, SE_b =.09, β = .28, p = .001) and b = .16, SE_b = .05, β = .16, p =.003) respectively. While, the simple slope of high value of procedural justice 1 was not statistical significant (b = .04, SE_b =.06, β = .04, ns). Specifically, at low level of retributive justice 1, taxpayers with high perceptions of procedural justice 1 had the highest level of tax compliance 1, followed by those with moderate level, and those with low levels of perceptions of procedural justice 1 had the lowest level of tax compliance 1.

Whereas, at high levels of perceptions of retributive justice 1, tax compliance 1 of taxpayers with high levels of perceptions of procedural justice 1 remained the highest but did not change significantly from the previous point.

But, tax compliance 1 levels of taxpayers with moderate levels, and low levels of perceptions of procedural justice 1 changed significantly when retributive justice 1 moved from low to high. These results imply that when perceptions of retributive justice 1 is high it might increase tax compliance levels for taxpayers who had low levels or moderate levels of perceptions of procedural justice 1 inconsistent with hypothesis 3_a(i).

Nonetheless, the product term of procedural justice 1 * retributive justice 2 was insignificant (β =.08, ns), as it was for the product term of procedural justice 2 * retributive justice 1 (β =.06, ns) and the product term of procedural justice 2 * retributive justice 2 (β =−.12, ns). Indicating that, procedural justice may not moderate the relationship between tax compliance and retributive justice. Finally, basing on standardised coefficients, procedural justice seemed having the most association with tax compliance 1.

Figure 5.4.1: Moderating Effect of Perceptions of Procedural Justice 1 and Relationship between Perceptions Retributive Justice 1 and Tax Compliance 1
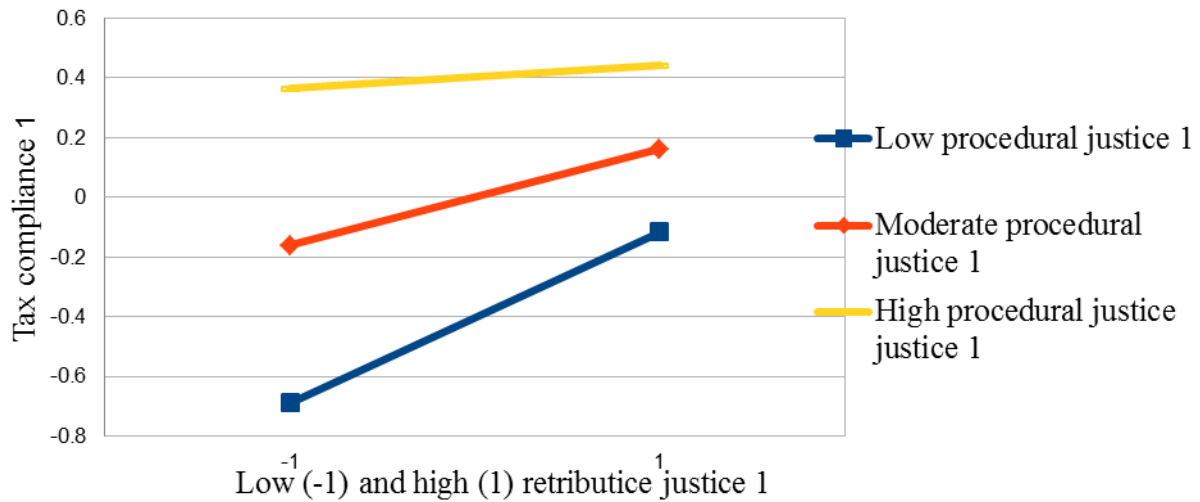
5.4.3.2 Tax Compliance 2 and Procedural and Retributive Justice

Table 5.4.1 also presents the correlation matrix for the first scenario when dependent variable is tax compliance 2 as expected some of the independent variables had positive significant associations with tax compliance 2. As it was previously, manufacturing dummy is excluded from analysis and, there was heteroskedasticity problem because Breusch–Pagan / Cook– Weisberg test for heteroskedasticity showed χ^2 (12) = 27.11, Prob > χ^2 =.01. Similarly, the robust command was used to rectify the heteroskedacity problem.

Next, a hierarchical regression analysis was conducted to test how these independent variables relate to tax compliance 2 as indicated in Table 5.4.3. Demographic variables i.e. length in business, dummy variables for agriculture, trade, primary education, management, the age between 18–30, construction sector and males were entered in the first step. This step produced an

insignificant increase in the variance accounted for in the tax compliance 2 (R^2 = 4.29%, $F_{(8, 248)}$ =1.52, ns).

Afterward, procedural justice 1, retributive justice 1, procedural justice 2 and retributive 2 were entered in the hierarchical regression analysis producing a significant variance accounted for (ΔR^2) of 8.62% which was statistically significant different from zero over the impacts of demographic variables ($\Delta F_{(4, 244)}$ =5.93, p <.001). Finally, there was a 6.26% change in variance accounted for (ΔR^2) when the interaction effects of procedural justice 1 * retributive justice 1, procedural justice 1 * retributive justice 2, procedural justice 2 * retributive justice 1 and procedural justice 2 * retributive justice 2 were introduced in step three; this change was statistically significant different from zero over the impact of previous factors in step two ($\Delta F_{(4, 240)}$ =4.58, p = .00).

Subsequently, the analysis focuses on the complete model in step three which has a low power of explanation of variance of 14% (adjusted R-squared). Firstly, the association of all demographic variables with tax compliance 2 were all insignificant. Specifically, length in business had an insignificant association with tax compliance 2 (β =.05, ns) as it was for dummies of trade (β =.08, ns), construction (β =.10, ns), agriculture (β = −.03, ns), primary education (β =.00, ns), management (β =.04, ns), age between 18 and 30 (β =.05, ns) and male (β =−.06, ns). Furthermore, the associations of both retributive justice 1 and procedural justice 2 with tax compliance 2 were insignificant (β = .12, ns; β =−06, ns) respectively, inconsistency with hypothesis 2_a and 1_a respectively.

However, consistent with the hypothesis 1_a the effect of procedural justice 1 on tax compliance 2 was significant (β = .23, p = .004) meaning a positive association, between compliant taxpayers' awareness of their appeal rights and procedures and their level of tax compliance. Specifically, a unit change in

standard deviation in the value of the measure of perceptions of procedural justice 1 increases standard deviation of tax compliance 2 by .23 keeping other factors constant. Also the retributive justice 2 had a significant positive association with tax compliance 2 (β = .22, p = .001) consistent with the hypothesis 2_b. Meaning that fair implementation of appeal procedures by appellant systems could increase compliance level of compliant taxpayers too. Particularly, an increase of 1 standard deviation in the value of the measure of perceptions of retributive justice 2 increases standard deviation of tax compliance 2 by .22, holding other factors.

Likewise, as expected in the hypothesis 3_a the interaction between procedural justice 1 and retributive 2 was significant (β = .20, p =.002). The simple slopes for associations between retributive 2 and tax compliance 2 were calculated for low (−1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of procedural justice 1. As Figure 5.4.2 shows, the simple slope of the association at low value of procedural justice 1 indicated a significant negative relationship between retributive justice 2 and tax compliance 2 (b = −.25, SE_b =.09, β = −.26, p = .004). Conversely, simple slope of the association at moderate value of procedural justice 1 indicated an insignificant relationship between tax compliance 2 and retributive justice 2 (b = −.06, SE_b =.06, β = −.06, ns), as the simple slope at high value of procedural justice 1 (b = .14, SE_b =.09, β = .14, ns). These results mean that taxpayers who have low levels of perceptions of procedural justice 1 are less likely to keep complying when their perceptions of retributive justice 2 increase.

Similarly, there was significant interaction between procedural justice 2 and retributive justice 1 (β = .14, p =.024) consistent with hypotheses 3_a. So analysis of simple slopes for the association between tax compliance 2 and

retributive justice 1 were done for low (−1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of procedural justice 2. As indicated in Figure 5.4.3, the simple slope of the association at high value of procedural justice 2 indicated a significant positive relationship between tax compliance 2 and retributive justice 2 (b = .25, SE_b =.08, β = .26, p = .003).

While, the simple slopes of associations, both at low levels and moderate values of procedural justice 2 were both insignificant (b = −.01, SE_b =.10, β = −.02, ns and b = .12, SE_b =.08, β = .12, ns) respectively.

Table 5.4.3: Summary of Hierarchical Regression Analysis for Variables Predicting Tax Compliance 2

Variable	Model 1			Model 2			Model 3		
	B	*SE B⁺*	β	B	*SE B⁺*	β	*B*	*SE B⁺*	β
Length B	.04	.05(.06)	.04	.06	.06(.06)	.06	.05	.06(.06)	.05
Primary E	.00	.07(.06)	.00	.03	.06(.06)	.03	.00	.06(.06)	.00
Trade	−.03	.15(.16)	−.03	.10	.13(.16)	.10	.08	.12(.15)	.08
Agriculture	−.14	.11(.12)	−.14	−.05	.10(.11)	−.05	−.03	.10(.11)	−.03
Management	−.13	.11(16)	−.13	.02	.13(.16)	.02	.04	.13(.16)	.04
Construction	.06	.09(.11)	.06	.10	.08(.10)	.10	.10	.07(.10	.10
Age 18–30	.06	.06(.06)	.06	.04	.06(.06)	.04	.05	.06(.60)	.05
Male	−.08	.06(.06)	−.08	−.07	.06(.06)	−.07	−.06	.06(.60)	−.06
Pro 1				.17	.08(.06)	.17*	.23	.08(.06)	.23**
Ret 1				.15	.06(.06)	.15*	.12	.08(.06)	.12
Ret 2				.19	.06(.06)	.19**	.22	.06(.06)	.22**
Pro 2				−.06	.06(.06)	−.06	−.06	.06(.06)	−.06
Pro 1 * Re 1							−.11	.08(.06)	−.11
Pro 1 * Ret 2							.19	.06(.06)	.20**
Pro 2 * Ret 1							.13	.06(.06)	.14*
Pro 2 * Ret 2							−.02	.07(.07)	−.02
Constant	.00	.06(.06)		.00	.06(.06)		.00	.06(.06)	
R²		.04			.13			.19	
Adjusted R²		.01			.09			.14	
ΔR²		.04			.09			.06	
ΔF		1.52			5.93***			4.58**	
Df		248			244			240	

procedural justice, Ret = Retributive justice, Length B= Length in business and

Primary E= Primary education

This relationship implies that taxpayers who have high perceptions of procedural justice 2 may be more likely to keep complying when their perceptions of retributive justice 1 increase.

Yet, the interaction between procedural justice 2 and retributive 2 did not support hypothesis 3_a (β = −.02, ns) as the interaction between procedural justice 1 and retributive justice 1 (β = −.10, ns). Lastly, basing on standardised coefficients, it appeared that procedural and retributive justice has almost equal associations with tax compliance 2.

Figure 5.4.2: Moderating Effect of Perceptions of Procedural Justice 1 on the Association between Perceptions of Retributive Justice 2 and Tax compliance 2
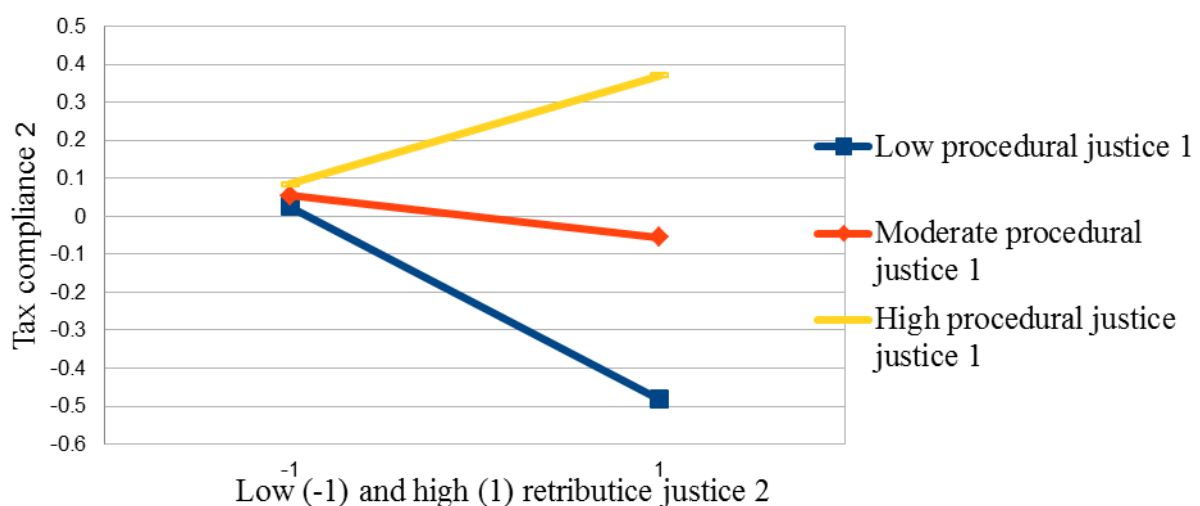
Figure 5.4.3: Moderating Effect of Perceptions of Procedural Justice 2 on the Relationship between Perceptions of Retributive Justice 1 and Tax Compliance 2.
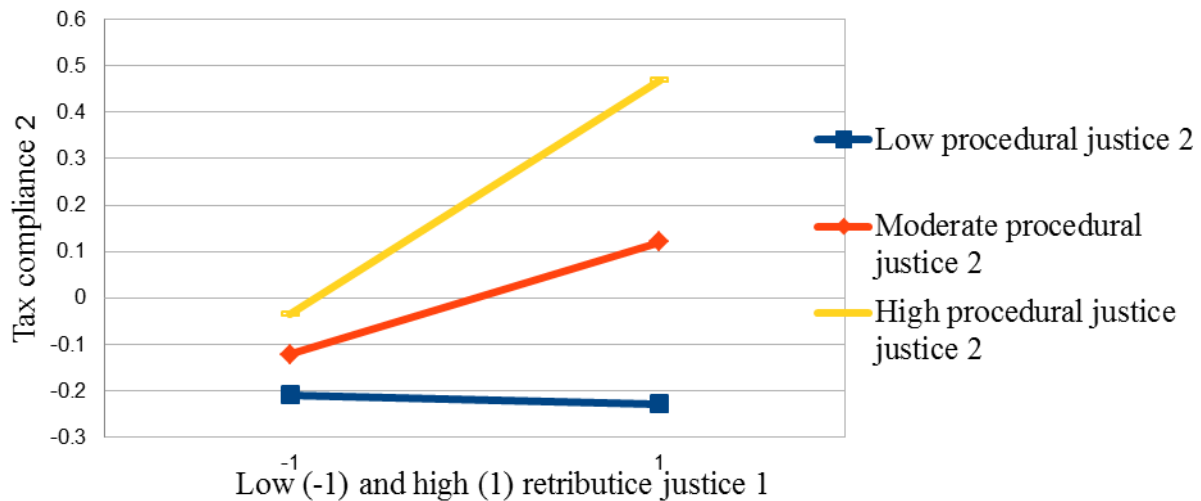
5.4.4   Scenario 2: Failure to Pay Corporate Income Tax on Time

The correlation statistics of the second scenario are presented in Table 5.4:4. There was a significant positive association between tax compliance on one side and retributive justice 1, retributive justice 2, procedural justice 1, procedural justice 2 and procedural justice 2 * retributive justice 1 on the other side. Also all the values of the variance inflation factor were all below 10 suggesting absence of multicollinearity. Still, the variance of error terms of independent variables were not homogenous as Breusch–Pagan / Cook–Weisberg test for heteroskedasticity indicated χ^2 (12) = 16.4, Prob > χ^2 =.03.

Afterward, another hierarchical regression analysis was run to test the hypotheses alongside the robust command to correct the heteroskedasticity problem (see Table 5.4.5). First, the demographic variables i.e. length in

business, dummy variables for age between 18–30 years, primary education, agriculture, trade, agriculture, male and construction sector were entered in the hierarchical regression analysis. These variables had variance accounted for (R^2) on tax compliance of 14.39%, which was significantly different from zero ($F_{(8, 248)}$=6.46, p < .001).

In the second step, procedural justice 1, retributive justice 1, procedural justice 2 and retributive justice 2 were entered in the hierarchical regression showing a change in variance accounted for (ΔR^2) of 16.44% which was statistically significant different from zero over the demographic variables' effect in step one ($\Delta F_{(4, 244)}$=16.06, p <.001). Finally, the addition of interaction variables: retributive justice 1 * procedural justice 1, retributive justice 1 * procedural justice 2, retributive justice 2 * procedural justice 1 and retributive justice 2 * procedural justice 2 in step three brought a change in variance accounted for (ΔR^2) of 4.56% which was statistically significant different from zero over the effect of factors in the second step ($\Delta F_{(4, 240)}$=5.55, p < .001). Therefore model three is the centre of analysis; the model explains 31% (adjusted R-squared) of the variance in tax compliance which is reasonable.

Among the demographic variables tested only the dummies variable for male, primary education and management had significant association with tax compliance. Exactly the dummy of males had a significant negative association with tax compliance (β = −.13, p =.02), meaning that male taxpayers are more likely to evade taxes than female taxpayers. Specifically, an increase of 1 standard deviation of male taxpayers, results in a .13 standard deviation decrease in tax compliance keeping other factors constant. This result is consistent with results by Spicer and Hero (1985).

Moreover, there was a significant negative impact of the dummy variable of primary education ($\beta = -.18$, $p = .001$), implying that respondents with primary education may be lesser compliant than those with higher education; may be because with a lower education level, understanding of tax justices might be difficulty. Definitely, an increasing standard deviation of taxpayers with primary education by 1 may decrease tax compliance standard deviation by .18 keeping other factors constant.

However, the dummy variable of agriculture indicated an insignificant positive relationship with tax compliance ($\beta = .07$, ns). Likewise, the impact of length in business, the dummy variables of construction, trade, management and age between 18–30 years were all insignificant ($\beta = -.08$, ns; $\beta = .01$, ns; $\beta = .23$, ns; $\beta = .27$, ns; $\beta = .08$, ns) respectively.

Nonetheless, as it was expected in the hypothesis 1_a the association of procedural justice 1 with tax compliance was significantly positive ($\beta = .28$, $p < .001$). This result suggests that increasing awareness of appeal procedures and rights might increase tax compliance level. Particularly, a unit change of standard deviation in the value of the measure of perceptions of procedural justice 1 may be associated with a .28 positive change in standard deviation of tax compliance keeping other factors constant. However, procedural justice 2 had an insignificant impact on tax compliance ($\beta = 00$, ns).

Conversely, as it was expected in the hypothesis 2_a the association of retributive justice 1 with tax compliance was significantly positive ($\beta = .32$, $p < .001$). This result means that imposing adequacy tax penalties might increase tax compliance level too. Exactly, a unit increase of standard deviation in perceptions of retributive justice 1 may produce a positive change of .32 standard deviation of tax compliance keeping other factors constant. Likewise,

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the association of retributive 2 with tax compliance supports hypothesis two (β = .16, p = .001). This result might mean that imposing tax penalties which are perceived to be appropriate may increase tax compliance level. Specifically, an increase of 1 standard deviation in perceptions of retributive justice 2 results in a .16 standard deviation increase in tax compliance keeping other factors constant.

Comparatively the interaction between procedural justice 1 and retributive justice 1 was insignificant (β = −.07, ns), and the interaction between procedural justice 1 and retributive justice 2 was insignificant (β = −. 04, ns) as the interaction between procedural justice 2 and retributive justice 2 (β = −.11, ns) against hypothesis 3_a. But the interaction between procedural justice 2 and retributive justice 1 was significant (β = −.19, p = .002) as expected the in hypothesis 3_a. Furthermore, to determine the nature of association between tax compliance and retributive justice 1 a simple slope analysis for low (−1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of procedural justice 1 was conducted.

Examination of the interaction plot, (See Figure 5.4.4) shows that as perceptions of retributive justice 1 increases tax compliance level intentions increase too. Specifically, the simple slope of the relationship at low value of procedural justice 2 was b = .46, SE_b =.05, β = .51, p < .001, larger than at moderate value of procedural justice 2 (b = .32, SE_b =.05, β = .32, p < .001), and the slope of the association at the moderate value of procedural justice 2 is larger than the slope of the high value of procedural justice 2 (b = .17, SE_b =.08, β = .13, p = .04).

Table 5.4.4: Pearson Correlations between Variables Used in Scenario Two

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.Length B	1																	
2.Primary E	−.0	1																
3.Trade	.05	.06	1															
4.Agriculture	.05	.08	−.27**	1														
5.Manufacture	−.08	−.02	−.15*	−.07	1													
6.Management	−.02	−.08	−.62**	−.30**	−.17**	1												
7.Construction	−.06	−.05	−.23**	−.11	−.06	−.24**	1											
8.Pro 1	−.07	−.04	−.03	−.09	−.07	.11	.01	1										
9.Ret 1	−.06	.04	.03	−.08	−.18**	.22**	−.22**	.0	1									
10.Ret 2	.05	.03	−.17**	.02	.09	.12	.0	.0	.0	1								
11.Pro 2	−.05	.20**	−.10	−.01	−.08	.15*	−.02	.0	.0	.0	1							
12.Tax	−.09	−.16*	.07	−.14*	−.16*	.19**	−.18**	.27**	.38**	.10	−.02	1						
13.Age 18–30	.03	.11	.14*	.01	.03	−.11	−.08	.06	−.10	.0	−.02	.04	1					
14 Male	−.03	.03	.08	.01	−.04	−.03	−.07	−.02	.06	.04	−.07	−.09	−.05	1				
15.Pro1*Ret 1	.06	−.04	−	.01	.04	.28**	−.05	.09	.07	.02	.26*	−.03	.0	−	1			

											.28**					*			.07			
16.Pro1*Ret 2	.07	−.04	−.10	−.02	.03	.06	.08	−.08	.02	.26**	.02	−.03	.02	.03	.09	1					
17.Pro2* Ret1	−.01	−.03	−.22**	.05	.14*	.09	.07	.23**	−.23**	.10	.02	−.19**	−.02	−.04	.13*	.08	1				
18.Pro2*Ret 2	−.01	−.03	−.04	−.03	−.03	.11	−.06	.02	.12*	.10	−.11	−.0	.09	−.02	.10	−.16*	−.1	1			

* Correlation is significant at the .05 level (2−tailed)
** Correlation is significant at the .01 level (2−tailed)

Note: Pro = procedural justice, Ret = Retributive justice, Length B= Length in business, Primary E= Primary education, and Tax = Tax compliance. Also with the exception of length in business all other demographic variables are dummies

Table 5.4.5: Summary of Hierarchical Regression Analysis for Variables

Predicting Tax compliance

Variable	Model 1			Model 2			Model 3		
	B	SE B+	β	B	SE B+	β	B	SE B+	β
Length B	–.12	.07(.06)	–.12	–.09	.06(.05)	–.09	–.08	.05(.05)	–.08
Primary B	–.16	.06(.06)	–.16**	–.17	.05(.05)	–.17**	–.18	.05(.05)	–.18**
Trade	.47	.14(.15)	.47**	.33	.13(.14)	.33*	23	.14(.14)	.23
Agriculture	.17	.10(.11)	.17	.10	.09(.10)	.10	.07	.09(.10)	.07
Management	.53	.14(.15)	.53***	.30	.13(.14)	.30*	.27	.14(.14)	.27
Construction	.06	.10(.10)	.06	.04	.09(.09)	.04	.01	.09(.09)	.01
Age 18–30	.06	.06(.06)	.06	.07	.05(.05)	.07	.08	.05(.05)	.08
Male	–.11	.06(.06)	–.11	–.12	.05(.05)	–.12*	–.13	.06(.05	–.13*
Pro 1				.23	.06(.05)	.23***	.28	.06(.05)	.28***
Ret 1				.34	.06(.06)	.34***	.32	.05(.06)	.32***
Ret 2				.13	.06(.05)	.13*	.16	.06(.06)	.16**
Pro 2				–.01	.06(.06)	–.01	.00	.05(.06)	.00
Pro 1 * Ret 1							–.06	.06(.05)	–.07
Pro 1 * Ret 2							–.04	.05(.05)	–.04
Pro 2 * Ret 1							–.15	.05(.05)	–.19**
Pro 2 * Ret 2							–.11	.06(.05)	–.11
Constant	0	0.6(.06)		0	.05(.05)		0	.05(.05)	
R²		.14			.31			.35	
Adjusted R²		.12			.27			.31	
ΔR²		.14			.16			.05	
ΔF		6.46***			16.06***			5.55***	
Df		248			244			240	

* p < .05, ** p < .01, *** p < .001, + white robust standard errors[13], Pro = procedural justice, Ret = Retributive justice, Length B= Length in business, and Primary E= Primary education

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[13] Classical standard errors are shown in parentheses.

Figure 5.4.4: Moderating Effect of Perceptions of Procedural Justice 2 on the Relationship between Perceptions of Retributive Justice 1 and Tax Compliance.
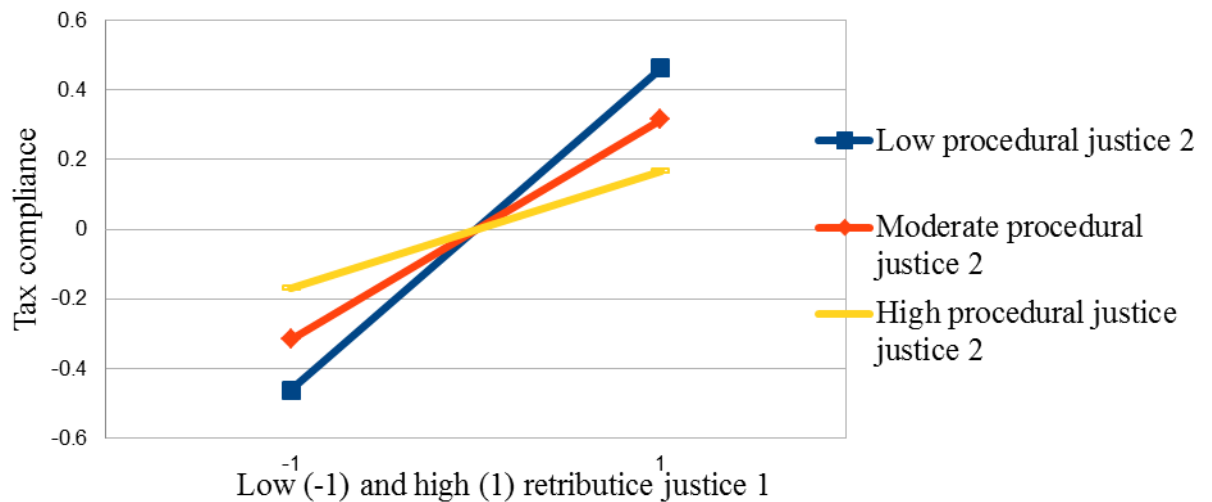
Mostly, at the low level of retributive justice 1 tax compliance level of taxpayers with high perceptions of procedural justice 2 was slightly higher than others against hypothesis 3_a(ii). But, at the high level of procedural justice 1 tax compliance for taxpayers with low levels of perceptions of procedural 2 were slightly higher than others. So, when retributive justice 1 is high, taxpayers with low levels of perceptions of procedural justice 2 had the highest tax compliance levels. This result means that taxpayers who have low perceptions of procedural justice 2 are more likely to increase their tax compliance when perceptions of retributive 1 increases than other taxpayers. In conclusion, basing on standardised coefficients, retributive justice has the largest association with tax compliance.

5.5   Discussion and Conclusion

This chapter was aimed at studying how perceptions of retributive justice of corporate income tax penalties and procedural justice of a system imposing

them, associate with tax compliance. Also, how procedural justice moderates the relationship between tax compliance and perceptions of retributive justice. The chapter used two scenarios based on Tanzania Income Tax Act, 2004 to test these relationships. As noted before, this chapter differs significantly from previous literature both in tax compliance retributive and procedural justice areas. Previous studies in retributive justice literature, mainly compared the severity of tax non-compliance crimes to other crimes (Song and Yarbrough, 1978; Evans and Kelley, 2001; Burton *et al.*, 2005), and did not examine how retributive justice might affect tax compliance. This chapter demonstrated that the perceptions of retributive justice might be positively associated with tax compliance. The results are consistent with other studies which found that justice perceptions are positively related to tax compliance (Wenzel, 2003; Verboon and Goslinga, 2009; Rechberger *et al.*, 2010).

Yet, previous literature on procedural justice has studied how procedural justice in distributing tax burdens and tax funded public goods affects tax compliance (Alm *et al.*, 1993). This research is one of the few studies studying how perceptions of procedural justice in imposing tax penalties encourages tax compliance (Murphy, 2003; Murphy and Tyler, 2008; Verboon and van Dijke, 2011). The results indicated that perceptions of fairness of imposed tax penalties, may be strongly positive related to tax compliance. These results are similar to Murphy and Tyler (2008) and Murphy (2003), but, contrary to Verboon and van Dijke (2011) who found procedural justice had an insignificant impact on tax compliance. The contradictory results might be because of different tax compliance measurements; while Verboon and van Dijke (2011) asked whether respondents have actually cheated or not, this study measure their intentions to comply with corporate income tax penalty

scenarios. Respondents might not provide correct responses about their actual tax compliance behaviour fearing tax penalties (Alm and Torgler 2011) and social stigma.

Besides, research has provided empirical findings on the interaction between procedural and retributive justice which was advocated by Verboon and van Dijke (2011). The results signify that abilities of retributive justice to increase tax compliance might depend on taxpayers' perceptions of procedural justice of tax appeal systems. Specifically, charging tax penalties which are perceived adequate are likely to increase tax compliance of taxpayers with low levels and moderate levels of perceptions of understanding of tax appeal procedures and rights. Probably, their lack of understanding of their appeals rights makes them more susceptible to adequate tax penalties. Nonetheless, imposing tax penalties which are perceived appropriate are likely not to keep compliant behaviour of taxpayers with low levels of perceptions of transparent of appeal procedures and rights. May be those taxpayers might find appropriate tax penalties unfair without clear ways of appealing against them. Finally, taxpayers with high trust in the system implementing appeal rights and procedures are likely to keep complying when their perceptions of adequacy of tax penalties increase. Probably, an increase in fairness of the system reduces chances of or willingness to circumvent the system by bribing officials or otherwise; or it increases the legitimacy of the system which consequently the system attracts compliance from its followers (Verboon and van Dijke, 2011). The result is consistent with findings by Verboon and Van Dijke (2011) who found that severe penalties increase compliance with the law when the procedure of imposing them is fair. However, it should be noted that Verboon and van Dijke (2011) considered general tax compliance of respondents in a survey study where general procedural fairness of a tax authority and severity

of tax penalties as well as perceptions of audit rates were included. Also, in their second study they tested student compliance with hypothetical plagiarism rules where the severity of penalties and procedural justice were manipulated (Verboon and van Dijke, 2011).

Therefore, this chapter extends the previous literature in four ways. First, it suggests that the impact of penalties for tax non-compliance on compliance behaviour may depend on whether penalties fit the crime both in the term of adequacy and appropriateness; when tax penalties are viewed retributively fair they might increase tax compliance. Second, it also suggests tax compliance levels might relate to how a tax authority advocates: tax appeals rights and processes, and implements tax disputes solving procedures; an unbiased and transparent system attracts high tax compliance level. Third, it suggests that tax penalty can encourage compliant taxpayers to keep complying, and non-compliant taxpayers to change their behaviour. Finally, it suggests that retributive justice has two elements: adequacy of tax penalties and their appropriateness relative to crimes committed.

Taken together these findings have clear implications to tax authorities. The results denote that tax compliance level can increase with an increase in perceptions of retributive and procedural justice of an imposing system. Therefore, tax authorities who rely more on imposing tax penalties to prevent and deter tax non-tax compliance can indeed do so when these penalties are actually imposed and considered fair 'let the punishment fit the crime'. Furthermore, tax compliance can come from improving the procedural justice of systems imposing these penalties; however, to large extent penalties are imposed mainly by appellate systems which might be independent from the tax authorities. Taking Tanzania as an example, the appellate systems are the

Tax Revenue Appeals Board, Revenue Appeals Tribunal and the Court of Appeal, in addition to the Tanzania Revenue Authority which charges tax penalties and interest for tax non-compliance (*The Tax Revenue Appeal Act,* 2006). Tanzanian taxpayers can appeal to the appellate systems when the taxpayers disagree with the Tanzania Revenue Authority (*The Tax Revenue Appeal Act,* 2006). In this hierarchical process, it is a responsibility of the tax authorities which want to increase tax compliance levels to work closely with other appellate systems to ensure that procedures of solving tax disputes and imposing tax penalties are fair. The perceived procedural justice of a system not only has its own effect on tax compliance, but also it can have a moderating effect on how tax compliance relates to retributive justice of imposed tax penalties. Summarily, tax penalties alone may work, but works much better in conjunction with a fair system that imposes them. So, retributive and procedural justice might be used in conjunctions with other tax compliance strategies to increase tax compliance. Additionally, future research should consider how tax authorities should work with appellate machinery to improve the perceived procedural justice.

However, the chapter has a number of limitations. First, it has used tax scenarios from Tanzania Income Tax Act 2004, which may not be transferrable to other areas of tax penalties as demonstrated in the chapter or countries with different cultures. Therefore, similar studies in other countries or other tax laws are encouraged. Second, the small sample size used in the study may also limit the generalisability of the results as a convenient sampling approach. Third, as it is to all cross section survey studies, the presence of correlations between independent variables and dependent variable may not indicate causal

and effect relationship, and self-report data may differ from actual behaviour

of respondents. Subsequently, the findings should be interpreted with caution.

Chapter 6: The Impact of Tax Compliance

Costs on Tax Compliance

Abstract

Researchers studying tax complexity have increasingly focused on simplification of tax laws, and estimating of tax compliance costs. Tax compliance costs have been found to have regressive pattern, thus the burden of tax compliance costs on Small and Medium Enterprises (SMEs) taxpayers is heavier than on larger taxpayers. However, how tax compliance costs relate to tax compliance is largely unknown. The purpose of this chapter was to determine whether an increase in tax compliance costs lead to decrease in tax compliance level. Three levels of tax compliance costs were manipulated in a laboratory experiment with SMEs taxpayers. The result shows high tax compliance costs might reduce tax compliance level and implies that tax compliance costs may describe the unsatisfactory tax compliance levels of SMEs taxpayers.

Keywords: complexity of tax laws, tax avoidance, tax compliance, tax compliance costs, tax evasion.

6.1   Introduction

A considerable amount of literature has been published on the complexity of tax laws and tax compliance costs. These studies have centred on simplifications of tax laws, causes of complexity of tax laws, the measurement of complexity of tax laws, the impact of complexity of tax laws on tax compliance costs and the estimation of tax compliance costs (Heyndels and Smolders, 1995; Cuccia and Carnes, 2001; Forest and Sheffrin, 2002; Evans, 2003). However, so far little attention has been paid to the impact of tax compliance costs on tax compliance behaviour. Tax compliance occurs when taxpayers obey tax laws (Kirchler *et al.*, 2007). Yet, tax compliance costs are costs incurred exclusively for a tax compliance purpose; costs would be avoided if taxation were abolished (Sandford and Hardwick, 1989; Ismail *et al.*, 1997). Therefore, this chapter investigated experimentally the impact of tax compliance costs on tax compliance behaviour of Small and Medium Enterprises (SMEs) in Tanzania. SMEs are enterprises with between 5 and 99 employees or whose capital investment in the term of assets is between Tanzania shillings (Tshs) 5 million (£2,000) – Tshs 800 million (£320,000) (*Small and Medium Enterprise Development Policy*, 2003).

Tax compliance costs have been found to be regressive in nature (Sandford and Hasseldine, 1992; Pope, 1995; Schoonjans *et al.*, 2011). Consequently, SMEs taxpayers may be economically oppressed (Schoonjans *et al.*, 2011), and their tax compliance levels are lower (Arachi and Santoro, 2007). High tax compliance costs may explain why SMEs' tax compliance levels are lower as SMEs may perceive tax systems as unfair systems. Subsequently, knowing

whether or not tax compliance costs impact SMEs tax compliance is useful in combatting SMEs tax non-compliance.

The chapter has four contributions in tax compliance literature. First, according to my best knowledge it is the first research to study the impact of tax compliance costs on tax compliance behaviour. Second, the study adds to the limited tax compliance costs literature from developing countries as many studies represent developed countries' contexts; actual only one research has been done in Tanzania which measured tax compliance costs of excise duty tax (Shekidele, 1999). Additionally, differences in willingness to comply, efficiencies of tax authorities and resources may prevent tax compliance factors developed, and tested in developed countries to work properly in developing countries. Third, the study has used SMEs taxpayers in the laboratory experiment; few researchers as Torgler (2003a) and Cadsby *et al.* (2006) had used taxpayers in laboratory experiments. Finally, tax authorities can evaluate their tax simplification programmes focused on reductions in tax compliance costs; the results suggest decreasing tax compliance costs can increase SMEs' tax compliance levels.

The next section (6.2) reviews prior tax compliance literature and develops hypotheses. Then, in section 6.3 the research method is presented. Section 6.4 presents data analysis while section 6.5 discusses the results and a conclusion.

6.2   Prior Literature and Development of Hypotheses

6.2.1   Tax Compliance and Complexity of Tax laws

Complexity of tax laws refers to the specialised nature of tax laws which causes calculations of tax payable to become difficult (Mulder *et al.*, 2009).

The complexity of tax laws have been grouped into content and compliance complexity. Content complexity refers to difficultness to comprehend tax laws whereas the complexity of complying with the tax laws' requirements is referred as compliance complexity (Mulder *et al.*, 2009; Saad, 2010).

Several factors can cause complexity of tax laws. Tax laws serve revenue, equity, efficiency and social purposes, but may be at the expense of simple tax laws. In fact, raising tax revenue is the main goal of tax laws (Quandt, 1983; Forest and Sheffrin, 2002). This goal is achieved through enacting tax laws which prevent tax evasion and avoidance. Taxpayers evade taxes when they intentionally reduce their tax liabilities unlawfully, but when the reduction of tax liabilities use lawful ways the reduction is called tax avoidance (Alm, 1999; Slemrod, 2007).

Consequently, the actions of governments which need tax revenue and non-compliant taxpayers shape the contents of tax laws. The reactions of governments to taxpayers' actions resemble 'cat and mouse' games (Picciotto, 2007). Overtime, the re-enactments of tax laws and regulations to prevent reductions of tax liability results into complex tax laws (Quandt, 1983; Oliver and Bartley, 2005). Moreover, tax laws define which income, consumption or wealth is taxable yet both the classification and measures of taxable items might be difficult (Oliver and Bartley, 2005).

Further, the attainment of fairness among taxpayers is an aim of tax laws (Paul, 1997; Forest and Sheffrin, 2002; Oliver and Bartley, 2005). For the sake of fairness, some taxpayers with or without certain level of income may be exempted from paying taxes or charged with low tax rates as in progressive tax systems. However, when tax exemptions and tax rates are many, they may

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cause confusion, and rendering difficult to comply with tax laws (Oliver and Bartley, 2005).

Additionally, tax laws spell responsibilities of taxpayers to achieve efficiency. Particularly, self-assessment tax systems impose tax compliance responsibilities on taxpayers probably because the taxpayers may know their income and expenses better than tax authorities. But, systems may only reduce tax compliance costs when the taxpayers understand tax laws otherwise the systems shift tax compliance costs from tax authorities to the taxpayers (Paul, 1997; Oliver and Bartley, 2005).

Besides, tax laws targeting harmful social behaviour as alcohol may increase complexity of tax laws; for example, by increasing numbers of tax laws and taxes which may confuse taxpayers (Quandt, 1983; Forest and Sheffrin, 2002; Oliver and Bartley, 2005). These competing objectives of tax laws may lack good chemistry resulting into complex tax laws.

Moreover, tax laws through which tax policies are implemented are written in legal terms preventing many taxpayers from comprehending them (Picciotto, 2007). Furthermore, where tax laws are ambiguous and unstable, this may result in multiple interpretations of tax laws especially when there is no uniform training of taxpayers, tax return preparers and tax officials (Alm *et al.*, 1992b; Picciotto, 2007). Conclusively, the complexity of tax laws results from governments and taxpayers' actions (Oliver and Bartley, 2005).

However, literature on how the complexity of tax laws affects tax compliance behaviour is controversial. A theoretical work of Scotchmer (1989) claimed that tax revenue authorities prefer complex tax laws to simple ones because uncertainty might induce more tax compliance. Scotchmer (1989) argued

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taxpayers approach tax returns preparers for help to resolve tax complexity problems, but not all uncertainties are resolved. Since tax non-compliance is penalised, taxpayers and their tax returns preparers might react to the remaining uncertainties by paying more taxes (Scotchmer, 1989). Similarly, White *et al.* (1990) suggested complex tax laws may help tax authorities winning tax disputes and increase tax revenue. However, the conclusion that, taxpayers might increase their compliance levels because of the remained uncertainties and complex tax laws increase chances of tax authorities winning cases has no empirical evidence in support.

Nevertheless, when tax fairness causes the complexity of tax laws; the complexity might increase tax compliance because tax fairness is an important factor in tax compliance decision (Milliron, 1985). Indeed, Milliron (1985) found an increase in inclination towards tax payments when distributive fairness caused tax complexity. Distributive justice refers to a fair allocation of tax burdens and governments provided goods and services among taxpayers (Wenzel, 2002).

Equally, Cuccia and Carnes (2001) supported that tax fairness can increase tax compliance levels, even when tax laws are complex. Cuccia and Carnes (2001) conducted a hypothetical experiment to determine how participants' perceptions of procedural justice change when complexity of tax laws were either justified or not. They found that, when complexity of tax laws was justified and provided tax reliefs to the participants, the participants' perceptions of procedural justice were higher than when the complexity of tax law lacked justification and had less tax reliefs (Cuccia and Carnes, 2001). The concern about fairness of a process of distributing tax burdens and public provided goods and services is known as procedural justice (Thibaut and

Walker, 1978; Leventhal, 1980). However, since the study was constrained on the effect of complexity of tax laws on taxpayers' procedural justice perceptions, tax compliance decisions were not involved in that study. Also, Chang *et al.* (2009) showed that hypothetical intentions may differ from real behaviour.

Nevertheless, opposing evidence suggested complex tax laws produce negative attitudes toward tax compliance (Milliron, 1985; Kirchler *et al.*, 2006). For instance, the attitude towards tax compliance of participants was at the lowest when tax complexity scenarios offered more tax non-compliance opportunities and the scenarios were perceived to be unfair (Milliron, 1985). Likewise, a hypothetical experiment revealed tax avoidance decreases with precise tax laws (Spilker *et al.*, 1999). Subsequently, tax compliance is negatively related to complex tax laws (Richardson, 2006).

Furthermore, the difficult of separating errors from deliberate tax evasion (Slemrod, 2007), could lead to punishing innocent taxpayers resulting in lowering tax morale. Tax morale is a taxpayer disposition to pay taxes (Frey and Torgler, 2007). Entirely, Mills (1996) suggested complex tax laws increase tax compliance costs, give opportunity to evade and when tax compliance costs are far greater than the tax evasion opportunities, tax compliance may suffer.

6.2.2 Tax Compliance and Tax Compliance Costs

Complexity of tax laws and tax compliance costs are positively linked (Evans, 2003). In self-assessment tax systems for instance, complex tax laws force taxpayers to hire paid tax returns preparers. Besides, complex tax laws may require sophisticated accounting records which may necessitate hiring of

bookkeepers adding more tax compliance costs (Schoonjans *et al.*, 2011). Many researchers have attempted to estimate tax compliance costs. In the US, a study by Arthur D. Little.Co reported in Slemrod and Venkatesh (2002) collects tax compliance costs of businesses on behalf of Internal Revenue Services. The data comprises tax compliance costs on accounting records, equipment, hiring of preparers of tax return and submission of tax returns of businesses (Slemrod and Venkatesh, 2002). Hall (1996) used the data and found tax compliance costs was significant and small firms paid more compared to larger ones relative to their sales or assets i.e. regressive nature. The regressive nature of tax compliance costs indicates tax compliance costs are fixed and larger taxpayers are relatively advantaged.

Nevertheless, the data has been criticised on lack of reliability because taxpayers might overstate tax compliance costs estimates or may not remember all tax compliance costs incurred (Slemrod and Blumenthal, 1996). Further, respondent bias might affect the data as response rates were between 30% and 40% (Slemrod and Venkatesh, 2002). Slemrod and Venkatesh (2002) suggested the bias might reduce tax compliance costs estimation if tax compliance costs of non-respondent taxpayers are not included. Moreover, the separation of tax compliance costs from others is difficult especially when there is no exclusive accounting or tax department in organisations (Slemrod and Venkatesh, 2002).

However, surveyed tax compliance costs of self-employed taxpayers and discovered that the self-employed taxpayers were likely to hire tax preparers and use more time to comply with tax laws than the larger taxpayers (Slemrod and Sorum, 1984; Blumenthal and Slemrod, 1992). A similar pattern was discovered in larger companies, where tax compliance costs decreased with an

increase in values of assets (Slemrod and Blumenthal, 1996). Therefore, it was concluded that Arthur D. Little's survey data are useful.

Additionally, several other researchers report similar results (Sandford and Hasseldine, 1992; Pope, 1995; James and Wallschutzky, 1997; Schoonjans *et al.*, 2011; Coolidge, 2012). Indeed, Coolidge (2012) discovered while larger taxpayers can spend 1% of their turnover on tax compliance costs, SMEs can spend from 5% to 15% or more of their revenue complying with tax laws. But, no study has studied how tax compliance costs and tax compliance are related; probably tax systems with high tax compliance costs might be seen procedurally unfair and when SMEs taxpayers know that they are in disadvantageous position the tax system may be perceived vertically unfair.

6.2.3   Tax Compliance and Vertical Fairness

Vertical justice is achieved when taxpayers with different tax payment abilities are treated differently; with the rich bearing the largest portion of tax burden for instance (Adams, 1965; Kinsey and Grasmick, 1993). Previous research showed perceptions of vertical fairness may increase tax compliance (Kinsey and Grasmick, 1993; Roberts and Hite, 1994; Braithwaite, 2003). To illustrate, vertical inequity was perceived to exist in Australia; with lower income earners perceived to have higher effective tax rates than higher income earners apparently through both tax avoidance and the structure of the tax rates; consequently, the majority of the respondents suggested high taxes for high income earners (Braithwaite, 2003).

Furthermore, some tax authorities recognise heavy burdens of tax compliance costs of SMEs taxpayers through simplified accounting records (Arachi and Santoro, 2007). In the UK, for example, small unincorporated businesses with

annual cash receipts not exceeding £ 77,000 are allowed to use cash basis instead of accrual basis (Gauke, 2012). So they pay taxes basing on cash received and paid in a particular period. Furthermore, in Tanzania sole traders with annual sales up to Tanzania shillings (Tshs) 20 million (£8,000) are allowed to have simplified accounts and pay taxes on presumptive systems (*The Income Tax Act*, 2004). The presumptive tax systems tax taxpayers basing on sales instead of profits (Arachi and Santoro, 2007). As in the UK, Tanzanian corporate SMEs have to keep complete records regardless of their annual sales levels.

6.2.4   Tax Compliance and Procedural Fairness

Presence of fair procedures might increase tax compliance (Feld and Frey, 2007; Verboon and van Dijke, 2011). However, in the term of complexity of tax laws procedural justice can mean how easily taxpayers comply with tax laws. As previously stated complex tax laws may necessitate usage of hired tax returns preparers leading to an increase in tax compliance costs and reduced net income. Consequently, the reduction of profit might motivate taxpayers to compensate themselves for the loss suffered through tax non–compliance. This argument and vertical fairness consideration lead to hypothesis 1:

$H1_a$: Income tax compliance level decreases with an increase in income tax compliance costs.

6.2.5 Demographic Factors

6.2.5.1 Tax Compliance and Gender

Many studies have reported that male and female taxpayers display different levels of tax compliance (Friedland *et al.*, 1978; Spicer and Hero, 1985; Cadsby *et al.*, 2006; Alm *et al.*, 2010b). Spicer and Hero (1985) for example, found female complied more than male participants in a laboratory experiments.

However, "women are more likely to evade than men, but underreport a much smaller fraction of their income than men" (Friedland, Maital and Rutenberg, 1978:113). Bordignon (1993) suggested men taxpayers are more risk taker than women that is why men taxpayers comply less than women taxpayers. These finds lead to a second hypothesis:

$H2_a$: Women participants will be more compliant than men.

6.2.5.2 Tax Compliance and Age

Having many older taxpayers might be advantageous. Previous research has found the age of taxpayers to correlate positively with tax compliance level (Clotfelter, 1983; Kirchler, 1999; Fjeldstad and Semboja, 2001; Alm *et al.*, 2010b). For instance, Clotfelter (1983) indicated that older taxpayers aged 65 or more are more compliant than the younger group. Risk averse attitudes of older taxpayers may cause them to comply more than younger taxpayers (Chang *et al.*, 1987). Therefore, it is expected in hypothesis three that:

$H3_a$: Partincipants aged more than 30 years will comply more than participants aged 30 years or below.

6.2.5.3 Tax Compliance and Education

The impact of education on tax compliance is mixed too. Education and tax compliance levels might be positively correlated (Jackson and Milliron, 1986; Dubin and Wilde, 1988; Richardson, 2006; Saad, 2010). For instance, Richardson (2006) found a positive relationship between education level and tax compliance level. Similarly, Dubin and Wilde (1988) demonstrated that taxpayers with a high level of general education are less likely to be non-compliant taxpayers. The positive correlation between tax compliance and education level is attributed to improved tax fairness perceptions when taxpayers are educated and, their abilities to deal with complex tax laws (Dubin *et al.*, 1990; Saad, 2010).

However, generally high educated taxpayers can use loopholes in tax laws to reduce their tax liabilities (Jackson and Milliron, 1986; Dubin *et al.*, 1990). Furthermore, a high level of education may change perceptions of payment of income taxes from a reduction of income to a loss; consequently it might reduce tax compliance (Chang *et al.*, 1987). Accordingly, it is expected in hypothesis four that:

H4$_a$: Participants with at least secondary education would be less compliant than participants with primary education.

Further, because of individual effects of gender, age and education level, these factors might moderate how tax compliance costs and tax compliance relate. Also, they might moderate their own relationships with tax compliance costs. Therefore, it is expected that:

H5$_a$: Age, gender and education level may each moderate the relationship between tax compliance costs level and tax compliance; when tax

compliance costs is high, being a female, aged above 30 years and having primary education will be associated with higher tax compliance than being a male, aged 30 years or below and having education above primary education.

6.3   Methodology

6.3.1   Method

Laboratory experimental methods are appropriate in studying causal-effect relationships (Alm *et al.*, 2010a). Because control over tax rate, audit rate and income level enable examination of the impact of tax compliance costs on tax compliance behaviour (Torgler, 2002; Alm and Torgler 2011). However, laboratory experiments follow certain accepted criteria to examine causal and effect relationships. First, a laboratory experiment should attempt to control participants' preferences through rewards structure (Smith, 1982). Control is possible when participants need more and more of the rewards complying with the assumption of maximising taxpayers. Additionally, the rewards depend on individual's actions; non-compliant participant might get more than compliant one if both are not audited as in the actual world (Smith, 1982).

Second, participants need privacy to ensure genuine responses from the participants and data showing individuals rather than group reactions to independent variables under investigations (Smith, 1982). Third, the context of study is usually hidden to prevent adding extra information to experiments (Davis and Swenson, 1988; Wartick *et al.*, 1999; Alm, 2010). Indeed, the context of study causes participants to use information from their life experience which may not be part of experiments (Wartick *et al.*, 1999).

Consequently, without the context of study laboratory experiments study, the economic effects of independent variables on dependent variables only (Alm, 1991; Moser *et al.*, 1995). So, results from context free studies have limited external validity.

External validity refers to transferability of results from a laboratory to non-laboratory environments (Smith, 1982). So, laboratory experiments imitate real tax systems to increase transferability of results to non-experiment environments (Spicer and Thomas, 1982; Alm *et al.*, 2010b). For example, in a self-assessment scheme, participants get income, decide whether to file or not to file tax returns, pay taxes on declared income and some are audited and penalised if tax non-compliance is detected (Alm *et al.*, 2010a; Alm *et al.*, 2010b). Moreover, using tax and audit rates from real tax structures can improve the external validity of results from laboratory experiments (Alm, 2010). Also, using tax terminologies instead of context free instructions, can improve the external validity of laboratory experiments' results (Wartick *et al.*, 1999; Alm *et al.*, 2010b).

Conversely, laboratory experiments have limitations too. One of the limitations is that the experiments normally use students who are arguably not representatives of taxpayers (Torgler, 2003a; Cadsby *et al.*, 2006). Yet Alm *et al.* (2010a) reported that student and non-student participants might have similar tax compliance responses. Secondly, laboratory experiments' results largely depend on the appropriateness of experimental design (Alm *et al.*, 2010a). However, this study has used an instrument previously used by Cadsby *et al.* (2006)[14] with the consent of the authors, but after piloting and amending it to include tax compliance costs. With the exception of using tax

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[14] These authors examined the impact of audit rate, penalty rate and obedience to authority on tax compliance manually.

terminologies, the study has complied with acceptable standards of laboratory experiments.

6.3.2 Participants, Experimental Design and Procedure

The participants were recruited conveniently by physically delivering invitation letters to SMEs owners and managers' offices. The physical presentation helped clarification of potential participants' concerns about the experiment. The experiment involved 75 small and medium entrepreneurs in Dar es salaam, Tanzania. 57% of them were female and 52% of them had primary education while the mean age was 37 with age standard deviation of 8.72. Further, the experiment offered maximum earning of Tanzania shillings (Tshs) 25,000[15] (£10) to participants, but the actual payment depended on an individual's tax return. Actually, the mean payment was almost Tshs 16,000 (£6.4).

The participants were first randomly assigned to one of the three experiment treatments. In the first treatment tax compliance costs was TAZ 50,000 while in the second was TAZ 100,000 and in the third treatment was TAZ 166,667. Also the income given to participants in each treatment was TAZ 1,000,000. The selection of tax compliance costs values based on evidence that tax compliance costs of SMEs in developing countries range from 5% to 15% or more of turnover (Coolidge, 2012). TAZ was defined as a laboratory currency exchangeable to actual money at TAZ 120 for 1 actual Tshs at the end of the experiment. So only tax compliance costs were manipulated and the experimental design was 1 x 3 as indicated in Table 6.3.1

Then, participants were asked to select an envelope containing experimental instruments (see Appendix C 3). In envelopes, there were consent forms, tax

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[15] Wage rate is Tshs 20,000.

return forms in duplicate[16] and instruction sheets. Thereafter, participants were requested to read and sign a participant information sheet (see Appendix C1) and consent form (see Appendix C2) followed by the researcher reading information applicable to all participants[17], while participants listened. Participants were required to work independently, verify their documents and not to talk to each other. Also, the researcher read information about provided income, tax rate and audit rate; this information was identical to all participants.

Table 6.3.1:Experimental Design

Treatments	1	2	3
Tax compliance costs	TAZ 50,000	TAZ 100,000	TAZ 166,667
Participants	[n=25]	[n=25]	[n=25]

Additionally, as assumed by economic tax compliance theory, tax rate, income, income tax penalty rate, and audit rate were known by participants (Allingham and Sandmo, 1972; Yitzhaki, 1974); however, these factors were fixed to remove their effects on tax compliance behaviour (Hanlon and Heitzman, 2010). The tax rate was 30%, the tax penalty rate was double the tax owed[18], each participant had a 10% chance of being audited and the gross income was TAZ 1,000,000. Moreover, full tax compliance was required; this requirement is opposite to many experiments which allowed participants to report any income from 0 to actual income received (Moser *et al.*, 1995; Alm *et al.*, 2010b). Consequently, results from these studies have limited application outside laboratory situations (Webley and Halstead, 1986; Cadsby *et al.*, 2006). Finally, each participant read tax compliance costs information individually.

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[16] Participants retained the duplicate tax returns and the duplicates were used for payment of the experimental token.
[17] Some items differed as experimental treatments.
[18] These two variables reflected Tanzania's income tax structure.

Shortly, the experimental procedure can be summarised as following: participants learn details of income, tax rate, audit rate, penalty rate and tax compliance costs. Then, participants completed tax return, file the tax returns, audit takes place, imposing tax penalty on non-compliant taxpayers by indicating on the duplicate tax returns and then a period finished and a fresh period begun. Three periods were conducted after a question and answer session and a practice round. Actually, the experiment consumed 80 minutes, ending with a brief debrief of the experiment (see Appendix C4) before payment of the experimental tokens.

6.4 Experimental Results and Discussion

6.4.1 Data Screening

15 observations were excluded from the analysis because the observations exceeded TAZ 1,000,000; the gross income given in each session. It cannot be ascertained why these participants reported more than the amount given in the instruments probably they wanted to cheat. Since no taxpayer wants to pay more than what is required the observations were omitted. Leaving 210 (64 (30.48%) for treatment 1, 75 (35.71%) for treatment 2, and 71 (33.81%)) for treatment 3) observations for analysis. Also, one case did not indicate the gender of the participants and four cases did not indicate the education level of participants; these observations were not imputed but they were included in the analysis. The imputation of the missing categorical data is discouraged on the basis that it requires precise rather than continuous estimation of data, for example, an estimation of gender of a participant (Hair *et al.*, 2010).

The hypotheses were examined using analysis of variance [19] (ANOVA) approach because of the presence of a single dependent variable, that is, tax compliance and many independent variables (Mitchell and Janina, 2013). However, data were not normally distributed because Shapiro Wilk test indicated $p < .001$. Also, an assumption of a homogeneity of variance was not met, Levene's test $p < .001$. So the data were rank transformed before performing ANOVA test. The rank transformed data transform data to distribution free (Timothy *et al.*, 1985), consequently overcoming both normality and heteroscedasticity problems (Conover and Iman, 1981; Timothy *et al.*, 1985).

Additionally, the partial eta squared (η_p^2) measure was used to test the significance of the significant results. The η_p^2 measures the overall effect of an independent variable on a dependent variable; where η_p^2 is ≥ 0.01, the effect it is "small"; when η_p^2 is equal to $\geq .06$, the effect is "medium"; and when η_p^2 is $\geq .14$, the effect is "large" (Cohen, 1988; Richardson, 2011). As it can be seen later all of the significant independent variables had a medium size effect.

Further, the tax compliance rate, which is (income reported less tax compliance costs reported) / (gross income given less gross tax compliance costs given), measured tax compliance. While, age of participants was grouped into three groups: ≤ 30 years old, > 30 years of age and un-named. These classifications almost resemble the Fjeldstad and Semboja (2001)'s survey study in Tanzania and found that taxpayers aged more than 29 years complied more than their counterpart. Finally, as the sample was small three groups of education level were formed: primary education, above primary education level and un-named.

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[19] Both results from individual rounds and the entire experiment indicated similar nature.

6.4.2　Results and Discussion

Generally, means of tax compliance rates were 99% (SD =.12), 91% (SD = .27) and 80% (SD = .34) for treatment 1, 2 and 3, respectively, while, the median tax compliance rate for all three treatment was 100%. This trend of compliance rates were similar to results by Cadsby *et al.* (2006) implying that tax compliance might be high when it is demanded. Specifically, when participants were allowed to report any amount from zero to correct amount their average compliance was 57% compared to the mean compliance rate of 99.5% from participants who were required to comply fully (Cadsby *et al.*, 2006).

Table 6.4.1 shows the results of analysis of variance. A 2 x 3 x 3 x 3 analysis of variance of age ($\leq$30 years old, > 30 years old), education (primary level, above primary education level, un-named), tax compliance costs (TAZ 50,000, TAZ 100,000, and TAZ 166,667) and gender (female, male, and un-named) between subjects was run to test the hypotheses.

In contrast to what was expected in hypothesis two, the main effect of gender on tax compliance was insignificant $F_{(2, 187)} = 3.38$, ns, $\eta_p^2 = .03$, consistent with the findings by Cadsby *et al.* (2006) which indicated men participants comply almost the same as women participants.

However, consistent with hypothesis 5_a, a significant interaction between gender and tax compliance costs qualified this relationship $F_{(2, 187)} = .3.69$, $p = .03$, $\eta_p^2 = .04$. Figure 6.4.1 shows this interaction. Thus, using the traditional Bonferroni test, when tax compliance costs were TAZ 50,000 the women's rates and men's mean rank of tax compliance rates were similar, $M_{diff} = .42$, 95% CI [-35.01-35.84], $p = .98$. Similarly, when the tax compliance costs was TAZ 100,000, the means differences were insignificant, $M_{diff} =$

27.92, 95% CI [−4.07−59.92], p =.11. However, at tax compliance cost levels of TAZ 166,667 the women's mean rank of tax compliance rates differed significantly from the men's mean rank of tax compliance rates, M_{diff} = 64.07, 95% CI [36.67−91.47], p < .001. Consequently, with low tax compliance costs level both men and women may comply more and their compliance levels decrease with an increase in tax compliance costs though at unequal rates.

However, the main effect of age on the tax compliance was insignificant $F_{(1, 187)}$ = .02, p =.90, η_p^2 = .00, suggesting that age of the responsible person may not be associated with the level of tax compliance. This result is against what was expected in hypothesis three. Also, the interaction between age and education was insignificant $F_{(1, 187)}$ = .06, p = .81, η_p^2 = .00 as it was its interaction with gender $F_{(1, 187)}$ = 1.59, p = .21, η_p^2 = .01 as well as its interaction with tax compliance costs $F_{(2, 187)}$ = .03, p = .97, η_p^2 = .00. These findings imply that tax compliance rates may be similar across gender, education and age of responsible person.

Moreover, the main effect of education on tax compliance was insignificant $F_{(2, 187)}$ = .56, p = .57, η_p^2 = .01 not as expected in hypothesis four. Also, the interaction between education and tax compliance costs was insignificant $F_{(2, 187)}$ = .35, p = .71, η_p^2 = .01.

As expected in the hypothesis one, the main effect of three conditions of tax compliance costs on tax compliance was significant $F_{(2, 187)}$ = 3.13, p = .04, η_p^2 = .04. This finding means some of the experimental treatments may significantly differ from each other. But, a further analysis using the "Tukey honesty test" was required to determine which of the treatments differ significantly (Mitchell and Janina, 2013).

Table 6.4.1: Analysis of Variance–Tax Compliance Costs

	Dependent variable: Rank of tax compliance rates				
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected model	104719.35[a]	22	4759.97	2.31	.00
Intercept	424157.18	1	424157.18	206.04	.00
Gender	12888.60	2	6444.30	3.13	.05
Education	2317.24	2	1158.62	.56	.57
Age	33.76	1	33.76	.02	.90
Tax compliance costs (TCC)	13925.90	2	6962.95	3.38	.04
Gender * education	1026.70	1	1026.70	.50	.48
Gender * age	3267.32	1	3267.32	1.59	.21
Gender * tax compliance costs	15191.36	2	7595.68	3.69	.03
Education * age	116.50	1	116.50	.06	.81
Education * TCC	1424.58	2	712.29	.35	.71
Age * tax compliance costs	125.29	2	62.64	.03	.97
Gender * education * TCC	5738.04	1	5738.04	2.79	.10
Gender * age * TCC	3080.15	2	1540.08	.75	.48
Education * age * TCC	3264.61	1	3264.61	1.59	.21
Error	384971.14	187	2058.67		
Total	3055500.75	210			
Corrected total	489690.48	209			

Adjusted R-squared = .12

The test indicated that the mean rank of tax compliance rates for the TAZ 50,000 condition was significantly higher than the mean rank of tax compliance rates for the TAZ 166,667 condition (p = .04). However, the mean rank of tax compliance rates of the condition of TAZ 100, 000 did not significantly differ from that of the condition of TAZ 50,000, (p = .60) as well as from the condition of TAZ 166,667, (p = .99). Taken together, these results suggest that high levels of tax compliance costs do have an effect on tax compliance levels. Specifically, the results suggest that when tax compliance costs are high, taxpayers may evade more. However, it should be noted that the level of tax compliance costs must be high to see an effect, because small difference in tax compliance costs did not appear to significantly reduce tax

compliance. Finally, all other interactions between variables were insignificant and irrelevant to the hypotheses tested, all $F \leq 2.79$, $p \geq .10$ and $\eta_p^2 \leq .02$.

Figure 6.4.1Ranks of Tax Compliance Rates vs Gender
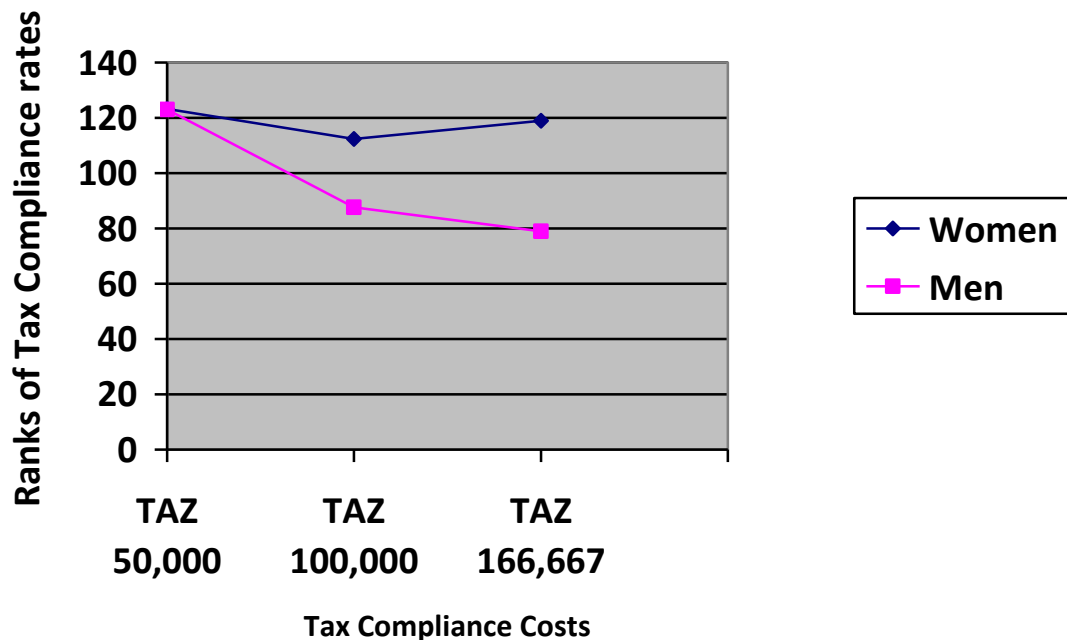
6.5   Conclusion

Tax compliance costs literature has shown that tax compliance costs can be large and regressive, but the relationship between tax compliance costs and tax compliance behaviour has almost been unclear. This study investigated this relationship and the findings reveal that tax compliance costs have significant negative impact on tax compliance behaviour, though only at high levels of tax compliance costs. Furthermore, these results were consistent across gender though women were significantly compliant than men participants. Also, the findings are consistent across age and education levels tested.

These findings are important to tax authorities aiming at increasing tax compliance levels. Because, it appears lowering tax compliance costs can

improve tax compliance levels. Consequently, tax authorities should continue reducing tax compliance costs through tax simplification programs, and improving relationships between taxpayers and tax authorities (Eichfelder and Kegels, 2014). Additionally, tax authorities should consider tax compliance costs when introducing new taxes.

Other contributions of the study are that: the current findings add to the growing tax compliance costs literature by both discovering how tax compliance costs and tax compliance levels are related, use of taxpayers in the experiment and conducting research from a developing country.

However, with a small sample size, caution must be applied as the findings might not be transferable to general taxpayers' population. So, future research could replicate the study using a large sample size to confirm the current results. Another limitation of the study is that the model does not explain more than 12% (adjusted R-squared) of variability in tax compliance level. However, this statistical effect is in line with other studies concerning the effect of justice consideration on tax compliance (Wenzel, 2002; Wenzel, 2004; Murphy and Tyler, 2008). Probably, justice consideration accounts for a small part of tax compliance behaviour and so, improving justice consideration alone may be an ineffective tax compliance measure. In conclusion, the regressive nature of tax compliance costs might explain why SMEs' tax compliance levels are lower than those of larger taxpayers.

Chapter 7:   Conclusions

7.1   Introduction

The thesis has explored corporate SMEs' Income Tax compliance in Tanzania, and synthesised tax compliance literature and research methods. Unambiguously, it has examined the impact of corporate tax penalty incidence on corporate income tax compliance, investigated whether charging tax penalties that fit crimes, may encourage future tax compliance and tested whether having fair procedures when imposing tax penalties may encourage tax compliance. The thesis also has examined the effect of interaction between procedural and retributive justice on tax compliance, analysed whether high corporate income tax compliance costs affect SMEs tax compliance behaviour, and synthesised, corporate taxpayers tax compliance literature, individual taxpayers tax compliance literature, and it reviewed a shadow economy, complications of tax laws and compliance costs literature. Finally, it has examined the applications of experiments, surveys, and archival data methods in studying tax compliance issues. Generally, literature on these issues is limited. Specifically, the study aimed at answering the following research questions:

a)   Does the change in a corporate income tax penalty incidence produce change in corporate income tax compliance levels?

b)   What is the relationship between retributive justice and tax compliance?

c)   What is the relationship between procedural justice and tax compliance?

d)   Does the level of procedural justice moderate, the relationship between retributive justice and the tax compliance level?

e)   Do levels of tax compliance costs influence SMEs' corporate income tax compliance levels?

This chapter presents a brief review of empirical findings, theoretical implications, policy implications, overall contributions of the thesis, recommendations for future research areas and limitations of the thesis.

7.2   Empirical Findings

Chapter 2: Tax Compliance Puzzle presented the main empirical findings of a synthesis of tax compliance literature, while the main findings of the synthesis of tax compliance research methods were presented in *Chapter 3: Tax Compliance Research Methods: Past, Present and Future Challenges.* Likewise, there were main empirical findings in *Chapter 4: Does the Corporate Income Tax Penalty Incidence Matter, Chapter 5: Analysis of Procedural and Retributive Justice in Tax Compliance* and *Chapter 6: The Impact of Tax Compliance Costs on Tax Compliance.* A summary of the empirical findings of the primary research are presented in this section responding to the investigation questions.

a)   Does the change in corporate income tax penalty incidence produce a change in corporate income tax compliance level? The comparisons of corporate income tax compliance levels when corporate income tax penalties were imposed on corporates, and on responsible persons revealed that corporate income tax compliance levels were always significantly higher when the corporate income tax penalties were imposed on responsible persons than on the corporates themselves.

b)   What is the relationship between retributive justice and tax compliance? The results indicated that perceptions of retributive justice of corporate income tax penalties and tax compliance are significantly positively correlated.

c)   What is the relationship between procedural justice and tax compliance? The analysis showed a positive association between perceptions of procedural justice on the imposition of tax penalties and tax compliance levels.

d) Does procedural justice explain the relationship between retributive justice
    and tax compliance level? Perceptions of procedural justice appeared to be
    moderating the relationship between retributive justice and tax compliance
    levels. However, moderation was not straight-forward. Precisely, charging tax
    penalties which are perceived adequate in recovering taxes evaded are likely to
    increase tax compliance of taxpayers with low and moderate perceptions of
    understanding of tax appeal procedures and rights. Nonetheless, imposing tax
    penalties which are perceived as being appropriate is unlikely to keep
    compliant behaviour of taxpayers with low perceptions of a transparency of
    appeal procedures and rights. While, taxpayers with high trust in the system
    implementing appeal rights and procedures are likely to keep complying when
    their perceptions of adequacy of tax penalties increase.

e) Do levels of tax compliance costs influence SMEs' corporate income tax
    compliance levels? The comparisons of compliance rates of participants faced
    with the lowest, moderate and highest tax compliance costs indicated that
    participants in the highest tax compliance costs were significant likely to be
    less compliant than those with the lowest tax compliance costs. Consequently,
    the results imply that tax compliance costs may reduce compliance levels of
    SMEs taxpayers.

7.3   Theoretical Implications

Therefore, the theoretical argument by Lipatov (2012) (See Chapter four) for
corporate tax penalty incidence needs revisiting to advance our understanding of
corporate tax penalty incidence and how corporate tax compliance can be increased.
The theory suggests higher corporate tax compliance when corporates are
penalised for corporate tax non-compliance than when responsible persons are
charged with corporate tax non-compliance (Lipatov, 2012). It is however,

discovered in this thesis that corporate income tax compliance was higher when corporate tax penalties were imposed on persons responsible for corporate income tax compliance than when the penalties were imposed on the corporates. This finding corroborates the ideas of Crocker and Slemrod (2005), who suggested that corporate tax penalties imposed on responsible persons are more effective in increasing corporate tax compliance than those imposed on corporate. Also, these findings seem to be consistent with other research which found that imposing severe tax penalties on tax preparers might reduce their aggressive tax minimisation activities (Newberry *et al.*, 1993; Hansen and White, 2012).

Furthermore, the theoretical case for justice consideration in tax compliance has been supported in this thesis. Starting with tax compliance costs, high tax compliance costs can reduce tax compliance levels; tax systems with high tax compliance costs may be seen as being unfair. Second, perceptions of retributive justice in tax penalties have been found to have a positive association with tax compliance levels. The findings of the current study are consistent with those that found justice perceptions matter in tax compliance (Verboon and Goslinga, 2009; Rechberger *et al.*, 2010). However, the thesis suggests that taxpayers might view retributive justice in terms of adequacy and appropriateness of tax penalties and not as a single coherent view of retributive justice.

Likewise, acting justly while imposing tax penalties can also increase tax compliance. This finding is in agreement with the findings which showed that acting justly in allocating tax revenue can increase tax compliance (Alm *et al.*, 1993). However, the results are not similar to those of Verboon and van Dijke (2011) who found procedural justice had an insignificant impact on tax compliance. This difference could arise because Verboon and van Dijke (2011) asked respondents to indicate their actual tax compliance, for instance, "Have you ever underreported

your income to the tax office" this thesis measured respondents' intentions to comply with corporate income tax penalty scenarios. Respondents might not provide correct responses about their actual tax compliance behaviour fearing tax penalties (Alm and Torgler 2011). Additionally, it was discovered that procedural justice might moderate the relationship between tax compliance and retributive justice, this result agrees with Verboon and van Dijke (2011).

7.4   Tax Policy Implications

This thesis has three main tax policy implications to governments and their tax authorities. First, the findings from the study in *Chapter 4: Does the Corporate Income Tax Penalty Incidence Matter?* indicated that corporate penalties directed on responsible tax managers are more effective than those imposed on corporations in increasing corporate income tax compliance. So, an imposition of corporate income tax penalties on responsible individuals might increase corporate income tax compliance. However, this policy might require close monitoring of corporate tax managers to known where they are, because sometimes corporate tax non-compliance activities are discovered when responsible tax managers are no longer working in non-compliant corporates (Slemrod, 2004).

Second, the results from *Chapter 5: Analysis of Retributive and Procedural Justice in Tax Compliance* implied that tax authorities can increase tax compliance by charging tax penalties which are deemed as fitting tax non-compliance crimes and restoring losses from tax non-compliance. Also, tax authorities should increase taxpayers' awareness of their rights to appeals and transparency of tax penalty decision processes. As this study and others (Murphy, 2003; Murphy and Tyler, 2008; Verboon and van Dijke, 2011) showed perceptions of procedural justice of tax authorities not only has a positive impact on tax compliance, but it can also

moderate the relation between retributive justice and tax compliance as shown is the chapter.

Finally, as SMEs are being brought into tax paying communities, tax authorities should keep tax compliance costs as low as feasible as *Chapter 6: The Impact of Tax Compliance Costs on Tax Compliance* discovered that at high tax compliance costs, tax compliance levels may fall. Tax simplification programmes targeting SMEs in particular are encouraged to increase SMEs' contributions to tax revenue. Also, governments should estimate how much it costs taxpayers to comply with tax laws before introducing new taxes.

7.5　Overall Contributions

The findings from this thesis make several contributions to the current tax compliance literature. First, the thesis has provided empirical evidence about corporate income tax penalties which was lacking. Currently, there are two theoretical arguments about which corporate tax penalty incidence is advantageous to tax authorities (Crocker and Slemrod, 2005; Lipatov, 2012). This thesis has contributed to that debate by testing the two corporate penalty incidences experimentally to establish a causal and effect relationship between a corporate income tax penalty incidence and tax compliance.

Second, as previously discussed most of available retributive justice literature has compared perceptions of participants on the seriousness of crimes including tax non-compliance. However, knowing whether tax non-compliance is seen as a severe or less severe crime compared to others offers little information to tax authorities. This thesis has contributed to the tax compliance literature by investigating how perceptions of retributive justice and tax compliance are related. This correlation has been studied for the first time to my best knowledge. Additionally, it has investigated

how procedural justice and tax compliance are related.

Third, extensive research has estimated tax compliance costs as explained in Chapter 6. The estimation of tax compliance costs of a particular tax provide an insight about economic distortions of that tax (Oliver and Bartley, 2005) and how different taxpayers are affected by that tax (Ismail *et al.*, 1997; Evans, 2003; Alexander *et al.*, 2005). However, the estimation can rarely show how the tax compliance costs of that tax could affect tax compliance behaviour. This thesis contributes to this abundant tax compliance costs literature by examining how changes in tax compliance costs impact tax compliance behaviour. According to my best knowledge no single study exists which investigated how tax compliance costs affect tax compliance level, rather than estimating tax compliance costs.

Fourth, corporate tax compliance in general and corporate income tax compliance in particular had been relatively neglected by tax researchers as researchers turned their attention to individual taxpayers (Hanlon and Heitzman, 2010). However, the application of tax compliance factors which work well on individual taxpayers on corporate taxpayers is still debated (Slemrod, 2004). Therefore, this thesis contributes to that debate by testing tax penalties, procedural justice, retributive justice and tax compliance costs on corporate income tax compliance.

Fifth, the thesis has made a contribution to the general tax compliance research by synthesising the usefulness and limitations of experimental methods, surveys and archival data methods in tax compliance as the specific tax compliance research material is very rare. Also, it has synthesised corporate tax compliance literature, individual tax compliance literature, and it has reviewed a shadow economy, complications of tax laws and compliance costs literature to identify gaps for future research.

Sixth, it has a methodological contribution as in both of the experiments in Chapter 4 and Chapter 6; tax terminologies have been used to increase the external validity of the results as many previous laboratory experiments have not used tax terminologies to increase the internal validity of their results (Alm, 2010). Results from experiments without tax terminologies test an economic impact of economic variables tested in the experiment rather than tax compliance behaviour (Moser *et al.*, 1995). Because, tax authorities use tax terminologies when demanding tax compliance from taxpayers, arguably experiments of this kind have little impact on tax compliance policy when taxpayers are aware that they are complying with tax laws. Likewise, few tax laboratory experiments have managed to use actual taxpayers in their studies.

Seventh, as discussed in the Chapter 2, tax compliance literature from developing countries is still scarce, so conducting tax compliance studies in Tanzania has contextual contribution. Specifically, the majority of tax compliance theories are developed and empirically tested in developed countries. While, high tax compliance is equally important to both developing and developed countries as discussed earlier, and there may be a significant difference in taxpayers' awareness, society attitudes towards tax compliance, and resources available to tax the administrations between developed and developing countries. Therefore, tax compliance factors which work well in developed countries may not produce similar results in developing countries. Consequently, this thesis contributes new evidence from a developing country to tax compliance literature.

Finally, three implications to tax policies have been identified in this thesis which can help tax authorities to reduce tax non-compliance. Table 7.5.1 summarises the thesis's contributions.

Table 7.5.1 Contribution of the Thesis

A. Contribution to tax compliance behaviour	
Relationships between	**Comments**
Tax compliance and tax compliance costs	It provides new evidence on a causal relationship between tax compliance costs and tax compliance level. In my best knowledge, this relationship has not been empirically tested before.
Corporate tax compliance and corporate tax penalty incidence	The thesis provides empirical findings about a corporate income tax penalty incidence, which was lacking and the theoretical studies were contradictory.
Tax compliance and retributive justice	Expanding the use of retributive justice in studying tax compliance behaviour. To my best knowledge it is the first study of how perceptions of retributive justice affect tax compliance.
Tax compliance and procedural justice	There are few studies dealing with procedural justice in tax compliance. However, this thesis has investigated procedural justice in the term of an actual imposition of income penalties and transparency of appeals procedures and rights. Investigation of this kind has not be done before as prior research has used procedural justice in allocating tax revenue or setting tax penalties.
B. Contributions to general tax compliance research	
Item	**Comments**
Systhesis of tax compliance research and tax compliance research methods	This thesis will be a basis for future research and it will help other researchers when selecting tax compliance research methods.
C. Methodological contributions	
Items	**Comments**
The use of taxpayers in an experiment	A few laboratory experiments have managed to use actual taxpayers in

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	their studies.
The use of tax terminologies in both experiments	Very few researchers have used tax terminologies in laboratory experiments, and hence limiting transferrability of the experiments' results outside laboratories.
D. Contextual contribution	**Comments**
Developing country data	The thesis has contributed to the limited tax compliance literature from developing countries in general and to retributive justice, procedural justice and tax compliance in particular.
E. Policy implications	**Comments**
It has three major tax policy implications.	The policy implications may help tax authorities to increase tax compliance levels.

7.6 Limitations of the Thesis

The original works of this thesis have offered an account of SMEs' corporate income tax compliance through two laboratory experiments and a cross sectional survey study in Tanzania. These methods have several limitations which must be taken into account when interpreting the findings.

Firstly, while studying corporate income tax penalty incidence students were used as representatives of corporate managers and owners after failing to attract enough SMEs managers. It appeared that, the failure was because of low compensations given to participants; so with adequate compensation future research may be able to get enough SMEs managers and owners to participants in similar research. Though, students' responses might not differ from responses from non-students (Alm *et al.*, 2010a), the results based on students must be treated with caution.

Secondly, despite the abilities of laboratory experiment to study causal relationships; their results might not be transferrable to environments outside

laboratories (Smith, 1982). However, this thesis has used tax terminologies, actual tax structures as tax rates and nature of tax compliance costs in an attempt to increase transferability of the results of the laboratory experiments (Alm *et al.*, 2010b).

Thirdly, in both laboratory experiments in *Chapter 4: Does the Corporate Income Tax Incidence Matter?* and in *Chapter 6: The Impact of Tax Compliance Costs on Tax Compliance* the number of participants were limited; this limitation of the number of participants may limit the generalisability of findings.

Fourth, study in *Chapter 5: Analysis of Retributive and Procedural Justice in Tax Compliance* employed a survey method basing on tax compliance scenarios from Tanzania Income Tax Act, 2014, which may not be transferrable to other areas of tax penalties as demonstrated in the thesis. Also, the correlation between independent and dependent variable is not necessary an indication of causal and effect relationship, and results from self-reported data can differ from actual behaviour of respondents. Additionally, all participants in this study were selected using convenience sampling because of the absence of any SMEs database and restricted access to Tanzania Revenue Authority's taxpayers' information. Without probability sampling the sample used might not represent target population (Mitchell and Janina, 2013).

7.7   Avenues for Future Research

Consequently, given the limitations and delimitations of this thesis, there is a need for more corporate income tax compliance research to inform corporate income tax compliance policy makers. Below is a list of possible future research areas which might inform corporate income tax compliance policies.

a) This thesis tested retributive and procedural justice in Tanzania, a developing country. However, as shown in *Chapter 5: Analysis of Retributive and Procedural Justice in Tax Compliance*, some findings do not only contradict the theory but also contradict other empirical findings. Therefore, future researchers from developing countries can validate these findings. Also this research avenue is available to researchers from developed countries as research in this area is still scarce.

b) As noted in the limitations section, there is a need to replicate the study in *Chapter 4: Does the Corporate Income Tax penalty Incidence Matter?* with larger samples of real corporate taxpayers. Also a replication of the study in *Chapter 5: Analysis of Retributive and Procedural Justice in Tax Compliance* with an experimental method would be useful to ascertain the causal relationship between tax compliance on one side and retributive and procedural justice on the other side is desirable. Lastly, future researchers can validate the study in *Chapter 6: The Impact of Tax Compliance Costs on Tax Compliance* with a larger sample of SMEs taxpayers too.

c) This thesis did not study how collusion between managers and owners can influence a corporate income tax penalty incidence of manager run corporates. Future researchers are encouraged to research the impact of potential collusion on a corporate income tax penalty incidence.

d) The comprehensive literature review done in *Chapter 2: Tax Compliance Puzzle* shows that there is a need to do more research into corporate tax compliance and research on other forms of taxes as there is a strong bias towards individual income tax compliance research. Also, the impact of institutional factors as corruption and political willingness to tackle tax non–

compliance on tax compliance has received less attention from tax researchers.

7.8   Conclusion

The main objective of this thesis was to investigate SMEs' corporate income tax compliance. It has been found that corporate income tax penalties imposed on responsible persons for corporate tax non-compliance fared better in increasing corporate tax compliance. Further, imposing tax penalties which are retributively fair would be positively related to tax compliance as would improving the fairness of processes of imposing tax penalties. Additionally, procedural justice can moderate the relationship between tax compliance and retributive justice. Finally, reducing tax compliance costs can increase SMEs' corporate tax compliance.

Appendices

Appendix A   : Does Corporate Income Tax Penalty Incidence Matter?

Appendix A1: Participant information sheet (Version no. 1)

Study Title: Does the Corporate Tax Penalty Incidence Matter?

Researcher: Deogratius Ng'winula Mahangila Ethics number: 5058

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

This study is conducted as a requirement for a partial fulfilment of PhD in Business Administration at the University of Southampton, UK. The study investigates how tax penalty incidence affects tax compliance behaviour in both owners and managers managed corporates. The corporate income tax penalty incidence refers to who does a tax law imposes the corporate income tax penalty between tax managers and corporates. Tax compliance refers to taxpayers meeting their filing, tax payments and other responsibilities under taxation laws.

Why have I been chosen?

You have been selected to participate in this study as you are in your second year doing Bachelor of Commerce at the University of Dar es salaam.

What will happen to me if I take part?

You will be given income of TAZ 3,000,000 in total after filling in tax returns, paying the required tax in a laboratory environment and you may be audited. You will do this exercise three times and I will require 90 minutes of your time for this study. TAZ 3,000,000 is laboratory currency which is equivalent to actual Tshs 20,000.

Are there any benefits in my taking part?

You may get cash up to Tshs 20,000 from your participation depending on how you perform in the exercises i.e. how much income you report on the tax returns, and your experimental treatment. Your participation will also benefit others in respect of adding to current knowledge.

Are there any risks involved?

No risk involved in the study.

Will my participation be confidential?

Your participation is confidential and compliance with the Data Protection Act/ the University of Southampton policy. All the data will be kept secured in a locked safe box, and when stored in softcopy–electronic form the information will be stored and remain confidential kept on a password protected computer. Data will be grouped and analysed in a group, and no name, address of respondents will be mentioned. I guarantees that the responses collected during this study will be treated with due confidentiality, and will be used purely for academic purposes and not otherwise.

What happens if I change my mind?

Participation is completely voluntary you can withdraw at any time without your legal rights being affected.

What happens if something goes wrong?

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact Dr Michelle Luke, Chair of the Ethics Committee, School of Management, University of Southampton, Southampton, SO17 1BJ (02380 597614; email maluke@soton.ac.uk) or Dr Martina Prude, Head of Research Governance, Research Governance Office, University of Southampton, Southampton, SO17 1BJ. Phone: (02380 595058; email: mad4@soton.ac.uk).

Where can I get more information?

If you have any questions or concerns, please contact the researcher at +255-653-008725 or dnm1e11@soton.ac.uk.

Appendix A2: Consent Form (Version no. 1)

Study title: Does the Corporate Tax Incidence Matter?

Researcher name: Deogratius Ng'winula Mahangila

Study reference: 3625

Ethics reference: 5058

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (29/1/2013 /version no. 1 of participant information sheet) and have had the opportunity to ask questions about the study.

I agree to take part in this research project and agree for my data to be used for the purpose of this study.

☐

I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected.

☐

I am happy to be contacted regarding other unspecified research projects. I therefore consent to the University retaining my personal details on a database, kept separately from the research data detailed above. The 'validity' of my consent is conditional upon the University complying with the Data Protection Act and I understand that I can request my details be removed from this database at any time.

☐

Data Protection

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Name of participant (print name)..

Signature of participant...

Date..

Appendix A 3: Experimental instruments

Treatment 1: Instruction sheet

1. Setting: You will be acting as an employee [manager] of a company and you are responsible for completing and then filing a tax return form on behalf of the company. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify these documents, if there are any discrepancies, please raise your hand and inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope. If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Company profit and manager salary: The level of profit made by your company is TAZ 1,000,000.

You are acting as manager of the company and your salary is set at the beginning of the session at TAZ 600,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 150 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: There is considerable cost involved in running these sessions. To help defray these costs, you are required to submit 30% of the company's profit after deducting your salary as taxation and in addition, submit 30% of your salary as taxation.

7. Penalty: The income given to the company and your salary must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of tax underpaid. These amounts (double of the tax unpaid) are deducted from your salary from the company.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents the company's profits and your salary.

In the space provided, multiply indicated amounts by 30% to arrive at the tax payable on the company's profit and salary respectively. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax return on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of salary [70%] as you are just acting as an employee of the company.

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1. Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2. If the tax amount is correct, you are free to go to a next round.

3. However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Treatment 2: Instruction sheet

1. Setting: You will be acting as an employee [manager] of a company and you are responsible for completing and then filing a tax return form on behalf of the company. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify these documents, if there are any discrepancies, please raise your hand and

inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope. If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Company profit and manager salary: The level of profit made by your company is TAZ 1,000,000.

You are acting as manager of the company and your salary is set at the beginning of the session at TAZ 600,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 150 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: There is considerable cost involved in running these sessions. To help defray these costs, you are required to submit 30% of the company's profit after deducting your salary as taxation and in addition, submit 30% of your salary as taxation.

7. Penalty: The income given to the company and your salary must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of tax underpaid. These amounts (double of the tax unpaid) are deducted from the company's residual income.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents the company's profits and your salary.

In the space provided, multiply indicated amounts by 30% to arrive at the tax payable on the company's profit and salary respectively. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax returns on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of salary [70%] as you are just acting as an employee of the company.

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1. Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2. If the tax amount is correct, you are free to go to a next round.

3. However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Treatment 3: Instruction sheet

1. Setting: You will be acting as an owner and the manager of a company and you are responsible for completing and then filing a tax return form on behalf of the company. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify these documents, if there are any discrepancies, please raise your hand and inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope. If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Company profit and manager salary: The level of profit made by your company is TAZ 1,000,000.

You are acting as an owner and the manager of the company and your salary is set at the beginning of the session at TAZ 600,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 150 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: There is considerable cost involved in running these sessions. To help defray these costs, you are required to submit 30% of the company's profit after deducting your salary as taxation and in addition, submit 30% of your salary as taxation.

7. Penalty: The income given to the company and your salary must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of corporate tax underpaid. These amounts (double of the tax unpaid) are deducted from the company's residual income.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents the company's profits and your salary.

In the space provided, multiply indicated amounts by 30% to arrive at the tax payable on the company's profit and salary respectively. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax returns on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of salary [70%] and the remaining [70%] of the company's income after taxation will be given to you as this amount belong to your company.

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1. Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2. If the tax amount is correct, you are free to go to a next round.

3. However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Treatment 4: Instruction sheet

1. Setting: You will be acting as an owner and the manager of a company and you are responsible for completing and then filing a tax return form on behalf of the company. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify these documents, if there are any discrepancies, please raise your hand and inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope. If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Company profit and manager salary: The level of profit made by your company is TAZ 1,000,000.

You are acting as owner and the manager of the company and your salary is set at the beginning of the session at TAZ 600,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 150 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: There is considerable cost involved in running these sessions. To help defray these costs, you are required to submit 30% of the company's profit after deducting your salary as taxation and in addition, submit 30% of your salary as taxation.

7. Penalty: The income given to the company and your salary must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of tax underpaid. These amounts (double of the tax unpaid) are deducted from your salary from the company.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents the company's profits and your salary.

In the space provided, multiply indicated amounts by 30% to arrive at the tax payable on the company's profit and salary respectively. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax returns on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of salary [70%] and the remaining [70%] of the company's income after taxation will be given to you as this amount belong to your company.

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1) Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2) If the tax amount is correct, you are free to go to a next round.

3) However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Tax return form

Taxpayer information	Tick one	
Gender	Male	Female
Your age		
Which academic year are you in?		

Income information

Item	Notes	TAZ
Total income received	A	
Less:		
Your salary	B	
Net income before tax	C=A−B	
Taxation	D=30%xC	
Net income 70% of C	E=C−D	
Taxation on salary	F=Bx30%	

Notes

A. Total income received

B. Your salary as indicated in the instruction sheet

C. The difference between A and B

D. Corporate tax payable

E. Net income 70% of C

F. Tax payable of your salary

Appendix A4: Debriefing

Study Title: Does the Corporate Tax Penalty Incidence Matter?

Researcher: Deogratius Ng'winula Mahangila   Ethics number: 5058

Thank you so much for participating in this study. Your participation was very valuable. It has been acknowledged that you are very busy and very much appreciate the time you devoted to participating in this study. There was some information about the study that could not be discussed with you prior to the

study, because doing so probably would have impacted your actions and thus skewed the study results. This form explains these things to you now.

What is the research about?

The objective of the research was to test how corporate income tax penalty incidence affects tax compliance level in both owners and managers run corporates. Corporate income tax penalty incidence refers to whom tax penalties apply between managers or corporates in case of corporate income tax non-compliance. These findings might assist in setting corporate tax penalty incidence to improve corporate tax compliance level.

Use of active deception or misleading participants

Active deception refers to actively misleading participants about aspects of the research. The use of this type of deception must be justified. In contrast, in deception by omission, information is left out about relevant experimental details. No deception or misleading has occurred.

We hope this debrief clarifies the purpose of the research, and the reason why we could not tell you all of the details about the study prior to your participation. If you would like more information about the research, you may be interested in the following: Gill, J., & Johnson, P. (1997) *Research Methods for Managers* London: Paul Chapman Publishing Ltd.

If you have any questions or concerns

If you have any questions or concerns, please contact the researcher at +255-653-008-725 or email: dnm1e11@soton.ac.uk.

It is very important that you do not discuss this study with anyone else until the study is complete. Our efforts will be greatly compromised if participants come into this study knowing what is about and how the ideas are being tested. Once again results of this study will not include your name or any other identifying characteristics.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact Dr Michelle Luke, Chair of the Ethics Committee, School of Management, University of Southampton, Southampton, SO17 1BJ (02380 597614; email maluke@soton.ac.uk) or Dr Martina Prude, Head of Research Governance, Research Governance Office, University of Southampton, Southampton, SO17 1BJ. Phone: (02380 595058; email: mad4@soton.ac.uk).

Appendix B : Analysis of Procedural and Retributive Justice in Tax Compliance

Appendix B1: Participant Information Sheet (Version no. 4)

Study Title: Analysis of Procedural and Retributive Justice in Tax compliance

Researcher: Deogratius Ng'winula Mahangila   Ethics number: 5058

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

This study is conducted as a requirement for a partial fulfilment of PhD in Business Administration at the University of Southampton, UK. The study investigates perceptions of fairness and adequacy of corporate income tax penalties, and procedural fairness in imposition of those penalties in Tanzania.

Why have I been chosen?

You have been selected to participate in this study as your owner, accountant or manager of Small and Medium Enterprises in Tanzania.

What will happen to me if I take part?

You will be asked to fill a questionnaire which takes 15 minutes of your time and there will be only one visit and no follow up.

Are there any benefits in my taking part?

There may be no benefit to the individual, but a benefit to others in respect of adding to current knowledge.

Are there any risks involved?

No risk involved in the study.

Will my participation be confidential?

Your participation is confidential and compliance with the Data Protection Act/University of Southampton policy. All the data will be kept secured in a locked safe box, and when stored in softcopy–electronic form the information will be stored and remain confidential kept on a password protected computer. Data will be grouped and analysed in a group, and no name, address of respondents will be mentioned. I guarantee that the responses collected during this study will be treated with due confidentiality, and will be used purely for academic purposes and not otherwise.

What happens if I change my mind?

Participation is completely voluntary you can withdraw at any time without your legal rights being affected.

What happens if something goes wrong?

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact Dr Michelle Luke, Chair of the Ethics Committee, School of Management, University of Southampton, Southampton, SO17 1BJ (02380 597614; email maluke@soton.ac.uk) or Dr Martina Prude, Head of Research Governance,

Research Governance Office, University of Southampton, Southampton, SO17

1BJ. Phone: (02380 595058; email: mad4@soton.ac.uk).

Where can I get more information?

If you have any questions or concerns, please contact the researcher at +255–

653–008725 or dnm1e11@soton.ac.uk.

Appendix B2: Consent Form (*Version number no. 4*)

Study title: Analysis of Procedural and Retributive Justice in Tax Compliance

Researcher name: Deogratius Ng'winula Mahangila

Study reference: 3625

Ethics reference: 5058

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet **(29/1/2013** /version no. 4 of participant information sheet) and have had the opportunity to ask questions	☐
I agree to take part in this research project and agree for my data to be used for the purpose of this study	☐
I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected	☐
I am happy to be contacted regarding other unspecified research projects. I therefore consent to the University retaining my personal details on a database, kept separately from the research data detailed above. The	☐

Data Protection

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Name of participant (print name)..

Signature of participant..

Date..

Appendix B3: Questionnaire for Analysis of Procedural and Retributive Justice in Tax Compliance

Dear respondent,

This questionnaire is aimed at collecting data for the purpose of the above research. Your genuine responses are required and your participation is confidential. The research complies with the Data Protection Act and the University of Southampton policies.

Section A: Please indicate your responses by a tick:

A1: What type of business are you in?

	Trading
	Agriculture or similar business
	Manufacturing
	Management or consultancy services
	Construction
	Other please specify..............

A2: Number of employees.........................

A3 What is your position in your organization?

Owners	
Manager	
Accountant	

Others please specify	

Section B: Appropriateness of financial penalties for tax non-compliance with tax laws.

For the following sections, please read each statement carefully then fill in one response which represents your answer.

Key

1. Definitely Yes

2. Probably Yes

3. Not sure

4. Probably Not

5. Definitely Not

B1: Penalty for failure to maintain documents

Scenario one

A Ltd had estimated tax payable of Tshs 17,000,000 in 2011. The company did not *keep complete records* till June 30, 2011. The company's year of income starts 1st January every year.

Because of failure to keep records the company was required to pay a fine of Tshs 425,000 for each month, and the total amount for the entire six months was Tshs 2,550,000.

		1. Definitely Yes	2. Probably Yes	3. Not sure	4. Probably Not	5. Definitely Not
1	Appropriateness–penalty for failure to keep documents:					
a	I believe that the monthly penalty of Tshs 425,000 is appropriate.					
b	I believe that the monthly penalty charge is appropriate regardless of the type of documents failed to be kept (for instance, sales ledger, invoices, receipts, final accounts).					
2	Relationship between penalty and degree of future compliance:					
A	I believe that the penalty is capable of deterring future similar failure.					
B	I believe that the penalised offender above will not fail to keep records again.					
C	I believe that when possibility of being audited by tax authority is high, the penalty is capable of deterring future similar failure.					
D	I believe that the penalty encourages future compliance from compliant taxpayers.					

3	Fairness of the penalty charged:					
A	I believe that the penalty imposed is fair relative to the crime committed.					
B	I think suspected non-compliant taxpayers are treated fairly by the tax appeal systems.					
C	I think offenders are treated fairly by the tax appeal tribunal.					
D	I think offenders are treated fairly by the legal proceedings i.e. court systems					
e	I believe that the operation of the tax system maintains presumption of innocence until taxpayers are convicted.					
f	I believe that the appeal procedures are clear.					
g	I believe that the rights of suspects to be heard are clear.					
h	I believe that the appeal procedures are transparent.					
I	I believe that the rights of suspects to be heard are transparent.					
J	I believe that the appeal procedures are actually followed in practice.					
K	Do you think taxpayers who fail to keep records are held accountable by the current tax system?					
L	I believe that appropriate punishment of taxpayers who fail to keep records will increase my compliance level.					
4	Restoration of the loss suffered:					

A	I believe that the penalty paid by taxpayers who fail to keep records restores the benefits of the common citizen.					
B	I believe that the estimated tax liability imposed on the above taxpayers who failed to keep records is appropriate.					
C	I believe that the amounts paid by the above taxpayer (estimated tax amount and penalties) are equivalent to the amounts that would have been paid had reliable documents been kept.					

B2: Interest for failure to pay taxes on due date

Scenario two

B Ltd had tax payable of Tshs 20,000,000 in 2010 which was due on 31 January 2011. The amount was paid 10 months late and tax authority imposed interest of Tshs 280,000 for each month or part of a month for which any of the tax is outstanding.

		1. Definitely Yes	2. Probably Yes	3. Not sure	4. Probably Not	5. Definitely Not
1	Appropriateness–interest for failure to pay taxes on due date:					
a	I believe that the monthly interest charge of Tshs 280,000 is appropriate.					
b	I believe that charging a full month's interest even when tax is paid late for only part of a month (for instance, 2 days) is appropriate.					
2	Relationship between interest and degree of future compliance:					
a	I believe that the interest is capable of deterring future similar failure.					
b	I believe that the penalised offender above will not fail to pay tax on due date in the future.					
c	I believe that when the possibility of being audited by tax authority is high the interest is capable of deterring failure to pay taxes on due date.					
D	I believe that the interest encourages future compliance from compliant taxpayers.					
3	Fairness of the interest charged:					
A	I believe that the interest imposed is fair relative to the crime committed.					

B	Do you think taxpayers who fail to pay taxes on due dates are held accountable by the current tax system?					
C	I believe that in general appropriate punishment of taxpayers who fail to pay taxes on due dates will increase my compliance level.					
4	Restoration of the loss suffered:					
A	I believe that the interest paid by taxpayer who fails to pay taxes on due dates in general restores the benefits of the common citizen.					
B	I believe that the amounts paid by the above taxpayer (tax and interest) are equivalent to the benefits that would have been obtained had the taxes been paid on the due date					

Section C: Please indicate your responses by a tick

C1: Gender

	Male
	Female

C2: Your age

	Below 18 years
	18 to 30 years
	Above 30 years

C3: Education level

	Primary education
	Above primary education
	Others please specify…………

C4: How long have you been in business……..

C5: How much is your capital investment? Select the appropriate

Below Tshs 5,000,000	
Between Tshs 5,000,000– Tshs 200,000,000	
Between Tshs 200,000,000–Tshs 800,000,000	
Above Tshs 800,000,000	

C6. What is the level of annual turnover?

Below Tshs 40,000,000	
Tshs 40,000,000 and above	

Thank for your participation

Appendix C : The Impact of Tax Compliance Costs on Tax Compliance

Appendix C1: Participant information sheet (Version no. 2)

Study Title: The Impact of Tax Compliance Costs on Tax Compliance

Researcher: Deogratius Ng'winula Mahangila Ethics number: 5058

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

This study is conducted as a requirement for a partial fulfilment of PhD in Business Administration at the University of Southampton, UK. The study investigates how tax compliance behaviour relates to tax compliance costs. Tax compliance refers to taxpayers meeting their filing, tax payments and other responsibilities under taxation laws. Tax compliance costs refer to costs incurred by taxpayers in the process of complying with tax laws.

Why have I been chosen?

You have been selected to participate in this study as your either owner or manager of Small and Medium Enterprises (SMEs) in Tanzania.

What will happen to me if I take part?

You will be given income of TAZ 3,000,000 in total after filling in tax return, paying any required tax in a laboratory environment and you may be audited. You will do this exercise three times and I require 90 minutes of your time for

this study. TAZ 3,000,000 is laboratory currency which is equivalent to actual Tshs 25,000.

Are there any benefits in my taking part?

You may get cash up to Tshs 25,000 from your participation depending on how you perform in the exercises i.e. how much income and tax compliance costs you report on the tax returns. Your participation will also benefit others in respect of adding to current knowledge.

Are there any risks involved?

No risk involved in the study.

Will my participation be confidential?

Your participation is confidential and compliance with the Data Protection Act/University of Southampton policy. All the data will be kept secured in a locked safe box, and when stored in softcopy–electronic form the information will be stored and remain confidential on a password protected computer. Data will be grouped and analysed in a group, and no name, address of respondents will be mentioned. I guarantees that the responses collected during this study will be treated with due confidentiality, and will be used purely for academic purposes and not otherwise.

What happens if I change my mind?

Participation is completely voluntary you can withdraw at any time without your legal rights being affected.

What happens if something goes wrong?

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact Dr Michelle Luke, Chair of the Ethics Committee, School of Management, University of Southampton, Southampton, SO17 1BJ (02380 597614; email maluke@soton.ac.uk) or Dr Martina Prude, Head of Research Governance, Research Governance Office, University of Southampton, Southampton, SO17 1BJ. Phone: (02380 595058; email: mad4@soton.ac.uk).

Where can I get more information?

If you have any questions or concerns, please contact the researcher at +255–653–008725 or dnm1e11@soton.ac.uk.

Appendix C2: Consent Form (*version no. 2*)

Study title: The Impact of Tax Compliance Costs on Tax Compliance

Researcher name: Deogratius Ng'winula Mahangila

Study reference: 3625

Ethics reference: 5058

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (29/1/2013 /version no. 2 of participant information sheet) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected.	

I am happy to be contacted regarding other unspecified research projects. I therefore consent to the University retaining my personal details on a database, kept separately from the research data detailed above. The 'validity' of my consent is conditional upon the University complying with the Data Protection Act and I understand that I can request my details be removed from this database

Data Protection

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Name of participant (print name)...

Signature of participant...

Date...

Appendix C3: Experimental instruments

Treatment 1: Instruction sheet

1. Setting: You are responsible for completing and then filing a tax return form. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify

these documents, if there are any discrepancies, please raise your hand and inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope. If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Your income: Your income is set at the beginning of the session at TAZ 1,000,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 120 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: You should fill in the tax return form correct information as required. The tax return form will enable you to file a complete and reliable tax return. However, there is cost associated with production of tax returns. For your case you have to pay a tax deductible expense amounting to TAZ 50,000.

There are also considerable costs involved in running these sessions. To help defray these costs, you are required to submit 30% of the income after deducting the above tax return form expense as taxation.

7. Penalty: The income given to you and tax return expenses must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of tax underpaid.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents your income and costs of tax return shown in number 6 above. Keep the copy of the tax return form for your record.

In the space provided, multiply indicated amount after deducting the expenses of a tax return form by 30% to arrive at the tax payable. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax returns on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of income [70%].

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1. Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2. If the tax amount is correct, you are free to go to a next round.

3. However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Treatment 2: Instruction sheet

1. Setting: You are responsible for completing and then filing a tax return form. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify these documents, if there are any discrepancies, please raise your hand and inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your

identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope. If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Your income: Your income is set at the beginning of the session at TAZ 1,000,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 120 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: You should fill in the tax return form correct information as required. The tax return form will enable you to file a complete and reliable tax return. However, there is cost associated with production of tax returns. For your case you have to pay a tax deductible expense amounting to TAZ 100,000.

There are also considerable costs involved in running these sessions. To help defray these costs, you are required to submit 30% of the income after deducting the above tax return form expense as taxation.

7. Penalty: The income given to you and tax return expenses must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of tax underpaid.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents your income and costs of tax return shown in number 6 above. Keep the copy of the tax return form for your record.

In the space provided, multiply indicated amount after deducting the expenses of a tax return form by 30% to arrive at the tax payable. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax returns on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of income [70%].

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1. Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2. If the tax amount is correct, you are free to go to a next round.

3. However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Treatment 3: Instruction sheet

1. Setting: You are responsible for completing and then filing a tax return form. Please read all sections of this briefing document before starting the task.

2. Documentation: You will be requested to select a large envelope randomly from a set of envelopes provided by one of the supervisors. Each large envelope contains 4 tax return forms, and this instruction sheet. Please verify these documents, if there are any discrepancies, please raise your hand and inform a supervisor immediately before beginning work on filing the tax returns.

3. Confidentiality: You alone are aware of the number associated with the material you have randomly selected. Neither the supervisors of today's session nor those who will analyse the tax returns subsequently will know your identity. Thus, your privacy is completely protected, enabling you to respond truthfully to the questions posed without worrying that your responses could ever be linked directly to you.

4. Independence: Please do not communicate with other participants either verbally or in any other manner. Complete privacy is important, and we expect your cooperation. We must ask anyone found communicating with others in any manner to leave the room and to return the contents of the large envelope.

If you have any problems, please raise your hand and a supervisor will come to your aid.

5. Your income: Your income is set at the beginning of the session at TAZ 1,000,000.

TAZ is a laboratory currency and at the end of the exercise it will be exchanged at TAZ 120 for 1 actual Tshs. The amount you can retain is described below.

6. Taxation: You should fill in the tax return form correct information as required. The tax return form will enable you to file a complete and reliable tax return. However, there is cost associated with production of tax returns. For your case you have to pay a tax deductible expense amounting to TAZ 166,667.

There are also considerable costs involved in running these sessions. To help defray these costs, you are required to submit 30% of the income after deducting the above tax return form expense as taxation.

7. Penalty: The income given to you and tax return expenses must be reported on the tax return forms. If detected cheating, see *section 9 Auditing* below, you will pay double the amount of tax underpaid.

8. Tax return form: On the tax return form, please indicate the total amount of TAZ shown in number 5 above which represents your income and costs of tax returns shown in number 6 above. Keep the copy of the tax return form for your record.

In the space provided, multiply indicated amount after deducting the expenses of a tax return form by 30% to arrive at the tax payable. You may use a calculator to ensure the accuracy of your tax return.

Transfer the information of tax returns on the copy of the tax return; this copy belongs to you. You will be paid amount equivalent to the remaining amount of income [70%].

At this point, you should quietly raise your hand. Please do not speak or shout. It is important to maintain silence so that those still working are not disturbed. A supervisor will take you to another room nearby where you may be audited.

9. Auditing: Although we do not have time or resources to check everyone's tax return, 1 in 10 (10%) will be checked for correctness. You will be required to pick a piece of paper from a larger envelope if you pick a piece of paper written "1" you will be audited. If you are selected for audit:

1. Your tax return will be compared to the information provided in this instruction sheet and your own copy of tax return in private.

2. If the tax amount is correct, you are free to go to the next round.

3. However, if the tax amount is not correct, we will deduct double of the tax unpaid by recording on your copy of tax return and then you go to a next round.

If you are not selected for audit, we will not check your tax returns. You are free to go to a next round.

10. Assistance: If you have any problems, please raise your hand and a supervisor will come to your aid.

Tax Return Form

Taxpayer information	Tick one	
Gender	Male	Female
Your age		

What business are you in?	
Your education level	

Income information

Item	Notes	TAZ
Total income received	A	
Less:		
Expenses of tax return form	B	
Net income before tax	C=A–B	
Taxation	D=30%xC	
Net income	E=C–D	

Notes

A.   Total income received

B.   Expenses of tax return form as indicated in the instruction sheet

C.   The difference between A and B

D.   Net income

Appendix C4: Debriefing

Study Title: The Impact of Tax Compliance Costs on Tax Compliance

Researcher: Deogratius Ng'winula Mahangila Ethics number: 5058

Thank you so much for participating in this study. Your participation was very valuable. It has been acknowledged that you are very busy and very much appreciate the time you devoted to participating in this study. There was some information about the study that could not be discussed with you prior to the study, because doing so probably would have impacted your actions and thus skewed the study results. This form explains these things to you now.

What is the research about?

The objective of the research was to test how tax compliance levels relate to tax compliance costs. The findings may give feedback to the tax authorities on

simplifying tax laws, on whether or not they have positive impact on tax compliance.

Use of active deception or misleading participants

Active deception refers to actively misleading participants about aspects of the research. The use of this type of deception must be justified. In contrast, in deception by omission, information is left out about relevant experimental details. No deception or misleading has occurred in this study

We hope this clarifies the purpose of the research, and the reason why we could not tell you all of the details about the study prior to your participation. If you would like more information about the research, you may be interested in the following: Gill, J., & Johnson, P. (1997) *Research Methods for Managers* London: Paul Chapman Publishing Ltd.

If you have any questions or concerns

If you have any questions or concerns, please contact the researcher at +255–653–008–725 or email: dnm1e11@soton.ac.uk.

It is very important that you do not discuss this study with anyone else until the study is complete. Our efforts will be greatly compromised if participants come into this study knowing what is about and how the ideas are being tested. Once again results of this study will not include your name or any other identifying characteristics.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact Dr Michelle Luke, Chair of the Ethics Committee, School of Management, University of Southampton, Southampton, SO17 1BJ (02380 597614; email

maluke@soton.ac.uk) or Dr Martina Prude, Head of Research Governance,

Research Governance Office, University of Southampton, Southampton, SO17

1BJ. Phone: (02380 595058; email: mad4@soton.ac.uk).

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