

DOES FREQUENCY OF AUDITS IMPROVE TAXPAYER COMPLIANCE?

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ABSTRACT

The purpose of this study is to find out whether frequency of audits can improve taxpayer compliance and show how the findings can impact policymakers' decision and tax agencies' future strategic action plan. It then offers some useful suggestions for improving compliance and reducing tax gap. The first test result shows a significant difference in number of times audited among the taxpayers. The Group Mean is distinctly found to be higher among those who have undergone 'second or fourth audit' compared to those with 'first or third audit'. The final analysis indicates a nonlinear relationship between audit frequency and tax compliance. This case study finds that changes in taxpayer compliance have followed a cyclical pattern; and frequency of audits may improve taxpayer compliance depending on the compliance cycle. It is thus concluded that future tax audit strategic plan should focus on effective approaches to ensure a higher level of compliance after an audit in order to reduce time and costs incurred by business entities or tax authority during subsequent audits.

Keywords: Frequency of audits, tax compliance, cyclical pattern

INTRODUCTION

There are several possible ways of achieving a higher level of compliance to reduce the tax gap. Across the globe, revenue administrators and business taxpayers have been working together to promote tax compliance which can be region-specific. Tax compliance means the submission of tax returns within the stipulated period together with the correct declaration on the amount of taxes to be paid and correct payments made to the tax authority. Particularly to large business, cooperative compliance offers an opportunity to ensure a longer-term certainty in relation to tax audit risks or detection of ambiguous tax issues. Through cooperative compliance between revenue agencies and business entities, the optimum level of compliance can be realised. On the other hand, coercive compliance through tax audits, fines and legitimate procedures of collaboration between tax authorities and law enforcement agencies can also assist to close the tax gap.

Basically, there are three 'paradigms' and measures for tax administration to control noncompliance behaviour that is enforcement, service and trust paradigm (Alm, 2012). Firstly, coercion is generally enforced through conducting tax audits and imposing stiff penalties or fines on tax evasion. Nonetheless, tax audit has endured through time as the best tool for achieving a better compliance by concentrating on the audit frequency, levels of auditing and penalties for those caught not complying with requirements of the laws and regulations of the Act or for evading taxes. Secondly, most agencies or authorities have recently made efforts to improve tax administration (i.e. taxpayer registration, audit and revenue collections) by introducing administrative reforms to facilitate or provide better services to taxpayers. Thirdly, at the same time, the government may use the mass media to reinforce tax compliance or improve the culture of paying taxes.

PROBLEM STATEMENT AND THEORY

Taxes are important to a country's economic growth and citizen's wellbeing; it contributes to the national coffer and provides social amenities (i.e. national defence, justice, health, police, education, sports) and other infrastructures (i.e. transportation, housing, airport, and dam). Tax compliance (TC) is the crust of a country's tax administration; taxpayers must comply with prescribed tax rates and pay the correct amount of taxes promptly. Lower tax compliance may reduce the ability of the government to raise tax revenues. Hence, studies on tax compliance is important so that its theoretical or practical uses, implications, economic and social influence can be understood. For instance, assuming the government has recently announced an amnesty for taxes owed by taxpayers from 2013 to 2014, hence this will affect taxpayer's liability and the federal tax revenue collection figures.

In the standard portfolio model, the normal deterrent effect of audits is that an increase in the probability of audit causes the individuals to stop evading. Looking at the path dependent model in an experiment (Bruttel & Friehe, 2014), there is a continuous impact on current declaration that is influenced by past audit probability and imposed fine. On the other hand, the Christiansen static model (Xiao, Liu & Lai, 2014) showed that if tax evasion in the first period is detected, this can reduce the incentive of tax evasion or may cause more evasion in the second period. In addition, the two-period dynamic model (Galmarini, Pellegrino, Piacenza & Turati, 2014) indicates that the experience of a prior tax notice reduces the probability to avoid paying taxes.

Generally, most tax audit probability and frequency models or studies have reported that the more frequent taxpayers are being audited, the more they would comply. Only a few have reported quite the contrary or the opposite. Moreover, most models consider the response of past audit probability or audit experience, without distinguishing between first, second, third and fourth

audit (number of times audited) differences in tax compliance. As such, an in-depth study on the degree of compliance after subsequent audit(s) is an area worth exploring.

As a consequence, this study is conducted: (i) to provide empirical evidence on the actual relation between audit frequency and taxpayer compliance; (ii) to discuss the differences in findings as compared to previous models or studies and; (iii) to consider the implications of the contrasting results; and lastly; (iv) to highlight the significant impact of the research findings to policymaker and tax authorities for improving compliance and revenue in a fair and cost-effective manner.

The original standard economic tax compliance model viewed that financial incentives are determined by audit, penalty and tax rates (Allingham and Sandmo, 1972). It was established based on neoclassical paradigm that assumed individual as selfish, rational, self-interested rather than as moral, fair and conforming to social norms. Under such assumptions, human behaviour can be explained in accordance with the expected utility hypothesis. The Expected Utility Theory (EUT) is a theory about how to make the best decisions under risk. It is a good mathematical model even though it cannot fully guarantee that the EUT is a reliable guide to how an individual makes a rational, optimal and practical decision under risk. It is the theory underpinning the study.

RESEARCH APPROACH AND OBJECTIVES

This case study research in tax compliance is positivist (objective) in approach. Quantitative methods of research using tax audit and archival data over a period of 17 years from 1996 to 2012 are used in this study. The sample for the study consists of 250 Malaysian business firms or companies who were audited in year 2012. Comparative method is employed to uncover the relationship between tax audit frequency and tax compliance. A few statistical analysis tools are used and tests are performed using SPSS. Chi-square test and *mean* scores are used to analyse the differences among groups and regression analysis is used to explore relationship between the variables, and this is presented in tables and figure.

A brief description of the sample or data used in multiple regression analysis for examining the research models in other related studies are as follows:

- (i) Data from Compustat Global (database) and annual reports on 2538 firms during the 2000-2009 periods (Wahab, Ariff, Marzuki, Sanusi, 2017);
- (ii) 235 taxpayers audited by IRB of Malaysia from year 2009 to 2013 (Rasyidah, Lai & Embi, 2016);
- (iii) tax audit data from IRB of Malaysia on year 2011 tax returns of SMEs (Mohamad, Zakaria, Hamid, 2016); and
- (iv) 375 tax-audited cases completed in 2011 by the IRB of Malaysia (Yusof, Lai & Yap, 2014).
- (v) 275 tax-audited cases resolved in 2009 to 2011 (Md Noor, Jamaludin, Omar & Aziz, 2013).

The main objectives of this research are as follows: (1) To test whether there is a difference in the 'number of times audited' between the taxpayers; (2) To determine the type of relationship between audit frequency and tax compliance; (3) To establish the tax compliance regression equation or tax audit compliance cycle; (4) To evaluate the general impact of 'first-to-fourth time audit' on tax compliance; and finally (5) To suggest some ways and means to ensure a higher and more even level of compliance after an audit.

Ultimately, the results of the study will contribute to the following: 1. Research. It finds new empirical evidence or knowledge on tax audit frequency and tax compliance; 2. Tax administration. The key compliance indicators can be used as a guide for enforcement policy and strategy ; 3. Corporate or Business Taxpayer. It gives awareness on the benefits of effective tax planning through cooperative compliance to mitigate audit risks or improve business cash flow and administration.

REVIEW OF LITERATURE

A brief account of the experiments conducted by researchers on tax audits including frequency or probability of audit are as described in the following excerpt. As early as 1995, the U.S. Minnesota Department of Revenue together with a team of external experts (Slemrod, Blumenthal & Christian, 2001) conducted an experiment using actual 1724 randomly selected taxpayers and alternative strategies which include increased auditing of returns with prior notice to taxpayers, enhanced services to taxpayers and a revised simple tax return. Statistical analysis was used to estimate effects of these strategies on reported tax. The results showed that those audited taxpayers given 'prior notice of audit' have an increase in average tax payments indicating presence of noncompliance. The effect was much stronger for those with opportunity to evade except that for the high income group, the reported tax liability fell sharply as compared to the control group.

In another experimental study conducted by Alm & McKee (2004), "the results indicated that 'unofficial' communications of audit outcomes among taxpayers have a strong indirect effect that increases compliance, but 'official' communications may not encourage voluntary compliance".

Kastlunger, Muehlbacher, Kirchler & Mittone (2011) carried out an experiment on 86 participants and found that tax compliance is not affected by monetary rewards that induced either a full compliance or noncompliance behaviour. However, for the audited compliant taxpayer, those who are rewarded evaded less in the subsequent audit compared with the unrewarded ones.

In a recent experimental study by Hofmann, Gangl, Kirchler & Stark (2014), it is found that "coercive power did not reduce implicit trust in tax authorities but it had an effect on reason-based trust, interaction climate (hostile or otherwise) and intended tax compliance; but then when combined with legitimate power, it had no effect".

Additionally, Bruttel & Friehe (2014) in an experiment on path dependent, showed that past tax enforcement regimes in terms of audit probability and fine for tax evasion, have a continuous impact on current income declarations. This finding may be explained by reference-dependent preferences and it has important policy implications.

At the same time, in an economic-psychological research on tax compliance,

Tan & Yim (2014) conducted an experiment using:

a simple auditing rule; known as the bounded rule where the taxpayers are informed of the maximum number of audits by a tax authority, so that the audit probability depends on the joint decisions among the taxpayers; and the flat-rate rule where taxpayers are informed that they will be audited with a constant probability. The experimental evidence showed that the bounded rule induces the same level of compliance as the flat-rate rule when strategic uncertainty is low; and a higher level of compliance when strategic uncertainty is high. (p. 161)

The results indicated that increasing the level of strategic uncertainty among taxpayers could be an effective device to deter tax evasion (Tan & Yim, 2014, p. 161).

Alternatively, the Internal Revenue Service (IRS) used past official operational audits and appeal data merged with tax return data in order to examine the extent and nature of corporate tax noncompliance (Hanlon, Kelley & Shevlin, 2005). In general, they found that foreign controlled firms have a smaller deficiency than their domestic counterparts; and that multi-national firms have a greater deficiency than non-multinational firms.

Besides this, both the percentage of bonus and the level of equity incentives are positively related to the proposed deficiency, indicating executive compensation may be associated with tax aggressiveness (Hansen, Lopez & Reitenga, 2016). Finally, they found there is no relation between governance quality and the proposed deficiency; and there is little evidence that lower effective tax rates are related to deficiencies.

Tagkalakis (2013) utilised 2012 tax inspections (Greece) dataset and found that intensive tax audits can induce tax compliance. Similarly, Goyete (2014) used past (1997) official data to examine size of firm distribution in Uganda and identified two changes in tax audit strategy. When tax officials set audit targets for firms with 10 employees, it generates a cluster of firms at 8 employees; and when they set targets on sales and firms with more than 25 employees, it generates a discontinuity of firms around 27 employees in order to decrease expected costs of taxation due to tax audit.

Galmarini, Pellegrino, Piacenza & Turati (2014) developed a two-period dynamic model of individual choice and empirically assessed the relationship between prior tax notices and unlawful behaviour based on information on 'post-audit, post-detection' tax compliance provided by an Italian collection agency for the period 2004-2007. The results suggested that successful tax notices are negatively correlated with the probability of running away. This indicates that the experience of a prior tax notice reduces the probability to avoid paying the bill.

Rablen (2014) examined:

How a tax authority can maximize expected revenue (social welfare) by trading-off audit probability against audit effectiveness (the fine rate on undeclared tax), and allowed the fine rate as fixed in the short-run. The findings show that the tax authority's privately optimal audit strategy does not maximize voluntary compliance and the fine rate on undeclared tax does not exceed two at interior optima. (p. 322)

This means voluntary compliance is non-monotonic as a function of the tax authority's budget (Rablen, 2014, p. 322).

Goerke (2015) showed that a buyout can increase expected tax revenues. A tax buyout is a contract between tax authorities and a taxpayer for a lump-sum payment in exchange for a reduced marginal income tax rate. This will be possible if the audit probability is constant and the penalty for evasion is a function of undeclared income; or the penalty depends on the amount of evaded taxes, and authorities set audit probabilities based on expected generated income of a tax buyout offer. Since individuals will agree to a tax buyout if it benefits them, higher tax revenues indicate such contracts can be Pareto improving; and authorities can also save time and costs on auditing and making tax deficiency claims from such cases.

Using IRS and financial statement data, De Backer (2015) revealed that corporations gradually increase tax aggressiveness for a few years after an audit and then decrease it sharply. This finding is contrary to common beliefs that legal enforcement or tax audit may increase subsequent taxpayer compliance or improve corporate behaviour.

The Tax Administration Research Centre (2015) in a preliminary report disclosed that data from HMRC (UK) is used to study the indirect benefits (or dynamic effects¹) of audits by quantifying the amount of additional revenue collected from an individual taxpayer for a period of four years after an audit. It is found that the reported taxable income differs over time and there is a gradual increase in reported tax liability reaching an average of about 26 per cent in the fourth year after an audit.

¹ Dynamic effects are defined as changes in the future behaviour of the audited taxpayer.

Santoro (2011) used 2005 tax year data of 23,000 firms in manufacturing sectors (Greece) and disclosed that taxpayers tend to report less when they know the probability of audit is decreasing; and there is a positive association between size of firm and taxpayers reporting.

Kogler, Mittone & Kirchler (2016) investigated the effect of audit feedback (delayed vs. immediate) on tax compliance. The results showed higher compliance in conditions of delayed feedback as participants are more likely to expect higher probability of audit and fines.

In addition, Alm, Bloomquist & McKee (2017) used experimental methods to test peer influence on compliance behaviour. They found that peer effect (i.e. ‘neighbour’ information on penalties, frequency of audits and tax returns submission) has a large impact on individual filing and tax reporting decisions or compliance behaviour.

Mazzolini, Pagani & Santoro (2017) used tax returns panel dataset merged with tax audit database to explore the effect of operational tax audits on subsequent tax behaviour. The results showed a positive and lasting effect on subsequent reported income when tax authority assess a positive additional income.

On the other hand, recent tax audit studies conducted in Malaysia and other Asian countries are as follows. In Malaysia, Palil, Hamid & Hanafiah (2013) conducted a national survey of 1,073 respondents and analysed the data by using multiple regression. The results suggested that tax compliance is influenced by the probability of being audited; perception of government spending; tax rates; and the role of tax authority. Secondly, Yusof, Lai & Yap (2014) tested 375 tax-audit (SMCs) cases finalised by IRBM in 2011, with multiple regression and it is established that marginal tax rate, company size and types of industry have significant effects on corporate tax non-compliance. The service and construction industries were found to be the dominant industries involved in tax non-compliance. The amount of undeclared income detected during tax audit indicates the extent of tax lost through tax non-compliance is quite large. Thirdly, Bagdad, Noor, Hamid & Aziz (2017) used income tax audit cases completed in 2015 and found that taxpayers who have prior audit experience are more compliant than those who have been audited for the first time; and larger businesses are more compliant than small businesses.

In Indonesia, Asnawi (2013) did a laboratory experiment study on 78 student participants and concluded that though audit rate should be applied to improve compliance level, perceived probability of audit is the factor that directly affects tax compliance decision. In China, Xiao, Liu & Lai (2014) used Christiansen static model of tax evasion, and formulated a two-period model where the discovery of tax evasion in the second period induces a tax audit in the first period if it has not been done before. The taxpayer has to choose the amount of tax evasion in each period to maximise the total expected utility of the two periods. They showed that the threat of having the first period evasion discovered in the second period diminishes attractiveness of tax evasion in both periods. Furthermore the audit probability in the second period will be increased if tax evasion in the first period has been detected and this can reduce the incentive of tax evasion or may cause more evasion in the second period.

From the above review, it is apparent that there is limited literature on ‘tax audit frequency’ covering a longer period of time in Asian countries. Moreover, most research findings are based on experimental data rather than survey or historical data evidence which could be due to the researcher’s budget and time constraints.

METHODOLOGY AND DATA ANALYSIS

The study is set to collect evidences to support the effects or impact of first, second, third or fourth audits on taxpayer compliance level through tax audit and archival data over a seventeen-year period from 1996 to 2012. The sample consists of service tax payers who were audited in year 2012 for a time period of one to three years. The sample is initially divided into two subsets using SPSS split-file method for comparing frequency distributions with respect to ‘with audit deficiency claims’ and ‘without audit deficiency claims’ group. This sample is then further divided into four groups according to the number of times audited. The *mean* of each group of taxpayer is calculated based on the aggregate amount of taxpayer compliance over the number of taxpayers in the group. The purpose of computing the *mean* and standard deviation is to allow for comparing differences in compliance level between the four groups for ‘number of times audited’ variable. Taxpayer compliance is measured in terms of ‘declared tax’ over ‘actual tax’ for the audit period (2010 – 2012). Chi-square test is used to analyse the differences between categories or groups of a variable. Regression analysis is used to explore relationship between the variables. The results and evidences are also presented using frequency counts and ‘simple percentages’ method of data analysis.

METHOD OF DATA ANALYSIS AND RESULTS

Using the SPSS program, the summary of the statistical analysis results of taxpayer compliance is as described below. The interpretation of the results is presented using frequency counts, simple percentage, and *mean* score with standard deviation.

Table 1: Taxpayer Compliance: Percentage

Group	Percentage		Total
	Claim*	No Claims	
Times Audited			
First Audit**	66.7	66.0	66.4
Second Audit	23.3	27.0	24.8
Third Audit	8.7	5.0	7.2

Fourth Audit	1.3	2.0	1.6
Total	100.0	100.0	100.0

* Claim refers to tax deficiency

**First audit also means those who had not been audited before

Simple Percentage

On the overall, the results showed that about 33.6% of the sample has been audited before while 66.4% has not been audited before. For those who has been audited before, 24.8% has been audited for the second time, 7.2% has been audited for the third time while only 1.6% has been audited for the fourth time. It can be seen from Table 1 that ‘first, second, third or fourth’ audit group have nearly the same percentage of ‘claim’ and ‘no claims’ cases. This seems to indicate that ‘the number of times audited may not affect taxpayer compliance. However, the percentage of ‘claim: no claims’ cases is higher in the first and third audit; but lower in the second and fourth audit. Conversely, it is found that the ‘first and third audit’ group has about “0.7% and 2.7%” lower percentage in ‘no claims’ cases whilst ‘second and fourth audit’ group has a “3.7% and 0.7%” higher percentage of ‘no claims’ cases. The slight difference in percentage with respect to the number of ‘claim and no claims’ cases could mean that there is a slight influence of the ‘number of times audited’ on taxpayer compliance.

Mean Score and Standard Deviation

The Mean test analysis revealed that for the group consisting of 250 taxpayers, compliance is higher among those having ‘second or fourth audit visit’ than those having ‘first audit or third audit visit’ (Second audit: Mean = .7408, SD = .3526; Fourth audit: Mean = .7451, SD = .4968; First audit: Mean = .6330, SD = .4063; Third audit: Mean = .5743, SD = .4177). This probe result suggested that the ‘number of times audited’ would increase taxpayer compliance when it is a second or fourth tax audit visit but not when it is a first or third tax audit visit. As a whole, the mean and standard deviation compliance score for the ‘tax audit frequency’ group are .6573 and .3968 respectively.

Chi-Square Test

Chi-square test is used to test the null hypothesis of the research in which data is not normally distributed. The continuous scale (taxpayer compliance) data is then converted to ordinal scale in order to enable the analysis of the difference between categories or groups of a variable. The χ^2 test is conducted using the SPSS program.

The hypothesis on ‘tax audit frequency’ among the taxpayers who were audited in 2012 is formulated as follows:

H₀: There is no difference in the ‘number of times audited’ between the taxpayers.

H₁: There is a difference in the ‘number of times audited’ between the taxpayers.

The results of the chi-square test showed that **there is a significant difference in ‘number of times audited’ between the four groups of audited taxpayers**, $\chi^2(3, N = 250) = 257.84, p = .00$. The chi-square value is 257.84. The significance value of the chi-square test shows $p = .00$ ($df = 3, p < .05$).

Table 2: Tax Audit Frequency

	Observed N	Expected N	Residual
First Audit	166	62.5	103.5
Second Audit	62	62.5	-.5
Third Audit	18	62.5	-44.5
Fourth Audit	4	62.5	-58.5
Total	250		

Based on the χ^2 test results, it is reported that there is a significant difference where the biggest contributor to this difference are the ‘first audit’ and ‘fourth audit’ (standard residual value = 103.5 and -58.5). This means that taxpayers are often audited for the ‘first time’ but rarely audited for the ‘fourth time’. This incidence can be seen clearly through the observed n: first audit = 166, second audit = 62, third audit = 18, fourth audit = 4 and the residual values first audit = 103.5, second audit = -.5, third audit = -44.5, fourth audit = -58.5. (Table 2)

Regression Analysis of Relationship between Audit Frequency and Compliance

The graph in Figure 1 shows a nonlinear relationship between tax audit frequency and tax compliance. Tax compliance is measured in terms of the ‘Group Mean’ that is calculated based on the total sum of ‘tax compliance’ in the group divided by the number of individual taxpayer in the group. For example, the Group Mean for First Audit is 105.078/166 = 0.633. Table 3 shows the computed mean value for each tax audit frequency group.

Table 3: Tax Audit Frequency and Group Mean of Taxpayer Compliance

Tax Audit Frequency	Group Mean (Tax Compliance)
First Audit	0.6330
Second Audit	0.7408
Third Audit	0.5743
Fourth Audit	0.7451

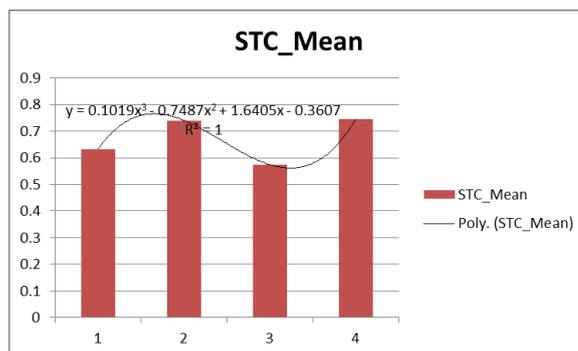


Figure 1: Relationship between Tax Audit Frequency and Tax Compliance (Nonlinear)

Generally, multiple regressions (MR) can be used to make predictions based on the relationship that exists between two variables. The MR equation between the two variables can be determined through the graph sketching method. It is found that the equation that fits on the graph is nonlinear as stated below:

$$STC_Mean = 0.1019x^3 - 0.7487x^2 + 1.6405x - 0.3607 \text{ with } R^2 = 1.$$

The graph reveals that the ‘Group Mean’ (representing the average tax compliance level) alternately increases and decreases slightly from first to second to third and to fourth audit. It depicts a nonlinear relationship between tax audit frequency and tax compliance.

As a whole, the tax audit compliance cycle consists of the upward and downward movement of the *Group Mean*. The compliance level (*group mean*) rise and fall after each subsequent audit. Furthermore, when tax audit is conducted for the second and fourth time, the tax compliance level improves slightly by approximately 11% (0.1078) and 17.08% (0.1708) respectively. However, when tax audit is been conducted for the first and third time, the tax compliance level was 0.6330 and 0.5743 respectively; that show a slight difference (decrease) of 587 basis points (i.e. 0.0587). This cyclical pattern or fluctuations in compliance level corresponding to an increase in ‘number of times audited’ (from first to fourth times audited) can be clearly seen in the graph above. (Figure 1)

VERIFICATION ON PAST RESEARCH FINDINGS AND ASSUMPTIONS

In this research finding, it is found that the tax compliance regression equation is a third degree polynomial equation and the graph in Figure 1 depicts the tax audit compliance cycle. The compliance level increases after the first and third audit, and decreases after the second audit.

Based on the hypothesis result, this research supports: (i) Bruttel & Friehe (2014) finding that past audit probability and imposed fine have a continuous impact on current declarations; and (ii) the results from Palil et al.(2013) study that the probability of being audited can influence tax compliance.

In general, most researchers viewed that the more frequent taxpayers are being audited, the more they would comply. Similarly, the two-period dynamic model developed by Galmarini et al. (2014) shows that the experience of a prior tax notice reduces the probability to avoid taxes (indirectly increasing compliance). According to Tagkalakis (2013), intensification of tax audits can induce tax compliance. Bagdad et al. (2017) found that taxpayers with prior audit experience were more compliant than those audited for the first time. Mazzolini et al. (2017) established that positive and lasting effect on subsequent reporting behaviour depends on a positive tax audit outcome. Furthermore, the Tax Administration Research Centre (2015) disclosed an increasing trend in reported tax liability reaching an average of 26% in the 4th year after an audit. On the contrary, in this study, the second or fourth audit have a higher compliance level but the third audit has a lower compliance level (after subsequent audit). In other words, when the taxpayers are audited for second and fourth time, they comply more; but when they are audited for the third time, they comply less.

Based on the result of the regression analysis, there exists a continuous nonlinear relationship between the audit frequency (i.e. first, second, third to fourth time audits) and tax compliance. Hence, this study supports Xiao et al. (2014) ‘Christiansen static model’ that if tax evasion is detected in the first period, this can reduce the incentive of tax evasion (corresponding to an increase the compliance level after the first audit) or may cause more evasion in the second period (corresponding to a decrease in compliance level after the second audit). De Backer, Heim, Trans & Yuskavage (2015) also found that that corporations gradually increase tax aggressiveness for a few years after an audit and then decrease it sharply. These findings correspond to the cyclical pattern of tax compliance and the ‘rise and fall’ trend of the compliance ‘mean values’ as the ‘frequency of audit’ increases.

In reality, there are other related factors that can influence taxpayer compliance level. Experimental results of Tan & Yim (2014) indicated that strategic uncertainty can deter tax evasion. Santoro (2011) and Asnawi (2013) concluded that knowledge or perceived probability of audit can affect tax compliance decision. Besides, Kastlunger et al. (2011) found that rewarding audited compliant taxpayer can improve compliance. Kogler et al. (2014) reported a higher level of compliance when feedback on

audits and fines is delayed. Alm et al. (2017) suggested peer influence affects taxpayer compliance behaviour. Therefore, all these findings imply that by increasing: (i) the strength and magnitude of tax audits; (ii) the level of strategic uncertainty; (iii) perceived probability of audit; (iv) monetary reward to audited compliant taxpayer; (v) reasonable delay on audit feedback; (vi) positive peer influence; and (vii) tax knowledge, then level of compliance can be increased in subsequent audit.

THE EXPECTED UTILITY THEORY

For this study, the effect or influence of the number of times audited or audit frequency on taxpayer compliance can be explained through the *Expected Utility Theory* (EUT). In general, the taxpayer with prior tax audit experience will comply if the compliance cost is less than the benefits of the risk. The taxpayer will try to maximise the total expected utility in each audit period. Similarly, this may apply to taxpayers who have been audited for the second time, third time or fourth time. Therefore, the taxpayer compliance level is largely dependent on the total expected utility of each audit period of a tax audit according to the taxpayer's cost-benefit analysis. In this respect, Manhire (2014) argued that the classic expected utility model should consider the conditional nature of audit probability from the taxpayer's perspective, so that the theoretical results can better reflect the observed rate of tax compliance.

CONCLUSIONS

Based on the analysis of Chi-Square Test for Goodness-of-Fit using the SPSS programme, it is found that there is a significant difference in the 'number of times audited' between the taxpayers who were audited in 2012 for the 'first', 'second', 'third' or 'fourth' time.

In brief, the Group *mean* is found to be higher among those who have undergone 'second (.741) or fourth (.745) audit' as compared to those with 'first (.633) or third (.574) audit'. The final analysis indicates a nonlinear relationship between audit frequency and tax compliance.

In most cases, it may not be cost-effective for the authority to conduct a tax audit on a taxpayer as frequently as necessary due to budgetary and time constraints. It is thus suggested that tax authorities should seek the most effective approach to ensure a higher level of compliance after an audit in order to reduce enforcement time and costs incurred by subsequent tax audits.

This problem can be overcome through: (i) risk-based audit selection target or strategy using predictive analytics tool based on 'auditor judgement' (Hashimzade & Myles, 2017); (ii) increasing perception of fairness (Saad, 2012), justice and trust (Faizal, Palil, Maelah & Ramli, 2017) in the authority; (iii) ensuring a fair tax audit outcomes or amount of penalty (Mazzolini, Pagani & Santoro (2017); (iv) increasing the "psychic cost" of tax evasion (Thomas, 2015); (v) reducing tax complexity such as tax computations and record keeping for smaller companies, and tax ambiguity for corporate taxpayers (Isa, 2014); (vi) an 'easy to reach' and reliable taxpayer education (Hassan, Nawawi, & Salin, 2016) and taxpayer assistance services e.g. tax liability information (McKee, Siladke & Vossler, 2017); in order to improve tax audit outcomes or tax compliance, reduce tax gap, and ultimately improve revenue collection. Alternatively, the government could consider using anti-abuse rules against tax shelters or charged penalties on tax professionals for providing certain kind of tax advice. (Lawsky, 2013)

On the other hand, corporate taxpayers may mitigate tax uncertainty or audit risks and costs through: (i) a tax buyout offer or contract (Goerke, 2015); (ii) fee-based advance tax rulings (Diller, Kortebusch, Schneider & Sureth-Sloane, 2017); (iii) strategic tax planning opportunities with revenue agencies (Chan & Cheung, 2010) and (iv) other form of cooperative compliance with tax authority (Bronzewska, 2016).

This study showed that changes in tax compliance have followed a cyclical pattern and 'frequency of audits' may improve taxpayer compliance depending on the compliance cycle. The finding is contrary to popular beliefs that "the more frequently taxpayers are audited, the more compliant they become" as this does not hold true in all repeated audits, especially in the third-time audits. This paper thus provides a new perspective on "audit frequency and tax compliance" that may impact or significantly influence policy and decision making processes. Therefore, policymaker or revenue agency should consider its applicability and relevance during the process of formulating an effective tax compliance audit policy or strategy. In fact, this research paper can also be useful to government in other Asian or developing countries sharing similar taxpayer psychological or cultural perspectives, tax system and policies, 'political and economic environments' or ethnicities. The new knowledge or ideas generated through the present research can then contribute new insights to tax audit strategy or future research in developing countries.

In summary, tax compliance is largely influenced by traditional (economic) factors such as perceived probability of audit (Asnawi, 2013), imposed fines (Bruttel & Friehe, 2014), tax rates (Palil et al., 2013) and monetary reward (Allingham & Sandmo, 1972). Finally and undoubtedly, it is the taxpayer cost-benefit analysis or financial incentive analysis that determines the level of compliance during or after an audit.

Furthermore, in a study conducted from the tax authority's perspective, on whether taxpayer compliance has improved in terms of total revenue collection after an audit,

Saw (2017) finds that:

There is a positive direct effect of tax audit in terms of total service tax revenue collected with an average annual increase of 2.01% from year 2013 to 2014. (p.41)

Therefore, from the taxpayer perspective, it is proposed that further research should be conducted on how tax audits impact the general perception or behaviour and subsequent tax reporting compliance by taxable firms or businesses in order to gain insight on how taxpayer compliance can be improved after a first, second, third or fourth audit.

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