Tax Compliance in Bangladesh – A Structural Equation Modelling Approach

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ABSTRACT

Tax compliance behavior has been researched at different times in various parts of the world using various theories. This research has focused on the psychological aspects of tax compliance behavior by applying the theory of planned behavior (TPB) proposed by Ajzen. 300 taxpayers were studied using a questionnaire based on Likert scale, and the results were analyzed using structural equation modelling. Results found from SEM approach indicate that subjective norm has a significant influence on tax compliance behavior while intention mediates it and moderated by religion. Attitude and perceived behavioral control were found to have a significant influence on intention. Individual taxpayers are selected from the capital, and thus findings derived from the sample might not be generalizable for all individual taxpayers in Bangladesh. The results of this study might provide some insight to the tax non-compliance problem in Bangladesh and help authorities to design strategies to motivate taxpayers to comply with existing fiscal policies. Tax compliance issues have been explored from various perspectives in Bangladesh. Lack of significant influence on subjective norm toward taxpayer intention indicates that social and peer is yet to make a substantial contribution to improving tax compliance. This study has introduced structural equation modelling technique to explore the moderating influence of religion on individual taxpayers in the context of Bangladesh.

Keywords: Theory of planned behaviour, Tax compliance, Structural Equation Modeling

INTRODUCTION

Tax compliance commonly refers to the degree to which an individual or an organisation complies with tax laws and regulations. Another key principle of the literature is that tax compliance should be intuitive for taxpayers as long as the relevant tax laws and regulations are clearly stipulated and available. However, this is not the case in reality. Compliance with tax obligations is anything but simple or straightforward. Many factors can affect an individual or an organisation in complying with their tax obligations.

Tax compliance is defined as reporting all income and paying all taxes by the applicable laws, regulations and court decisions (Alm, 1991). The decision to comply with the provisions of tax laws is influenced by many factors (Alm, 1999). There have been a lot of researchers focusing on both economic and psychological aspects of tax compliance behaviour among individuals and corporations. Allingham and Sandmo (1972) were among the first to develop a model to explain factors affecting taxpayers' compliance behaviour called "Economic Deterrence Theory" following Becker's (1968) theory of crime. Maintaining the compliance behaviour of taxpayers with the traditional approach of economic deterrence such as audit and penalty has proven to be costly for the tax administrators and less effective in recent times. As a result, a new approach is necessary to look into this problem of not - compliance and perhaps understanding the psychological elements contributing toward a certain behaviour will help. In this regard, the theory of planned behaviour might be a useful change of view. Ajzen's (1991) theory of planned behaviour posits that individuals make rational choices to engage in the behaviour of interest and are influenced by individuals' own belief about the outcome and the evaluation of the favorableness of the outcomes from engaging that target behaviour. In Bangladesh, the existence of tax evasion and avoidance is a regular phenomenon nowadays (Zahid and Bhuiyan, 2012).

As a result, this study will attempt to understand the reasons behind such behavior among tax non-compliance by applying Theory of Planned Behavior (TPB) with the aim to assist regulators to cater strategies focusing on the psychological aspects of taxpayers in addition to the already existing economic punishments to keep the economic wheel of the country rolling toward development.

Bangladesh is a South Asian country boarding the Bay of Bengal with a population of around 150 million. The struggle with poverty began as an independent country for Bangladesh after liberation in 1971, and the fight is still going on which can be very easily understood by the constant effort by the Government and Non - Government Organisations in eradicating poverty from this developing country. Tax is system imposed by the Government to generate revenue which is not always spent in the fight of poverty eradication.

A taxpayer is fulfilling his or her responsibility be to pay the appropriate amount of tax to the government to use in poverty eradication. One way to ensure the fulfilment of the Millennium Development Goal of eradicating extreme poverty and hunger within 2015 is by effectively administering both individual and corporate tax compliance. But, maintaining compliance behaviour among current and prospective taxpayers in Bangladesh has become a challenging issue. Every year, Government is losing a huge amount of tax revenue due to the increasing now - compliance of taxpayers which in turn can result in criminal activity such as an evasion. Because of these reasons, this research will aim at understanding the reasons behind not – compliance behaviour among taxpayers in Bangladesh and help tax authorities in maintaining an effective tax administration system.

The Bangladesh economy has made remarkable progress in achieving GDP growth, reducing poverty and social development. Over time, there has been a structural transformation in the economy with a shift from traditional agriculture-led economy towards the industry-led economy. As economic development takes place the country's tax system should generate more revenue automatically for the national treasury (Chowdhury & Hossain, 1988). The average Tax-to-GDP ratio improved gradually and increased to 9.04 percent during the 2010-2016 period from 8.17 percent in 2000- 2010 period. However, the Tax-to-GDP ratio of Bangladesh remains one of the lowest in the world and even lower compared to that of Nepal (16.5 percent in 2014-15, Ministry of Finance, Nepal). Due to lack of domestic revenue mobilisation, the budget deficit increased 3.9 percent of GDP to 5.0 percent of GDP in 2016. (Hossain 2017).

LITERATURE REVIEW

Over the last four decades, a large number of studies have examined the reasons for taxpayers' noncompliance behaviour with various theoretical and conceptual outlook (Alm, 2012; Andreoni, J., Erard and Feinstein, 1998; Niemirowski, P., Baldwin and Wearing, 2001). Following the Economic Deterrence theory (Becker, 1968), the traditional approach to tax compliance literature was to explore the direct incentives. This includes the probability of audit, the probability of detection and the severity of penalties imposed for detected shortfalls. The seminal work of Allingham & Sandmo (1972) introduced the concept of deterrence in tax compliance literature, and past literature indicates that increased levels of deterrence will lead to increased compliance by taxpayers because of their fear of being penalised for noncompliance (Smart, 2001).

Ajzen's (1991) Theory of Planned Behavior (TPB) posits that individuals make rational choices to engage (or not engage) in the behaviour of interest. According to TPB theory, an individual's intention to behave is influenced by normative and control beliefs. Individual's behaviour is in turn influenced by these behavioural attributes. Attitude, subjective norm and perceived behavioural control are introduced as a contributor toward influencing individual's intention toward engaging in actual behaviour. The statistical validity of the propositions of TPB theory has already been achieved through empirical results of prior studies conducted primarily in marketing research focusing on buyer behaviour. Recent studies on tax literature have focused on using the proposition of TPB theory in exploring tax payer's compliance behaviour.

Based on the economic model of tax compliance, a major portion of tax compliance studies reports a significant relationship between the various form of legal, non-legal sanctions and tax compliance (Carnes and Englebrecht, 1995; Richardson and Sawyer, 2001). Thus, Smart (2001) hypothesised and later on empirically proved that attitude based on both legal and non-legal sanctions positively influence tax compliance intentions.

Individuals who believe that important referents think they should engage in the target behaviour, and who are motivated to conform to important referents' expectations, will hold a positive subjective norm (Fishbein and Ajzen, 2010). Several studies have identified a relationship between the threat of losing respect from peers and tax compliance (Grasmick and Bursik Jr, 1990; Grasmick and Scott, 1982).

THEORETICAL PERSPECTIVE

The oldest theoretical model at our disposal is Economic Deterrence Theory. It was developed by Allingham and Sandmo in 1972 and has been used by researcher in exploring the mystery of tax compliance behaviour at different parts of the world. The model assumes that the decision of payment depends on the trade-off between tax savings and the risks of audit and penalties. The decision to pay or not to pay tax is also considered a behavioural issue, and under tax payer's control, researchers have focused on explaining compliance behaviour of taxpayers with behavioural theories.

One of the most significant theories used by many researchers is the Theory of Reasoned Action (TRA), developed by Ajzen in 1991. According to TRA, attitude and subjective norm play a major role in shaping the intention of an individual which in turn influence the actual behaviour. But, Theory of Reasoned Action (TRA) has some limitation too. TRA regards to a situation when people face difficulties and have no power or control in performing the actual behaviour. As a result, Ajzen (1991) introduced a new variable named "Perceived Behavioral Control" renamed the prior theory as "Theory of Planned Behavior".

The theory of planned behaviour suggests that the key factor in determining whether a person will engage in certain behaviour is the intention to perform the behaviour itself. This theory was successfully used to understand compliance behaviour of taxpayers in developing countries such as Canada (Trivedi and Shehata, 2005), USA (Bobek and Hatfield, 2003) and Zakat (Religious Tax) compliance behaviour developing countries like Malaysia (Zainol, 2009).

The literature suggests that TPB is one of the most influential models in predicting behavioural intentions and behaviours, and it has been comprehensively validated by behavioural domain (Madden et. al., 1992, Parker et. al, 1995). Furthermore, the study conducted by Ferdous and Polonsky (2013) to predict Bangladeshi sales peoples' ethical intentions and behaviour using the theory of planned behaviour was a success. As a result, the theory of Perceived Behavioral Control (PCB) was be used to understand the tax compliance behaviour among taxpayers in Bangladesh.

The theory of planned behaviour (TPB) has the capability of predicting the occurrence of a particular behaviour assuming that the behaviour is intentional. The model proposed that attitude and subjective norm has a significant influence on a person's intention which in turn shapes his (her) actual behaviour. Attitude is a person's evaluation of the behaviour and the subjective norm is defined as the social pressure to perform the desired behaviour. Perceived behavioural control is an individual's ability to perform the actual behaviour. Anggraini and Siswanto (2015) found that the attitude toward a whistleblower had a negative relation to the intention to act ethically. It seems that it is contrary to ethical theory and the theory of planned behaviour. It is caused by the conditions in the workplace that do not support any action to report unethical behaviour to superiors.

HYPOTHESIS DEVELOPMENT

Organisations have long struggled to find ways to reduce the occurrence of unethical behaviours by employees. Unfortunately, time theft, a common and costly form of ethical misconduct at work, has been understudied by ethics researchers. To remedy this gap in the literature, we used the theory of planned behaviour (TPB) to investigate the antecedents of time theft, which includes behaviours such as arriving later to or leaving earlier from work than scheduled, taking additional or longer breaks than is acceptable, and on-the-job daydreaming. Based on Ajzen's proposed theory and the research findings of Cherry (2006), Henle et. al. (2010) and Leonard et. al. (2004), the following hypothesis is proposed:

H_1: Attitude positively influences the intention of Individual tax payers.

H_2: Subjective norm positively influence intention of Individual tax payers.

H_3: Perceived behavioral control positively influences intention of Individual tax payers.

Developing a measure utilising the Theory of Planned Behavior is highly dependent upon the topic being considered. Measures should assess all main components of the theory: attitude toward behaviour, subjective norms, perceived behavioural control, and intention. Typical measures follow a Likert-style format and can range in length from a few succinct questions too much longer and more comprehensive surveys. The literature suggests that intention is an immediate antecedent and the mediator of attitudes, subjective norm and perceived behavioural control of actual compliance behaviour (Ajzen, 2005). Hence the following hypothesis is proposed:

H_4: Intention influences Individual Zakat Compliance behavior.

H_5: Intention is mediator between the influence of Attitude, Subjective Norm and Perceived Behavioral Control on Individual Zakat Compliance Behavior.

METHODOLOGY

Conceptual framework

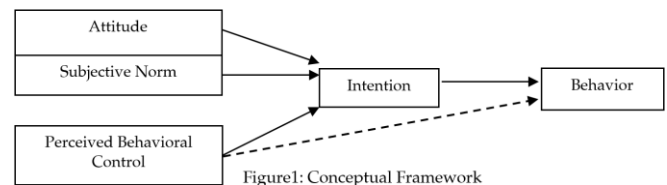The following conceptual framework was derived from the literature discussed above:


Figure1: Conceptual Framework

In this proposed conceptual framework, there are three independent variables. They are attitude, subjective norm and perceived behavioural control. Intention first acts as a dependent variable while explaining the effect of independent variables on it. Later it acts a mediator by mediating the effect of independent variables toward explaining the dependent variable that is tax compliance behaviour.

Sample size and Sampling technique used

Using the formula of Tabachnick & Fidell (1996), the appropriate number of samples for this study were 84. To avoid non-response error and missing data problem, the total number of sample for the study was set to 350. Parents of the students studying in the taxation course at the time of the study were the intendant respondents. At the time of the study, a total number of 235 students were staying in the bachelor level taxation courses of the university. So, the sampling frame for the study was 470 individuals considering both parents are taxpayers. A simple random sampling technique was used based on the ID of the students, and 350 questionnaires were sent with the help of students to their parents. 318 of the questionnaires were returned among them 18 had a missing data problem. So, a total number of 300 questionnaires was used for data analysis. The data collection procedure took two months.

Operational Definition of Variables (*Statistical tool used*)

The primary data collected through questionnaire were later analysed using IBM SPSS 20 software. Cronbach's alpha which is one of the most commonly used tools to measure the reliability of the information gathered through a questionnaire survey is the first test performed to measure the
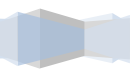
internal consistency of each and every scale used in the questionnaire. Exploratory factor analysis takes a large set of variables and looks for a way the data may be reduced or summarised using a smaller set of factors or components. Principal component analysis was chosen as a method for exploratory factor analysis as the original variables are transformed into smaller sets of linear combinations under this method. Structural Equation Modelling (SEM) is a powerful method for assessing a structural model and measurement model because of the minimal demands on measurement scales, sample size, and residual distributions. The combined analysis of the measurement and the structural model enables measurement errors of the observed variables to be analysed as an integral part of the model, and factor analysis to be combined in one operation with hypothesis testing (Gefen et al., 2000). Due to the possibility of mediation, SEM was used to test the proposed conceptual model.

ANALYSIS OF THE RESULTS

Table 1 provides the descriptive statistics of the respondents. Majority of the respondents are female. Among 300 respondents, 33 percent are between the ages of 30-40 with graduate level education (43.67 percent). 35.67 percent of the respondents work in the private sector.

Table1: Descriptive Statistics

Gender					
Male	Female				
70.33%	29.67%				

Age					
Below 25	25-35	35-45	45-55	55-65	Above 65
15.00%	22.00%	19.00%	33.00%	10.00%	1.00%

Education					
No formal Education	SSC	HSC	Under graduate	Graduate	Others
1.67%	4.00%	38.00%	12.67%	43.67%	0.00%

Employment Status					
Un employed	Private	Public	Self-Employed	Retired	
8.67%	35.67%	15.33%	23.67%	16.67%	

Cronbach's alpha scores in Table – 2 indicates that all the components used in the questionnaire to measure tax compliance behaviour are above 70 percent recommended value (Tavakol and Dennick, 2011).

Table 2: Test of Reliability

Questionnaire Item	Cronbach's Alpha
Attitude	.701
Subjective Norm	.725
Perceived Behavioral Control	.691

The scores obtained from various test under exploratory factor analysis are provided in the appendix. To validate that a factor analysis is necessary, the KMO value should be above .40, and Bartlett's Test of Sphericity should derive a

significance value of less than .05. KMO value in this study is .604 and Bartlett's sig. is .000 (p<.001). So, going for a factor analysis is valid. The initial factor analysis using all the components did not provide the desired output.

The total variance explained table indicated that a total number of 3 factors were extracted using the Eigenvalue of 1. This makes sense as we have their independent variables in the study. The scree plot also justifies the inclusion of three factors. Finally, the Rotated components matrix provides an indication that factor 1 represents "Attitude", factor 2 represents "Subjective Norm", and factor 3 represents "Perceived Behavioral Control". Exploratory factor analysis results are provided in the appendix.

Measurement Model

The convergent and discriminant validity of the scales were tested with the confirmatory factor analysis. Convergent validity is assessed with three ad hoc tests recommended by Anderson & Gerbing (1988). Table 4 lists the standardised loadings, composite reliabilities and variance extracted estimates. The loadings are highly significant. Composite reliabilities, similar to Cronbach's alpha, range from 70.3 to 72.6 percent for three items while the reliability score for customer selection factor is found to be 45.3 percent.

Variance extracted estimates are measures of the variation explained by the latent variable to random measurement error (Netemeyer et al., 1990). AVE values are above the recommended score of 0.50 for the rate of return. Thus, convergent validity is achieved through standard loading and composite reliability tests.

Discriminant validity was measured by comparing the average variance extracted with maximum and average shared variances. Discriminant validity is achieved if AVE score is higher than MSV and ASV value. Table 4 indicates that AVE scores are higher than MSV and ASV for all four factors. Thus, discriminant validity is achieved.

Structural Equation Modelling

Structural equation modelling (SEM) was applied to test the relationships among variables presented in the conceptual framework in three different ways. First, the entire model was used, and the results are provided in Figure – 2 and Table – 4. It can be seen in figure – 2 that the initial model proposed by the conceptual framework has a p-value of .000. In such a situation, formed chi-square value should be less than 3, CFI value should be greater than .90 and rmsea value should be higher than .50. We were successful to meet the entire standard and thus proved the statistical significance of the proposed model. The regression weights provided in Table – 4 indicates that only Subjective Norm (p = .030) has a significant influence on intention and Intention (p <.001) has a highly significant influence on tax compliance behaviour. Income level which was used as a control variable was found significant (p<.001).

In the second level, the moderation effect of religion was tested and results provided in Table – 3 indicated that religion, in fact, does act as moderator by changing the original relationship between subjective norm and intention. This is indicated by a significant Z – score.

Next, the mediating variable was removed from the picture and the direct impact of attitude, subjective norm and perceived behavioural control on tax compliance behaviour was tested. Figure – 4 provides the results of the test, and it can be found in there that the p-value of the model in .935. Non - significant p-value in this case proves that the null hypothesis is accepted and the model is statistically significant.

The final test involved determining the role of Intention in the proposed study. Results provided in Table – 4 indicate that intention had neither a mediating nor an indirect effect on the influence of attitude and perceived behavioural quality on tax compliance behaviour. But, it has a significant indirect effect on the relationship between subjective norm and tax compliance behaviour. The statistical significance of this test was provided in figure – 3.
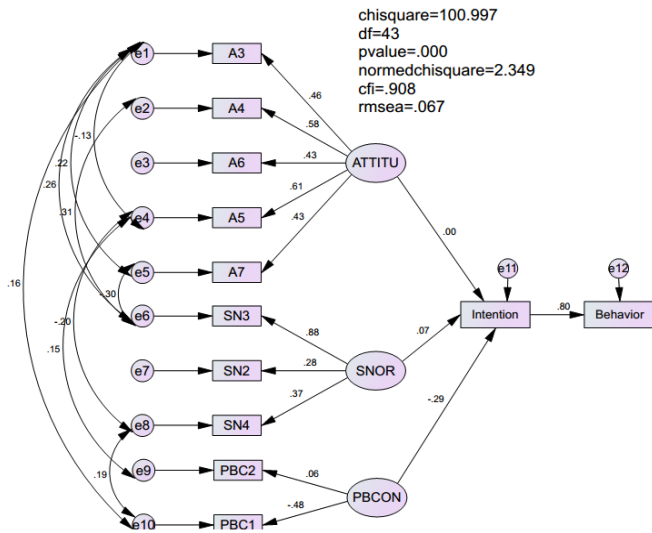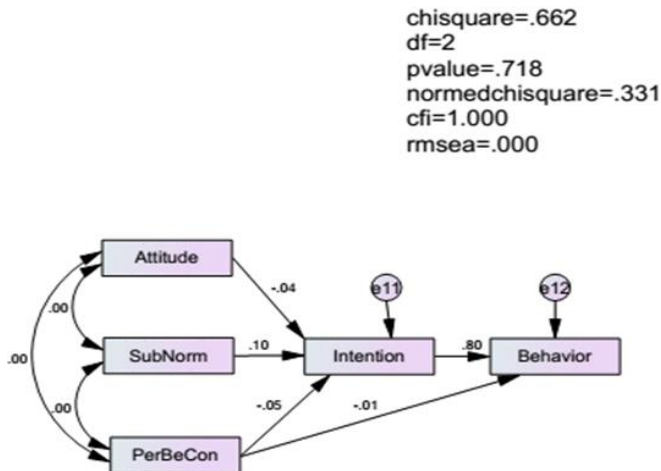
Table 3: Model fit

GOF Index	Preferred Value	CFA	SEM 1	SEM 2
X^2	Smaller the better	44.256	100.99	.662
df	NA	24	43	2
p	>.05	.007	.000	.718
Normed X^2	<5.0	1.844	2.349	.331
GFI	>.90	.972	.950	.999
AGFI	>.90	.935	.909	.993
RMSEA	<.10	.053	.067	.000
CFI	>.90	.937	.908	1.00
NFI	>.90	.880	.856	.998
IFI	>.90	.941	.912	1.00
PCFI	>.50	.500	.592	.200
TLI	>.80	.882	.859	1.00
HOELTER	>200	247	176	2708
Total Fit		Good Fit	Bad Fit	Good Fit

Table 4: Regression weights of the initial structural equation model

			Path Coefficients	t-statistics	P	Hypothesis
Intention	<---	Attitude	-0.023	-0.441	0.659	Rejected
Intention	<---	SubNorm	0.113	2.176	<.005	Accepted
Intention	<---	PerBeCon	-0.058	-1.121	0.262	Rejected
Intention	<---	IL	0.420	8.077	<.001	Accepted
TCom	<---	Intention	0.799	22.922	<.001	Accepted
TCom	<---	PerBeCon	-0.006	-0.158	0.874	Rejected
TCom	<---	R	-0.004	-0.104	0.917	Rejected

Table 5: Results of mediation by Intention

Association	Indirect effect Significance (Sobel's Test)	Direct Effect Significance	Mediation
Attitude → Tax Compliance	Not Significant	Not Significant	None
SN → Tax Compliance	Not Significant	Not Significant	None
PBC → Tax Compliance	Not Significant	Not Significant	None
Mediator: Intention			

chisquare=100.997
df=43
pvalue=.000
normedchisquare=2.349
cfi=.908
rmsea=.067

Figure 2: Structural Equation Model (Full Model)

chisquare=.662
df=2
pvalue=.718
normedchisquare=.331
cfi=1.000
rmsea=.000

Figure 3: Structural Equation Model (Initial)

CONCLUSION

Tax compliance has become an important research issue because of its importance in the economic development of a country. In a developing country like Bangladesh, there is so many issues which might trigger a tax payer's intention not to comply with the tax policies of the country. This study was an intuitive to provide some insight on the psychological aspect that might have some influence on the tax compliance behaviour among taxpayers in Bangladesh. By using the theory of planned behaviour, it was determined that peer influence has a significance influence on the intention and that later on affects the actual tax compliance behaviour. This study focused on the tax payers of Dhaka city only. Future research might include other districts of the country to find out the consistency of this research. Tax non-compliance should be taken seriously by the authority, and necessary steps should be taken before non-compliance turn to evasion and hurts the economic development. The actual tax-GDP ratio was found to be very low compared with the selected developing countries. Even after taking into consideration the

normative or taxable capacity, the tax efforts remained very low compared to those countries and also other South Asian countries.

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APPENDIX

Exploratory Factor Analysis Results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.634
Bartlett's Test of Sphericity	Approx. Chi-Square	421.345
	df	45
	Sig.	.000

Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.156	21.556	21.556	2.156	21.556	21.556	2.040	20.398	20.398
2	1.934	19.336	40.892	1.934	19.336	40.892	1.789	17.892	38.290
3	1.294	12.941	53.833	1.294	12.941	53.833	1.554	15.543	53.833
4	.903	9.032	62.865						
5	.811	8.108	70.974						
6	.754	7.545	78.518						
7	.640	6.404	84.922						
8	.544	5.443	90.365						
9	.521	5.205	95.570						
10	.443	4.430	100.000						
Extraction Method: Principal Component Analysis.									

Rotated Component Matrixᵃ			
	Component		
	1	2	3
A3	.678		
A4	.643		
A6	.634		
A5	.610		
A7	.607		
SN3		.719	
SN2		.714	
SN4		.711	
PBC2			.822
PBC1			.796
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			