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Influence of Tax Awareness, Simplicity, and Knowledge on Voluntary Tax Compliance in Pakistan: The Mediating and Moderating Role of Tax Fairness and Social Norms

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Abstract

Tax revenue is one of the principal sources to accelerate government funds. Voluntary tax compliance can play the main role in accomplishing the target. This study explores the role of Tax Awareness (TAW), Tax Simplicity (TSIMP), and Tax Knowledge (TK) in the determination of voluntary tax compliance behavior. This study father analyzes the mediating role of Perception of Tax Fairness (PTF) among TAW, TSIMP, TK, and voluntary tax compliance. This study also analyzes whether "Social Norms (SN)" moderated the relationship between Tax awareness (TAW) and Voluntary Tax Compliance (VTC). The study uses 2000 observations which are collected with two steps stratified sampling technique of five main metropolitan cities (Lahore, Karachi, Islamabad/Rawalpindi, Peshawar) and their National Assembly (NA) constituencies within each chosen city. The survey "Multi-Stakeholder Perception Survey for the Advocacy to strengthen Demand for Economic Reforms" was conducted on direct taxpayer behavior.

This study utilized confirmatory factor analysis (CFA) to address the reliability and validity concern while Structural Equation Modeling (SEM) technique is applied for empirical investigation of the hypothesized relationship among modeled variables. The findings of the paper reveal that TK, TSIMP, TAW, SN, and PTF contribute positively to the determination of Voluntary Tax Compliance (VTC). Moreover, PTF significantly mediates among TAW, TSIMP, TK, and voluntary tax compliance. Moreover, SN strengthens the relationship between TAW and voluntary tax compliance. The study concludes with suggestions

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that the sustainability and self-reliance of Pakistan's economy are stringent on voluntary tax compliance of taxpayers. So, the efforts to review tax policies that can develop a simple and fair tax system with horizontal and vertical equity, improve tax awareness and tax knowledge, and educate taxpayers about social norms can help to meet many challenges of Pakistan today.

Key Words: Voluntary Tax Compliance, Fairness, Social Norms, Tax Simplicity, SEM, Survey Data, Pakistan
JEL Codes: D91, H24, H26

1 Introduction

The integrity of any country in the developing phase is based on self-reliance and its ability to internal financing. The tax compliance behavior of a nation plays a significant role in the development of a country. Pakistan went through the accumulation of a huge fiscal deficit and constantly experienced the challenge of revenue from national growth (Faridi, Sheikh, & Khan). The result is a low tax-to-GDP ratio which was 10.2 % during FY2021[4]. Tax compliance is a critical issue as government needs finances (Andreoni, Erard, & Feinstein, 1998). The problem of tax compliance is almost as old as the taxes themselves (Castro & Rizzo, 2014). So, it is important to see what determines tax compliance.

The first attempt to explore the concept was taken by Allingham and Sandmo (1972) who discussed the economic modeling of tax evasion by maximizing the expected income and came up with tax rate, audit probability, and fine as determining factors of tax compliance. But the inability of economic theories for empirical justification of the results found in theory diverted the research on tax compliance to find the justification in non-economic factors of tax compliance. The matter is being investigated from multiple disciplines including economic, psychological, and sociological perspectives. Numerous methodologies were applied to measure tax compliance. These methods vary from microeconomic modeling, field experiments, quasi-experiments, agent-based modeling, surveys, and network analysis. Another study from psychology by Kirchler, Muehlbacher, Kastlunger, and Wahl (2010) investigates the

[4] Pakistan Economic Survey 2020-21

factors that differentiate voluntary tax compliance, and enforced tax compliance and the factors that determine the two. The decision to comply voluntarily or by enforcement as well as the decision to avoid or evade taxes are designated as consequence of the interaction between taxpayers' trust in authorities and authorities' power to monitor taxpayers. Some further attempts include (Lopez-de-Silanes, La Porta, Shleifer, & Vishny, 1997) calibrating the concept of "trust", Frey and Jegen (2001) presented the "motivation crowding theory" and Tsakumis, Curatola, and Porcano (2007) used "*Hofstede's dimensions of national culture*".

There are studies that explore the role of fairness in determining voluntary tax compliance as conducted by Gobena and Van Dijke (2016). By applying the fairness heuristic theory of procedural justice to the slippery slope framework of Kirchler, Hoelzl, and Wahl (2008), Gobena and Van Dijke (2016) concluded that procedural justice enhances voluntary tax compliance. Some more studies on the topics are Kirchler et al. (2008) and Murphy and Torgler (2004). The literature shows that there have been many attempts to investigate the link between perception of tax fairness, simplicity of the tax system, tax awareness, tax knowledge, and voluntary tax compliance (Hassan, Mahmood, Tahir, Yousef Alkhateeb, & Wajid, 2021; Kirchler et al., 2010).

Although numerous studies investigating the effect of non-economic factors on tax compliance, but results are inconsistent due to diversity in methodology and data sets. Moreover, the subject has not been explored yet in these dimensions for Pakistan. These studies are limited number. Saad (2014) investigated the effect of simplicity in tax payment on voluntary tax compliance. Kemal (2010) analyzed the effect of tax morale on the compliant taxpayer and tax evaders. Awan and Hannan (2014) analyzed antitax culture and amnesties, Ameen and Ahmad (2017) linked the corruption and political instability whereas, e Hassan, Naeem, and Gulzar (2021) evaluate excise duties and sales taxes, and Alam (2021) explored the influence of socio-economic variables on voluntary tax compliance.

Pakistan is in the phase of development, and it needs the sources which can enable the economy to stand on its feet. It is only possible with self-reliance and tax revenue is the key factor to achieving sustainability. Presently, tax revenue collection is a

big challenge, and it requires a great level of effort at the academic level to conduct research and identify the root cause of this deficiency which further can be used to demise policy to achieve revenue targets. This study is an effort to achieve this target as existing research on the topic has not succeeded to bring on real solutions. So, this study uses a large data set and investigates the effect of non-economic factors on tax compliance by posing three questions:

First, how do the attributes of tax awareness, tax simplicity, tax knowledge, social norms, and perception of tax fairness influence the voluntary tax compliance behavior? Second, whether the perception of tax fairness (PTF) play the role of mediator in defining the indirect link between Voluntary Tax Compliance (VTC) as the dependent variable and Tax Simplicity (TSIMP) and tax knowledge (TK) as an independent variable? Third, whether social norms moderate tax awareness and voluntary tax compliance?

2 Review of literature and Hypothesis Development

2.1 Voluntary Tax compliance

There is no specific definition of tax compliance and noncompliance in tax law. One simple definition is that voluntary tax compliance is a self-motivation to pay the taxes honestly and the intention of this behavior can be voluntary or enforced by the tax authority.

Pakistan's tax system is based on direct taxes (around 62%) which are to be paid voluntarily. Small changes in voluntary tax compliance can have significant improvement in revenues.[5] It is a need time to demise tax structure which can be more conducive to voluntary tax compliance.

A review of the literature reveals that there has been a lot of effort to define factors that determine tax compliance, theoretically and empirically. Economic theories of tax compliance are based on Becker (1968) idea of the theory of crime. Working on Becker's idea, Allingham and Sandmo (1972), identified that tax rate, audit probability, and fine influence tax compliance but empirical findings of the model were not aligned

[5] According to world bank report, if tax is collected to full potential (no tax evasion) at existing tax rate and tax base, then tax to GDP ratio can be 35% which right now is 10% of GDP.

with theoretical findings. This ignited a huge debate in the field to explain these controversies. Various methodologies and theories from different disciplines were used to come to a reconciliation. Another direction in which tax compliance research evolved was to answer an interesting question, posed by Alm (1991) "why do people pay taxes when they have an opportunity or even an incentive to evade?" The studies from multiple disciplines reached the thought that taxpayers are not only influenced by rationality as asserted by economic modeling, but tax morale plays a strong part in tax compliance decisions. Research in late1990 started focusing on variables beyond audit probability and penalty rates (Asnawi, 2013). Alternative rationalizations of the phenomenon combined traditional theory with adopting methods and definitions from behavioral sciences, considering moral perceptions of the agent's conduct and conventional socioeconomic situations. According to Mollanazari, Abouhamzeh, and Mirzaee Abbas Abad (2016) three social factors that influence taxpayer decisions which are social norms, perception of fairness, and trust in government. The more logical explanations were provided by models from psychology. Ferry () showed that tax compliance can be improved with good relations among the government, tax authorities, and taxpayers. It creates a 'psychological contract' of trust among them and goes beyond the legal regulations (Rousseau, 1998). Another innovative idea of the "slippery slope framework" was presented by Kirchler et al. (2008) who he suggested that tax behavior has two dimensions; One aspect in which taxpayer is viewed as a selfish, non-cooperative, and maximizer as presented by economic theories and second, in which taxpayer is taken as a responsible citizen with a complete understanding of tax benefit to society and ready to cooperate with the tax authority. Consequently, compliance could be thought to take place voluntarily and by enforcement. Kirchler (2008) integrated economic (tax rate, audit probability, income etc.) and psychological (as tax morale, tax ethics and norms etc.) aspect in decision process of paying taxes.

Literature on tax compliance reveals that many studies have incorporated tax simplicity, tax knowledge, tax awareness, and social norms to define voluntary tax compliance. The present study will explore these variables through a different lens of

methodology and with bigger data set. The next section will discuss the remaining variables used in the study.

2.2 Tax Knowledge

Tax knowledge is a very significant variable in the decision-making of tax compliance voluntarily as the core belief of taxpayers along with accurate and sufficient information will make him decide positively (X. Chen, Hu, Wang, & Tang, 2014). Saad (2014) found that a taxpayer's knowledge plays a positive role in making him pay the correct amount of tax. Kornhauser (2006) found a positive link between tax knowledge and tax compliance. In another study by Lefebvre, Pestieau, Riedl, and Villeval (2015), they reached a very interesting result regarding the behavior of taxpayers towards compliance. It was explored that once a taxpayer receives positive information on the tax compliance behavior, their behavior isn't affected but tax evasion increases with the information of an increase in tax evasion rate. Releasing public tax information may have a positive impact on tax compliance (Devos & Zackrisson, 2015). The present study will explore the effect of tax knowledge on tax voluntary tax compliance. We will also explore how the perception of tax fairness plays a role of mediator in defining the link between tax knowledge and voluntary tax compliance. We expect that tax awareness mediates tax knowledge and enhances its positive effect on voluntary tax compliance.

H1: Tax knowledge has a positive effect on voluntary tax compliance directly.

H2: Tax Knowledge has a positive effect on the perception of fairness.

H3: Perception of fairness plays a role of mediator in the positive relationship between tax knowledge and voluntary tax compliance.

2.3 Tax Simplicity

The simplicity of the tax system plays an important role in the determination of tax compliance behavior (Saad, 2014; Wenzel, 2004). A complex tax system may increase the cost of compliance as taxpayers may seek help from a practitioner which can be an additional barrier to compliance preferences (Saad, 2014; Yang et al., 2020). It may even result in the non-registration of the taxpayer (Akinboad, 2007). In a study by Chau and Leung (2009), it is emphasized in the review of Fisher (2003), the tax

compliance model that the tax system should be very simple and clear in tax law and procedures. A simple tax system enhances compliance behavior as taxpayers better understand the rules and can easily calculate the amount of tax they are supposed to pay. Instead of the rigorous discussion on the need for simplicity of the tax system, there has not been conducted study which emphasizes the role of tax fairness as the mediator between tax simplicity and voluntary tax compliance. The simplicity of the tax system once mediated by the perception of the fairness of the tax system can make a taxpayer believe in transparency and he may feel more obliged towards paying taxes. The present study will try to explore this link and effect. The following hypothesis will test these assertions.

H4: Tax simplicity has a positive effect on voluntary tax compliance directly.

H5: Tax simplicity has a positive effect on the perception of fairness.

H6: Perception of tax fairness plays a role of mediator in the relationship between tax simplicity and voluntary tax compliance.

2.4 Tax Awareness

Tax awareness is the understanding of the taxpayer of the tax laws, rules, regulations, policies, and specific tax issues related to him. His ability to analyze the tax system helps in making a better decision toward tax compliance. Tax awareness is likely to increase tax compliance. In an experiment done by Eriksen and Fallan (1996), in which they studied two groups: one was controlled group was assigned to study marketing whereas the treatment group was assigned to study taxation. It was found that the treatment group showed a more positive attitude towards tax compliance. So, it can be seen that awareness of tax will improve the tax compliance behavior positively. The present study will test by postulating this hypothesis.

H7: Tax awareness has a positive effect on voluntary tax compliance.

2.5 Social Norms (SN)

According to research in social psychology, tax compliance behavior is taken as a "psychological Contract" between the taxpayer, tax authorities, and government (Langevoort, 1998). Social norms play a central role in defining a

contract in the taxpayer's mind. There is no single definition of a social norm. It is defined as behavior that a person gets from some sustained behavior in society. These are formal or informal rules of a group that is taken as a guideline by another group (Jimenez & Iyer, 2016).

Kallgren, Reno, and Cialdini (2000) observed that social norms are hypothesized to affect and form behaviors in numerous situations and tax compliance behavior is one among all. Alm (1991) investigated that the individuals who internalize the social norms are most expected to have tax compliance. Davis, Hecht, and Perkins (2003) studied that social norms along with other factors, influence tax compliance. According to social psychology research, there are different types of norms: personal, descriptive, subjective, and injunctive. All of these norms differ in their sources and in their impact on forming behaviors. The present study focuses on personal norms. Personal norms are defined as a person's own moral values and behavior (Wenzel, 2004). Personal norms are developed through the internalization of social norms of a group by an individual (Wenzel, 2004). Personal norms which are internalized social norms have a strong impact on forming behaviors including tax compliance decisions. The present study investigates the role of social norms in defining tax compliance behavior. It further investigates how social norms affect the link between tax awareness and tax compliance behavior as moderator.

H8: social norms have a positive effect on voluntary tax compliance.

H9: social norms have an impact on the relationship between voluntary tax compliance and tax awareness as moderators.

2.6 Perception of tax Fairness

Fairness is taken as a fundamental human right. Fairness can be one of the criteria for making ethical choices by a human being (Robbins & Kiser, 2020). Fairness influences behavior strongly (Siahaan, 2012), so unfairness can be a source of intensely personal emotions.

Fairness is a multidimensional concept (Porcano, 1984; M. Richardson & Sawyer, 2001). Azmi and Perumal (2008) identified five dimensions of fairness which include general fairness, exchange with tax institutions, attitude towards taxes of a wealthy, progressive vs. Flat tax rate, and self-interest. G.

Richardson (2006) emphasized the two dimensions of fairness which are equity of trade and taxpayer's burden in comparison to another taxpayer. It is known as horizontal and vertical equity in literature. In simple words, fairness is that all taxpayers should be treated equally in liability to pay when they have equal ability to pay.

Fairness has a big role in the determination of voluntary tax compliance as it is a perception of justice (Reuben & van Winden, 2010). Government taxation policy and strategy are based upon taxpayers' perception of justice and fairness (Gerbing & Anderson, 1988). There will be a reduction in tax compliance in case taxpayers think that the tax system is unfair (Vogel, 1974). Studies found that there is a positive relationship between fairness and tax compliance (Casal, Kogler, Mittone, & Kirchler, 2016). Batrancea et al. (2019) argued that voluntary tax compliance with an increase will fair treatment in defining the link between taxpayer and trustworthiness of tax authority. Moreover, knowledge of the tax system and the simplicity of the tax system also influence tax compliance positively. Tax fairness plays the role of mediator of tax knowledge and tax simplicity and has a positive effect on voluntary tax compliance. The present study aims at testing the following hypotheses to explore these relationships.

H10: Perception of tax fairness has a positive effect on voluntary tax compliance.

3 Data and Methodology

3.1 Introduction

The data is taken from a survey named "Multi-Stakeholder Perception Survey for the Advocacy to Strengthen Demand for Economic Reform[6]" conducted at Lahore University of Management Sciences. The purpose of the survey was to analyze the perception of people on government policies of 'Taxation', 'urban development' and' Energy'. It covers direct taxes only at the federal level from 2000 different individuals. The stratification of data includes politicians, Government, Industry, associations, chambers, Research & Consulting, NGOs, Academician, Media, households, Public and Other.

[6] We are grateful to Lahore University of Management Sciences, Lahore for providing data.

The methodology adopted for the perception survey was explicitly aligned to meet the Terms of Reference outlined by Adam Smith International. The completion of the task was carried out in three distinct phases including (i) Instrument development and pilot testing; (ii) Data collection from the field and cleaning of data and (iii) Analysis and reporting of data.

To accurately gauge the levels of perception and attitudes of different survey respondents, an adaptive format for the survey questionnaire was adopted. This adaptive format entailed an initial list of yes / no questions that lead the respondent through a chain of questioning that adapted to the exact response provided by the respondent at each step. The next stages of the survey presented the respondent with questions that required scaled answers (1-5) to measure levels of agreement ad awareness on reform and policy.

3.2 Sample Design & Methodology

3.2.1 Two-Stage Stratified Sampling

The team utilized a two-stage stratified sampling approach, composed of first strata of major metropolitan cities (Lahore, Karachi, Islamabad/Rawalpindi, Peshawar) and second strata of National Assembly (NA) constituencies within each chosen city. The following table 1 is self-explanatory and provides the details of the samples selected for the study. The highest numbers of respondents were taken from the Karachi i-e 735 observation while the lowest sample was taken from Islamabad/ Rawalpindi territory i.e., 2. The numbers of samples from each province are in accordance with the population size in that constituency.

3.2.2 Sample Selection

The selection of the survey respondents followed a two-stage stratified sampling approach, with the number of voters in each city serving as a proxy for the adult population, and with each city's share of the total sample representative of its total population share. The team conducted a pilot survey to test the survey questionnaire. This pilot survey exercise was monitored through routine spot checks to ensure adequate quality and accuracy in data collection. The Survey tool was finalized after incorporating inputs from pre-testing, Adam Smith International and Interflow the media partner for the program.

Table: 1
City Wise Sample Selection

Selected/ targeted Cities	Most Prominent Features	NA Constituencies	Frequency	Percent
Gujranwala	Metropolitan city. Large SME sector. Political importance. Diverse range of business both local and exports	7	255	13.5
Islamabad & Rawalpindi (twin cities)	National capital twin cities. Large concentration of income class/ government employees	2	69	3.6
Karachi	Largest contribution to GDP. Most populous city. Widest tax base.	20	735	38.8
Lahore	Punjab Large city. Centre of urban development projects. Industrial sector large household income disparity	13	439	23.2
Peshawar	Northern part of country. Huge natural resource potential.	4	145	7.7
Rawalpindi	Twin city. Largest concentration of government employees	7	250	13.2
Total		53	1893	100.0

Source: Author's Description

3.2.3 Statistical Significance of Sample

The unit of analysis in this study is the individual taxpayer from all the big metropolitan cities of Pakistan. With the total urban population represented by the chosen metropolitan cities standing at approximately 43.5 million individuals, we have utilized a sample of 2,100 respondents. This sample size is more than satisfactory for the statistical accuracy of the survey exercise. The margin of error for the sample is 2.1 % which is well below the desired 5% (the margin of error is the amount of error that you can tolerate). The confidence level of 99% (the confidence level is the amount of uncertainty you can tolerate) only required minimum sample size of 664 respondents. Hence, the sample size of 2,100 respondents is considered statistically significant and sufficient. To make the sample representative, data is collected from different backgrounds, sectors, income groups, education levels, and working experiences.

3.3 Variable construction

Voluntary Tax Compliance is taken as paying taxes accurately, fully, and timely without the intervention of tax enforcement authority. It is developed following a modified version of Kirchler and Wahl (2010) method of the 6 Likert scales ranging from 1=Agree strongly to 6=don't know. Some more studies which also used include: (Murphy & Torgler, 2004; Verboon & Van Dijke, 2007).

Knowledge about the tax is "the ability possessed by taxpayers regarding rights and obligations of taxpayers so that taxpayers can avoid taxation sanctions." Tax knowledge is modified and based on (Y.-S. Chen & Cheng, 2010) five Likert scales where 5 =Very Strongly and 1=Don't Know.

Tax fairness believes in the taxpayer the transparency and justice on the tax which is imposed on them. Perception of Tax Fairness is taken from modified measures from Gruber and Saez (2002) which involve horizontal and vertical equity. The indicators which are used were the questions asked from taxpayers for the judgment of procedural and distributive fairness a Likert scale of 1 to 6 where the smallest number represents 'agree strongly' to the highest number shows 'Don't know'. Tax simplicity is defined by indicators with 1=yes and 2=no. 'Yes' is taken as simplicity of the tax system. Tax awareness was adapted from Devos (2013). 16 items, chosen from a review of literature,

were used in the measure of tax awareness where each item was responded on 5-points Likert scale from 1= strongly agreed to 5= don't know.

Social norms are measured based on 10 items each measured at a Likert scale from 1 to 6 where scale 5 is taken as the highest level of social norms. Scale 6=don't know. The questions used in the measurement of the social norm are taken from Bobek, Roberts, and Sweeney (2007) and Bobek, Hageman, and Kelliher (2013).

The variables which are used in the study were developed from scales reported in various studies from literature review and selected based on validity and reliability criteria. The study does not incorporate the demographic variables in the analysis as results were not significantly different with or without it in a study by Gobena and Van Dijke (2016) and the same experience was repeated in the present study. Appendix 1 provides the complete details of the indicators used in the construction of the variable.

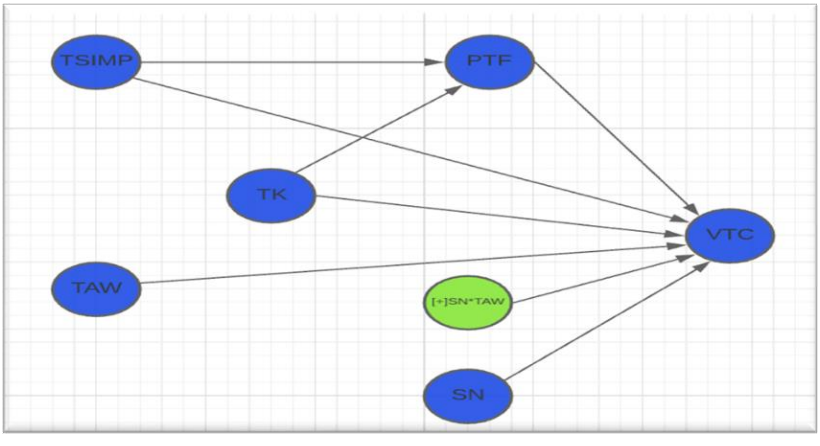
The initial analysis is made by using Statistical Package for Social Sciences (SPSS), version 20.0. The analysis includes variable construction, missing data, and descriptive analysis. For the process of hypothesis testing and estimation of Structural equation Modeling, Smart PLS 3.0 is employed. Smart PLS 3.0 SEM can be used to test hypotheses along with mediation and moderation effect simultaneously. SEM technique can estimate the direct and indirect effect of the latent variables (inner model) along with the estimation of measurement (outer model). It is used to estimate the coefficient of explained variance out of each variable.

SEM estimated the direct effect of tax knowledge (TK), tax awareness (TAW), and tax simplicity (TSIMP) on voluntary tax compliance (VTC) behavior. It is used in the estimation of the influence of perception of tax fairness (PTF) as the mediator between voluntary tax compliance (as a dependent variable) and tax simplicity (TSIMP) and tax knowledge (TK) respectively (as independent variables). The model also hypothesized that social norms (SN) moderate the link between tax awareness (TAW) and voluntary tax compliance (VTC). SEM provided the estimates of this relationship for testing the statistical significance of the claim. Figure 1 shows the conceptual and empirical model. In SEM, the direction of the arrow defines the nature of the variable as

independent and dependent. The present conceptual model has 9 hypotheses to be tested. TSIMP, TAW, TK, SN, PTF are independent constructs that determine VTC as a dependent construct. PTF plays the role of mediator in defining the link between TK, TSIMP, and VTC. SN moderates the link between TAW and VTC.

Figure: 1

Conceptual and Empirical Model of Voluntary Tax Compliance



The conceptual model is presented in the mathematical model below. There are two types of equations: The measurement model and the structural model. Measurement models consist of all the equations which are used by the PLS-Algorithm in finding the scores of latent constructs which are 6 in our case. It is followed by equations of the structural model which are estimated b Boot Strapping and the result will reveal that wheatear a particular hypothesis is accepted or rejected. The description and indicators which are used in the measurement of constructs are provided in Appendix. The indicators are selected from the review of the literature.

3.4 Structural Equation Model (SEM)

3.4.1 Measurement Model (Outer Model)

The following equation represents the measurement model for each latent variable. These equations will help in finding latent scores. The estimation of the latent score will take place by PLS-Algorithm.

$$TSIMP = \sum_{j=1}^{k} b_{j,tsimp} TSIMP_j + \delta_j \quad (1)$$

$$TK = \sum_{j=1}^{k} b_{j,tk} TK_j + \delta_j \quad (2)$$

$$TAW = \sum_{j=1}^{k} b_{j,taw} TAW_{j,taw} + \delta_j \quad (3)$$

$$PTF = \sum_{j=1}^{k} b_{j,ptf} PTF_j + \delta_j \quad (4)$$

$$SN = \sum_{j=1}^{k} b_{j,sn} SN_j + \delta_j \quad (5)$$

$$VTC = \sum_{j=1}^{k} b_{j,vtc} VTC_j + \delta_j \quad (6)$$

3.4.2 Structural Equation Model (Inner Model)

The following equations represent the structural equation model or inner model. These equations will be estimated by the bootstrap method. The coefficient of the equation will be used to test all direct and indirect hypotheses.

$$VTC = \alpha_{vtc} + \beta_{ptf} PTF + \beta_{tsimp} TSIMP + \beta_{tk} TK + \beta_{taw} TAW + \beta_{sn} SN + \beta_1 TAW * SN + \varepsilon_1 \quad (7)$$

$$PTF = \alpha_{ptf} + \beta_{tsimp\_f} TSIMP + \beta_{tk\_f} TK + \varepsilon_2 \quad (8)$$

4 Estimation Results

4.1 Evaluation of PLS-SEM model with Reflective Measures (Outer Model)

The measurement model is estimated using PLS-Algorithm and the results are presented in Figure 2 below and discussed in this section.

4.1.1 Indicator Reliability

Indicator reliability is used to establish the reliability of the latent variable to get a better measurement model. Main reliability tests include Cronbach's Alpha test, Composite Reliability, Rho A, and Average Variance Extracted (AVE).

To check indicator reliability, outer factor loadings are examined. The Square of each loading defines the indicator's reliability. The acceptable outer factor loadings should be 0.7 or above. In exploratory research, 0.4 and above outer factor loading value is acceptable (Hulland, 1999). Another check for reliability is internal consistency reliability. It is checked through the value of the Composite Reliability test and the acceptable value for the test is 0.7 and above. In the case of exploratory research, 0.6 or higher is acceptable (Bagozzi & Yi, 1988).

Figure: 2
Results of Partial Least Square - Algorithm

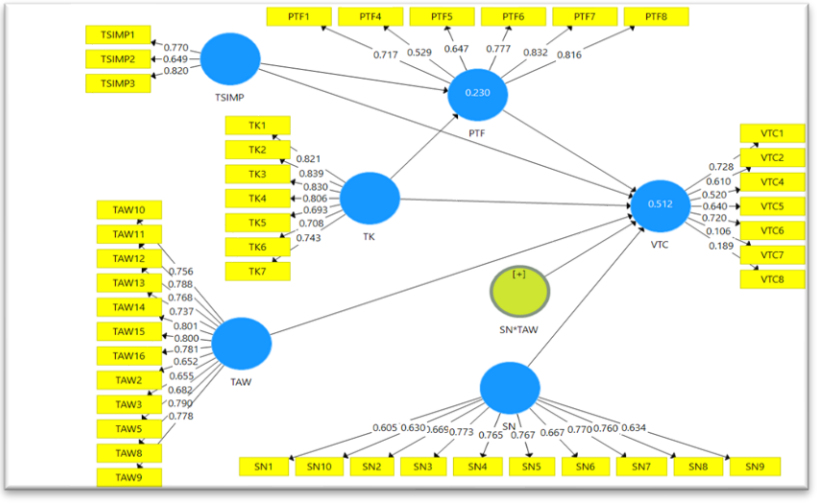


Table 2 clearly shows that all the values of indicator reliability are above the minimum required value of 0.4 in the case of the confirmatory model and most of these values are above than preferred value i.e., 0.7.

Table: 2
Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
PTF	0.818	0.839	0.868	0.529
SN	0.9	0.956	0.908	0.5
TAW	0.93	0.943	0.939	0.564
TK	0.892	0.903	0.915	0.608
TSIMP	0.613	0.638	0.793	0.563
VTC	0.621	0.698	0.718	0.307

Source: Author's Calculations

4.1.2 Internal Consistency Reliability

To check for internal consistency reliability; it shows how close the link the items have as a group. The high value of alpha shows the closeness of items, but it does not show the uni-directionality. To check for uni-directionality, further tests are required. Cronbach Alpha measures the correlation of the items and average inter-correlation among them. Cronbach Alpha is used but it is considered a conservative measure in PLS-SEM. Literature suggests that it can be replaced by Composite

Reliability (Bagozzi & Yi, 1988; Hair, Black, Babin, & Anderson, 2014). Its value should be greater than 0.6, as can be seen from the above table that all the indicators have a very high value of Composite Reliability.

Rho_A coefficient is another measure of reliability that is used in literature instead of Cronbach Alpha and Composite Reliability to check for the reliability of PLS constructs scores (Dijkstra & Henseler, 2015). Generally, rho_A value of 0.7 or above is taken as measure of composite reliability. Rho_A value should not be equal to 1 as it is abnormal.

4.1.3 Convergent Validity:

The convergent validity of the construct is tested by the Average Variance Extracted (AVE) test. Literature reports that the acceptable value of AVE is 0.5 or higher (Bagozzi & Yi, 1988) and 0.4 which reflects that more than 40% of the variance of a construct is reflected by the indicators (Hair, Ringle, & Sarstedt, 2013). From Table 2, all constructs satisfy the criteria, and the value of AVE is above 0.5.

4.1.4 Discriminant Validity

Discriminant validity is checked to discriminate between the measures of dissimilar constructs. It is checked to ensure that reflective constructs have the strongest relation with its own indicators in comparison to indicators of other constructs (Hair, Risher, Sarstedt, & Ringle, 2019). There are three criteria to check for it, which are Fornell-Lacker Criterion, Heterotriat-Monotrait ration, and Cross-Loadings (Hair et al., 2013).

A classical approach by Fornell and Larcker (1981), proposed that the square root of AVE for each construct can be used to measure discriminant validity if this value is larger than the correlation value among other latent variables (Ab Hamid, Sami, & Sidek, 2017). So, discriminant validity is confirmed if the diagonal value (which is the square root of AVE) is greater than all proceeding values in that column (which represents that correlation between two constructs). Table 3 shows that Fornell-Lacker criteria of discriminant validity are met as all diagonals (posted in bold) are comparatively very high values, which should be more than 0.6 (Hair et al., 2014) as compared to reaming values in the same column. The test will not be applied for SN*TAW as it is not a construct in the model. Discriminant validity is established for PTF, SN, TAW, TK, TSIMP, and VTC.

The second criterion for discriminant validity is Heterotrait-monotrait (HTMT), which is a modern approach to test discriminant validity, and it was proposed by (Henseler, Hubona, & Ray, 2016).

Table:3

Discriminant Validity-Fornell-Lecker Criterion

	PTF	SN	SN*TAW	TAW	TK	TSIMP	VTC
PTF	0.727						
SN	0.353	0.707					
SN*TAW	0.315	0.149	1				
TAW	0.253	0.137	0.025	0.751			
TK	0.337	0.112	0.072	0.805	0.779		
TSIMP	0.435	0.149	0.181	0.237	0.338	0.75	
VTC	0.606	0.351	0.238	0.368	0.422	0.533	0.554

Source: Author's Calculations

Discriminant validity is established if HTMT value is less than 0.9. The Table 4 shows that discriminant validity is established for all the constructs.

Table: 4

Discriminant Validity-HTMT

	PTF	SN	SN*TAW	TAW	TK	TSIMP
PTF						
SN	0.329					
SN*TAW	0.351	0.125				
TAW	0.275	0.139	0.049			
TK	0.383	0.119	0.073	0.883		
TSIMP	0.587	0.155	0.225	0.278	0.44	
VTC	0.709	0.362	0.3	0.465	0.527	0.772

Source: Author's Calculations

Another criterion for discriminant validity is factor loadings. Factor's loadings were generated by Smart PLS 3.0 as it can be seen in Table 5. Each loading is greater than 0.6 and discriminant validity is established (Hair et al., 2014).

4.1.5 Multicollinearity Assessment

In-depth analysis of PLS-SEM required the multicollinearity check among the latent constructs in the inner model especially if the path model is complex. This check makes a researcher decide if the latent variables should be merged or deleted. The formula for VIF is as follows

$$VIF = \frac{1}{tolerance}$$

As a rule of thumb, VIF value should be lower than 5 which consequently means that the accepted level of tolerance is 0.2.

Table: 5

Factor (Outer) Loadings

	SN	SN*TAW	TAW	TK	TSIMP	VTC
PTF1						
PTF4						
PTF5						
PTF6						
PTF7						
PTF8						
SN1	0.605					
SN10	0.63					
SN2	0.669					
SN3	0.773					
SN4	0.765					
SN5	0.767					
SN6	0.667					
SN7	0.77					
SN8	0.76					
SN9	0.634					
TAW * SN		0.999				
TAW10			0.756			
TAW11			0.788			
TAW12			0.768			
TAW13			0.737			
TAW14			0.801			
TAW15			0.8			
TAW16			0.781			
TAW2			0.652			
TAW3			0.655			
TAW5			0.682			
TAW8			0.79			
TAW9			0.778			
TK1				0.821		
TK2				0.839		

TK3	0.83		
TK4	0.806		
TK5	0.693		
TK6	0.708		
TK7	0.743		
TSIMP1		0.77	
TSIMP2		0.649	
TSIMP3		0.82	
VTC1			0.728
VTC2			0.61
VTC4			0.52
VTC5			0.64
VTC6			0.72
VTC7			0.106
VTC8			0.189

Source: Author's Calculations

Table 6 indicates the values of VIF for all the constructs used in the path model. All the constructs satisfy the criteria and VIF values are much lower than 5.

Table: 6
VIF

Indicators	VIF	Indicators	VIF	Indicators	VIF
PTF1	1.447	TAW10	2.692	TK1	2.672
PTF4	1.287	TAW11	2.681	TK2	2.917
PTF5	1.456	TAW12	2.621	TK3	2.795
PTF6	1.752	TAW13	2.016	TK4	2.53
PTF7	2.415	TAW14	3.014	TK5	1.545
PTF8	2.211	TAW15	3.095	TK6	1.857
SN1	1.98	TAW16	2.658	TK7	1.833
SN10	1.462	TAW2	1.413	VTC1	1.182
SN2	2.277	TAW3	1.587	VTC2	1.177
SN3	2.679	TAW5	1.539	VTC4	1.21
SN4	2.342	TAW8	2.413	VTC5	1.421
SN5	2.41	TAW9	2.81	VTC6	1.51
SN6	1.93	TSIMP1	1.237	VTC7	2.585
SN7	2.47	TSIMP2	1.166	VTC8	2.589
SN8	2.536	TSIMP3	1.284		
SN9	1.354				

Source: Author's Calculations

4.2 Elevation of Structural Model

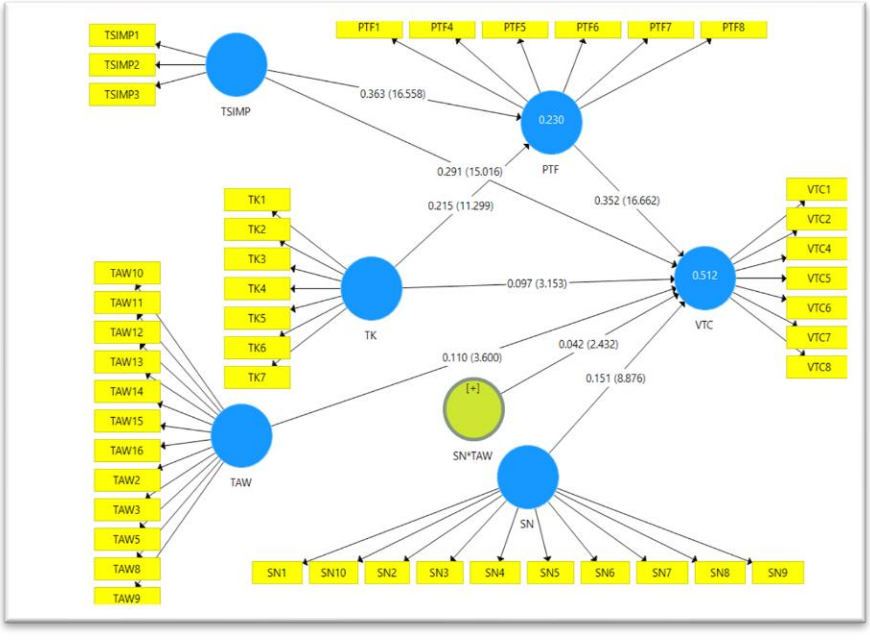
The inner model or structural equation model is estimated through bootstrapping technique. In this procedure where a subsample of a large size (e.g., 5000) is generated through original samples with replacement and used for the calculation of bootstrap path coefficients, standard error, and consequently bootstrap t-values for the model. These values are used the test significance of the inner model and to test the hypothesis concerning the path model. Evaluation of structural equation model based on a test of significance of the path coefficients, and Effect Size (f2) (Hair et al., 2014).

4.2.1 Coefficient of Determination- R^2 Test

Figure 3 shows that the coefficient of determination, R^2, is 0.512 for the Voluntary Tax Compliance (VTC) as the dependent variable. It shows that TSIMP, TK, PTF, TAW, and SN explain 51% of the variance of VTC. TSIMP and TK explain 23% of the variance of PTF.

Figure: 3

Results of Partial Least Square – Bootstrapping



4.2.2 Model's f^2 Effect Size

Effect size f^2 shows how much latent exogenous variables contribute to determining the R^2 value endogenous latent variable

of the model. So f^2 test measures the strength of the relationship between latent a variable. Effect size can be the small, medium or large when f^2 values is 0.02, 0.15, and 0.35 respectively (Hair et al., 2014). Henseler and Chin (2010) showed that reporting size effect is equally important along with the discussion of the test of significance. As per the results of f^2 provided in Table 7, PTF and TSIMP have a medium effect size on VTC whereas the effect size of SN, TAW, and TK have comparatively lesser medium size effect.

Table: 7

F Square (f^2)

Variables	Relative Effect Size (f2)	Assessment
Perception of tax Fairness	0.165	Medium
Social Norms	0.04	Small
Tax Awareness	0.009	Small
Tax Knowledge	0.006	Small
Tax Simplicity	0.132	Medium

Source: Author's Calculations

4.2.3 Significance of Path Coefficients

The path co-efficient values show that all the variables have a positive and highly significant effect on VTC (Table 8; Figure 3). The results show that the coefficient linking PTF and VTC is 0.352 which is highly significant as the t value is 16.66. Next variable which shows a strong positive relation with VTC is TSIMP whose linking coefficient is 0.291 with high significance. Similarly, the influence of SN and TAW is 0.151 and 0.129 respectively on VTC. Some more direct effects in the model also link the TK to PTF (0.215) where TSIMP effect on PTF is higher (0.363). All the coefficients are highly significant and positively linked. 97% confidence interval does not have any change in the sign which further adds to the strength of the relationship.

Table: 8

Bootstrapping Results

Path	Original Sample	P-values	Confidence Interval	
PTF → VTC	0.35(16.66)	0	0.31	0.39
SN → VTC	0.15(8.88)	0	0.12	0.19
SN*TAW → VTC	0.042(2.43)	0.015	0.01	0.08
TAW → VTC	0.11(3.6)	0	0.05	0.17

TK → PTF	0.22(11.30)	0	0.18	0.25
TK → VTC	0.10(3.15)	0.002	0.04	0.16
TSIMP → PTF	0.36(16.56)	0	0.32	0.41
TSIMP → VTC	0.29(15.02)	0	0.25	0.33

Source: Author's Calculations

4.2.4 Mediation Effect

To check for the mediation effect of PTF, the indirect effect of TK on VTC as well as the effect of TSIMP in VTC are tested through indirect effect. All these indirect effects are positive and significant Moreover, the PTF is taken as the mediator between TK and TSIMP, which also is affecting VTC positively. The results also indicate that PTF is a significant mediator. Tax Knowledge (TK) and Tax Simplicity (TSIMP) have a positive effect on Voluntary Tax Compliance (VTC) directly and indirectly through Perception of Tax Fairness (PTF) which is playing the role of mediator between TK, TCOMP, and VTC. Similarly, Tax Awareness (TAW) affect VTC directly as well as Social Norms (SN) enhances the effect of these variables positively as a moderator. All the variables are contributing significantly to explaining the variance of VTC.

Table:9

Mediating Effect of Perception of Tax Fairness

Path	Original Sample	P values	Confidence Interval		Hypothesis	Decision	Direct/indirect
TK → VTC	0.10 (3.15)	0.02	0.04	0.16	H1	Accepted	Direct
PTF → VTC	0.22 (11.30)	0	0.18	0.25	H2	Accepted	Direct
TK → PTF	0.35 (16-66)	0	0.31	0.39	H10	Accepted	Direct
TK → PTF → VTC	0.08 (9.13)	0	0.06	0.09	H3	Accepted	Indirect Effect
TSIMP → VTC	0.29 (15.02)	0	0.25	0.33	H4	Accepted	Direct
TSIMP → PTF	0.36 (16.13)	0	0.32	0.41	H5	Accepted	Direct
PTF → VTC	0.35 (16.66)	0	0.31	0.39	H10	Accepted	Direct
TSIMP → PTF → VTC	0.13 (11.06)	0	0.11	0.15	H6	Accepted	Indirect Effect

Source: Author's Calculations

Note: t statistics are in parenthesis

The results are further strengthened due to the reason that the confidence interval has no change in the sign of its lower and upper bound at a 5% level of significance.

4.2.5 Moderating effect of Social Norm

The interaction between SN and TAW has significant positive effect. The effect of SN is taken as a moderator between TAW and VTC which is also affecting VTC positively and significantly. Moderators play the role of catalyst in the relationship of two variables. This study tries to figure out how TAW and SN affect VTC. Moreover, SN as a moderator further enhances the positive effect of Taw and VTC. The results indicate that a society with higher social norms will have more voluntary tax compliance if special efforts are made to make them aware of tax benefits. This is a message to policymakers that if they can come up with policies that craft a society with social norms and tax awareness, it may result in achieving higher VTC.

Table: 10

Moderating Effect of Social Norm

Path	Original Sample	P values	Confidence Interval		Hypothesis	Decision	Direct/ Indirect
TAW → VTC	0.11 (3.6)	0	0.05	0.17	H7	Accepted	Direct
SN → VTC	0.15 (8.88)	0	0.12	0.19	H8	Accepted	Direct
SN*TAW → PTF	0.042 (2.43)	0.015	0.01	0.08	H9	Accepted	Direct

Source: Author's Calculations

5 Discussion

The first question which we tried to answer in this study was "How do the attributes of tax awareness, tax simplicity, tax knowledge, social norms, and perception of tax fairness influence the voluntary tax compliance behavior?" The main purpose of the study was to analyze the factor which influences the taxpayers' behavior toward voluntary tax compliance. The available literature does not reach a certain conclusion. There are mixed results as far as the effect of different variables is concerned (Andreoni et al., 1998). The results of this study provide the variables which have a positive effect on tax compliance.

About tax simplicity, it is evident that tax simplicity makes taxpayers understand the system well. It has two effects. First, tax simplicity influences voluntary tax compliance directly as can be

seen in our case tax simplicity (β= 0.29, t= 14.02) has affected positively voluntary tax compliance. The reason is that removing complexity provides a platform for the taxpayer to judge the system. Moreover, there does not involve any extra cost for hiring tax consultants which enhances the willingness of the taxpayer to comply. Second, tax simplicity influences the perception of the taxpayer about the fairness of the tax system which further affects the taxpayer's behavior towards voluntary tax compliance positively. Authors believe that perception of tax fairness is a strong variable that effect voluntary tax compliance. There is a lot of supporting evidence from the literature such as Tehulu and Dinberu (2014) in Ethiopia explored that perception of tax fairness effect the behavior of taxpayers positively and significantly. Supporting evidence was reported by Palil and Mustapha (2011) from Malaysia, who found that tax fairness effect tax compliance significantly. Therefore, perception of fairness was taken into consideration as one of the factors determining tax compliance voluntarily. The perception of fairness was taken from the theory of equity and the theory says that if people do not find fairness in the system they will seek to adjust. If the tax system is taken as unjust, it possibly is due to the complexity of the system and lack of tax knowledge.

The present study investigated this channel. By taking the perception of fairness as the mediator between tax simplicity and tax knowledge, we tried to investigate how these factors contribute to the development of the perception of fairness and consequently how the perception of fairness will affect voluntary tax compliance. The results of the study strongly justify the equity theory as can be seen that the effect of tax knowledge on the perception of tax fairness is positive and significant (β=0.22, t= 11.3). The link between perception of tax fairness and voluntary tax compliance is also positive and significant (β=0.35, t= 16.6).

Similarly, the same strong effect can be seen in the case of the perception of fairness as the mediator between tax simplicity and voluntary tax compliance. So, this also provides supporting evidence to research question 2 which was, "whether the perception of tax fairness plays the role of mediator in defining the indirect link between voluntary tax compliance as the dependent variable and tax simplicity and tax knowledge as independent variables?" In a study by (Murphy & Torgler, 2004)

in Australia, it was examined that the simplicity of the tax system also has an effect on the decision of taxpayers about the proposed tax policy. They start believing in the significance and impotence of the taxes and consider it as indispensable for the welfare of the poor and crucial for the economy. They consider taxes evasion as a crime. One more piece of evidence from Malaysia says that tax compliance can be built by making the tax system fair (Mukhlis, Utomo, & Soesetyo, 2014).

The results not only provide support to the determinants of voluntary tax compliance but also emphasize the role of fairness in the tax system. Perception of fairness has a positive effect on voluntary tax compliance. The in-depth examination reveals that the tax system fairness has a significant positive correlation with tax compliance as found in many studies (Faizal & Palil, 2015; Gilligan & Richardson, 2005) that made the comparison in tax systems between New Zealand and Malaysia.

The third question that this study tried to answer was, "whether social norms moderate tax awareness and voluntary tax compliance?" The present study provides empirical support to a very heated debate in the literature on tax compliance regarding "why pay taxes if there is an opportunity to evade?" posed by Pyle (1990). The variable of social norms is defined as the intrinsic nature of human beings towards compliance. There are many studies that report that people pay taxes as they are motivated to do so. Their behavior cannot be defined by economic rationality where people are self-interested. The theories from social psychology (heuristic theory, fairness theory) and sociology (theory of planned behavior), justifies the intrinsic motivation of taxpayer toward voluntary tax compliance.

The present study strongly supports the idea as social norms are found to have a significant positive effect on voluntary tax compliance (β=0.15, t= 8.88). Similarly, tax awareness (which is defined as the level of taxpayer understanding of tax system) also shows a significant positive effect on voluntary tax compliance (β= 0.11, t = 3.6). Tax awareness was also found to be intensified with the moderating effect of social norms on voluntary tax compliance, in a positive direction. The interaction term between social norms and tax awareness was found as a significant and positive coefficient (β=0.042, t= 3.3). So, it can be concluded that social norms do affect tax compliance directly.

Moreover, the influence of social norms on tax compliance gets stronger with the interaction of tax awareness. This result is supported by literature as Cummings, Martinez-Vazquez, and McKee (2006) concluded in one of his studies he found that taxpayers consider the compliance of tax as their commitment and as repayment to the community. So, we can conclude by saying that taxpayers are not always behaving selfish, self-centered, and rational but they also have guiding principles of morality, fairness, and altruism.

6 Conclusion

The study investigated that the tax knowledge, tax awareness, social norms, tax simplicity, and perception of tax fairness are the determinants of voluntary tax compliance with positive effect. In case of Pakistan, there are very few research conducted which investigated the determinants from psychology and sociology influencing tax compliance attitude. Most of the work in this field focus on economic factors (penalty, audits, and tax rate etc.). The study proposed that economic factors along with psychological factors (tax simplicity and perception of tax fairness) and sociological factors (social norms) enhances tax compliances directly as well as indirectly as social norm moderates the link of tax awareness and voluntary tax compliance.

The simplicity of tax system and tax knowledge develops a sense of fairness of tax system in the mind of people and they start believing tax compliance as a civic responsibility of repayment to the community is a return to the services they enjoyed from society. This generates an inbuilt motivation to comply tax. Human beings, intrinsically, comply tax if they believe the fairness of tax system. The study provides evidence for the support of enhancement of tax knowledge and simplification of the tax system. So, it concludes that social and psychological factors contribute to tax compliance decisions along with economic factors. Tax authorities can improve tax system by incorporating the ease in tax system, fair treatment to all the taxpayers. The taxpayer awareness towards paying tax as civic responsibility can bring motivation and tax compliance can drastically be increased.

7 Policy Implication and Recommendation

This study provides an essential contribution to the existing literature by forcing the need of society with trust-based tax system with fairness and justice. It also shows that there is a need to develop a society with strong social norms and fairness. It can only be achieved by educating people so that they can judge the government policies and can become responsible citizens.

It is recommended that there should be endeavors at local and national level to create a society which can understand that how tax can boost the economy. Such trainings can take place at educational institutes, surveys, talk shows. Moreover, if government can make a tax system where people with tax compliance can be rewarded and those who evade can be punished, it will create a sense of responsibility towards tax compliance. Media can play a vital role to achieve this objective. Its implementation is only possible if judicial system is strong and fair.

We recommend that, in country like Pakistan, there is a strong need to conduct a study at national level which can explore that how developing trust on tax authority, improving education, knowledge about tax system and tax enforcement policies can contribute towards better tax compliance.

8 Limitation and Future Research

The present study focuses on very limited determinants which can influence the tax compliance. This debate is quite extensive as tax compliance cannot be achieved until judiciary is strong and fair. The role of incentive in case of compliance and punishments for evasion cannot be denied. Moreover, the model of tax compliance should also contain the hierarchy of tax structure from top level of government to the bottom level that is taxpayer. Taxpayer compliance behavior is also depending on the political situation of an economy. The society where people have trust on government policies, more compliance may take place in comparison to those who don't have trust on government policies. So, there is a need to develop a tax compliance model which not only incorporates the economic, sociological, and psychological determinants which influence the taxpayers' compliance behavior, but it should also involve the punishment and incentive mechanism along with hierarchy in which taxpayer interacts with

government institutions and judiciary system. This opens a door for future research in this field.

References

Ab Hamid, M., Sami, W., & Sidek, M. M. (2017). *Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion.* Paper presented at the Journal of Physics: Conference Series.

Alam, M. F. (2021). *Determinants of Tax Compliance Behavior in Bangladesh: The Case of Individual Tax Payers* (Doctoral dissertation, © University of Dhaka).

Allingham, M. G., & Sandmo, A. (1972). Income tax evasion: A theoretical analysis. *Taxation: critical perspectives on the world economy, 3*, 323-338.

Alm, J. (1991). A perspective on the experimental analysis of taxpayer reporting. *The Accounting Review, 66*(3), 577-593.

Ameen, A. A., & Ahmad, K. (2017). Information systems strategies to reduce financial corruption *Leadership, Innovation and Entrepreneurship as Driving Forces of the Global Economy* (pp. 731-740): Springer.

Andreoni, J., Erard, B., & Feinstein, J. (1998). Tax compliance. *Journal of economic literature, 36*(2), 818-860.

Asnawi, M. (2013). The impact of audit rate, perceived probability of audit on tax compliance decision:(A Laboratory Experiment Study). *Journal of Indonesian Economy and Business: JIEB., 28*(2), 286-301.

Awan, A. G., & Hannan, A. (2014). The Determinants of tax evasion in Pakistan: a case-study of Southern Punjab. *International Journal of Development and Economic Sustainability, 2*(4), 50-69.

Azmi, A. A. C., & Perumal, K. A. (2008). Tax fairness dimensions in an Asian context: The Malaysian perspective. *International Review of Business Research Papers, 4*(5), 11-19.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the academy of marketing science, 16*(1), 74-94.

Batrancea, L., Nichita, A., Olsen, J., Kogler, C., Kirchler, E., Hoelzl, E., Fuller, J. (2019). Trust and power as

determinants of tax compliance across 44 nations. *Journal of Economic Psychology, 74*, 102191.

Becker, G. S. (1968). Crime and punishment: An economic approach *The economic dimensions of crime* (pp. 13-68): Springer.

Bobek, D. D., Hageman, A. M., & Kelliher, C. F. (2013). Analyzing the role of social norms in tax compliance behavior. *Journal of Business Ethics, 115*(3), 451-468.

Bobek, D. D., Roberts, R. W., & Sweeney, J. T. (2007). The social norms of tax compliance: Evidence from Australia, Singapore, and the United States. *Journal of Business Ethics, 74*(1), 49-64.

Casal, S., Kogler, C., Mittone, L., & Kirchler, E. (2016). Tax compliance depends on voice of taxpayers. *Journal of Economic Psychology, 56*, 141-150.

Castro, M. F., & Rizzo, I. (2014). Tax compliance under horizontal and vertical equity conditions: An experimental approach. *International Tax and Public Finance, 21*(4), 560-577.

Chau, K. K. G., & Leung, P. (2009). A critical review of Fischer tax compliance model: A research synthesis. *Journal of Accounting and Taxation, 1*(2), 34-40.

Chen, X., Hu, N., Wang, X., & Tang, X. (2014). Tax avoidance and firm value: evidence from China. *Nankai Business Review International, 5*(1), 25-42.

Chen, Y.-S., & Cheng, C.-H. (2010). A Delphi-based rough sets fusion model for extracting payment rules of vehicle license tax in the government sector. *Expert Systems with Applications, 37*(3), 2161-2174.

Cummings, R. G., Martinez-Vazquez, J., & McKee, M. (2006). Experimental evidence on mixing modes in income tax evasion. *Public Finance Review, 34*(6), 663-686.

Davis, J. S., Hecht, G., & Perkins, J. D. (2003). Social behaviors, enforcement, and tax compliance dynamics. *The Accounting Review, 78*(1), 39-69.

Devos, K. (2013). *Factors influencing individual taxpayer compliance behaviour*: Springer Science & Business Media.

Devos, K., & Zackrisson, M. (2015). Tax compliance and the public disclosure of tax information: An Australia/Norway comparison. *eJTR, 13*(1), 108-129.

Dijkstra, T. K., & Henseler, J. (2015). Consistent partial least squares path modeling. *MIS quarterly, 39*(2), 297-316.

e Hassan, I., Naeem, A., & Gulzar, S. (2021). Voluntary tax compliance behavior of individual taxpayers in Pakistan. *Financial Innovation, 7*(1), 1-23.

Eriksen, K., & Fallan, L. (1996). Tax knowledge and attitudes towards taxation; A report on a quasi-experiment. *Journal of Economic Psychology, 17*(3), 387-402.

Faizal, S. M., & Palil, M. R. (2015). Study on fairness and individual tax compliance in Malaysia: Preliminary findings. *International Journal of Business, Economics and Law, 8*(1), 74-79.

Faridi, M. Z., Sheikh, M. R., & Khan, M. S (2021). Economic Growth in Pakistan–A Historic Perspective. *Journal of Historical Studies, 7*(1), 175-189.

Ferry, M. (2015). Debt Relief, Tax Effort, and Fiscal Incentives. The Donkey and the Carrot Revisited. https://www.semanticscholar.org/paper/Debt-Relief%2CTax-Effort%2C-and-Fiscal-Incentives.-The-Ferry/ede018ec35a335e0bcd15873c 9678d38934852f4

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research, 18*(1), 39-50.

Frey, B. S., & Jegen, R. (2001). Motivation crowding theory. *Journal of economic surveys, 15*(5), 589-611.

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of marketing research, 25*(2), 186-192.

Gilligan, G., & Richardson, G. (2005). Perceptions of tax fairness and tax compliance in Australia and Hong Kong-a preliminary study. *Journal of financial crime, 12*(4), 331-343.

Gobena, L. B., & Van Dijke, M. (2016). Power, justice, and trust: A moderated mediation analysis of tax compliance

among Ethiopian business owners. *Journal of Economic Psychology*, *52*, 24-37.

Gruber, J., & Saez, E. (2002). The elasticity of taxable income: evidence and implications. *Journal of public Economics*, *84*(1), 1-32.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate data analysis: Pearson new international edition. *Essex: Pearson Education Limited*, *1*(2).

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning*, *46*(1-2), 1-12.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review 31*(1), 2-24.

Hassan, M. S., Mahmood, H., Tahir, M. N., Yousef Alkhateeb, T. T., & Wajid, A. (2021). Governance: A Source to Increase Tax Revenue in Pakistan. *Complexity*, *2021*.

Henseler, J., & Chin, W. W. (2010). A comparison of approaches for the analysis of interaction effects between latent variables using partial least squares path modeling. *Structural equation modeling*, *17*(1), 82-109.

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial management & data systems 116*(1), 2-20.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic management journal*, *20*(2), 195-204.

James, S., & Alley, C. (2002). Tax compliance, self-assessment and tax administration.

Jimenez, P., & Iyer, G. S. (2016). Tax compliance in a social setting: The influence of social norms, trust in government, and perceived fairness on taxpayer compliance. *Advances in accounting*, *34*, 17-26.

Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and social psychology bulletin*, *26*(8), 1002-1012.

Kemal, M. A. (2010). Underground economy and tax evasion in Pakistan: A critical evaluation. *Working Papers & Research Reports*, RR No. 184.

Kirchler, E., Hoelzl, E., & Wahl, I. (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. *Journal of Economic Psychology, 29*(2), 210-225.

Kirchler, E., Muehlbacher, S., Kastlunger, B., & Wahl, I. (2010). Why pay taxes? A review of tax compliance decisions. *Developing alternative frameworks for explaining tax compliance, 59*.

Kirchler, E., & Wahl, I. (2010). Tax compliance inventory TAX-I: Designing an inventory for surveys of tax compliance. *Journal of Economic Psychology, 31*(3), 331-346.

Kornhauser, M. E. (2006). A tax morale approach to compliance: Recommendations for the IRS. *Fla. Tax Rev., 8*, 599.

Langevoort, D. C. (1998). Behavioral theories of judgment and decision making in legal scholarship: A literature review. *Vand. L. Rev., 51*, 1499-1540.

Lefebvre, M., Pestieau, P., Riedl, A., & Villeval, M. C. (2015). Tax evasion and social information: an experiment in Belgium, France, and the Netherlands. *International Tax and Public Finance, 22*(3), 401-425.

Lopez-de-Silanes, F., La Porta, R., Shleifer, A., & Vishny, R. (1997). Trust in large organizations. *The American Economic Review, 87*(2), 333-338.

Mollanazari, M., Abouhamzeh, M., & Mirzaee Abbas Abad, M. M. (2016). organizational culture and corporate tax compliance (The Case study of large taxpayers units). *Accounting and Auditing Review, 23*(1), 1-18.

Mukhlis, I., Utomo, S. H., & Soesetyo, Y. (2014). Increasing tax compliance through strengthening capacity of education sector for export oriented SMEs handicraft field in East Java Indonesia. *European Scientific Journal, 10*(7), 170-184.

Murphy, K., & Torgler, B. (2004). Tax morale in Australia: what shapes it and has it changed over time? *Journal of Australian taxation, 7*(2), 298-335.

Mustapha, B., Rildwan, O. B., Eleda, T., Moronke, L. A., Ahmad, H., & Niyi, A. O. (2021). Integrated e-tax filing

management system on tax compliance behaviour in Nigeria, *Academy of Accounting and Financial Studies Journal*, *25*, 1-15.

Palil, M. R., & Mustapha, A. F. (2011). Factors affecting tax compliance behaviour in self assessment system. *African journal of business management, 5*(33), 12864-12872.

Porcano, T. M. (1984). Distributive justice and tax policy. *Accounting Review*, 619-636.

Pyle, D. J. (1990). [BOOK REVIEW] Tax evasion and the black economy. *Manchester School of Economic and Social Studies, 58*, 97-98.

Reuben, E., & van Winden, F. (2010). Fairness perceptions and prosocial emotions in the power to take. *Journal of Economic Psychology*, *31*(6), 908-922.

Richardson, G. (2006). The impact of tax fairness dimensions on tax compliance behavior in an Asian jurisdiction: The case of Hong Kong. *International Tax Journal*, *32*, 29.

Richardson, M., & Sawyer, A. J. (2001). A taxonomy of the tax compliance literature: further findings, problems and prospects. *Australian Tax Forum*, *16*, 137-320

Robbins, B., & Kiser, E. (2020). State coercion, moral attitudes, and tax compliance: Evidence from a national factorial survey experiment of income tax evasion. *Social Science Research*, *91*, 102448.

Rousseau, D. M. (1998). The'problem'of the psychological contract considered. *Journal of organizational behavior*, *19*, 665-671.

Saad, N. (2014). Tax knowledge, tax complexity and tax compliance: Taxpayers' view. *Procedia-Social and Behavioral Sciences, 109*, 1069-1075.

Siahaan, F. O. (2012). The influence of tax fairness and communication on voluntary compliance: trust as an intervening variable. *International Journal of Business and Social Science, 3*(21).

Tehulu, T. A., & Dinberu, Y. D. (2014). Determinants of tax compliance behavior in Ethiopia: The case of Bahir Dar city taxpayers. *Journal of Economics and Sustainable Development, 5*(15), 268-280.

Tsakumis, G. T., Curatola, A. P., & Porcano, T. M. (2007). The relation between national cultural dimensions and tax

evasion. *Journal of international accounting, auditing and taxation, 16*(2), 131-147.

Verboon, P., & Van Dijke, M. (2007). A self-interest analysis of justice and tax compliance: How distributive justice moderates the effect of outcome favorability. *Journal of Economic Psychology, 28*(6), 704-727.

Vogel, J. (1974). Taxation and public opinion in Sweden: An interpretation of recent survey data. *National Tax Journal, 27*(4), 499-513.

Wenzel, M. (2004). An analysis of norm processes in tax compliance. *Journal of Economic Psychology, 25*(2), 213-228.

Yang, L., Wang, Y., Wang, R., Klemeš, J. J., de Almeida, C. M. V. B., Jin, M., Qiao, Y. (2020). Environmental-social-economic footprints of consumption and trade in the Asia-Pacific region. *Nature communications, 11*(1), 1-9.

Appendices

Appendix: 1

Indicators used in Variable Construction

Below is a complete list of the measures used in this paper. All responses were on a Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither, 4 = agree, 5 = strongly agree).

Table:

Indicators of Voluntary Tax Compliance, Social Norms, Perception of tax fairness, Tax Awareness, Tax Simplicity and Tax Knowledge

No.	Indicator	Variable
1	**Voluntary Tax Compliance** (Kirchler & Wahl, 2010)	
	Tax collection process is too difficult to understand and follow	VTC1
	A large number of people in Pakistan report all their income for tax purposes	VTC2
	It is a civic responsibility to pay correct taxes.	VTC4
	Deliberate tax evasion is a minor crime.	VTC5
	paying tax is a religious duty	VTC6
	Paying taxes is necessary tool for effective functioning of the state.	VTC7
	Deliberate tax evasion is not acceptable.	VTC8
2	**Social Norms (SN)**	
	Someone using mobile without hands-free while driving	SN1
	Someone using public transport without paying for it	SN2
	Someone deliberately not paying taxes that he/she is supposed to pay	SN3
	Someone buying goods/services from businesses knowing that transactions are not reported for tax purposes	SN4
	Someone legally avoids paying taxes by using loopholes in legislation	SN5
	Someone knowingly buys stolen / counterfeit (designer products) / pirated goods	SN6
	Someone declaring some income but not all of your income for tax purpose	SN7
	Someone dropping litter on the street	SN8
	There is a culture of tax evasion in Pakistan - everyone who can does so.	SN9
	If you had the opportunity to evade taxes, will you do so?	SN10
3	**Perception of Tax Fairness (PTF) Procedural Justice** (Murphy, 2004)	
	The tax system is discriminatory	TF1

	The income tax system is fair.	TF4
	I believe that income-tax is fairest kind of tool Government can use to collect revenue.	TF5
	Current tax laws require me to pay more than my fair share of taxes.	TF6
	Special provision in income tax law that apply to only few people is unfair.	TF7
	Some legal tax breaks are not fair because only the wealthy/selected are in a position to benefit	TF8
4	**Tax Simplicity (TSIMP)**	
	If budgets were more transparent and easier to understand, will you pay more taxes?	TSIMP1
	Should the tax process be made simpler?	TSIMP2
	If you could see that your tax was being spent for your betterment, will you pay more taxes?	TSIMP3
5	**Tax Knowledge (TK)**	
	Only 3-15% of tax eligible population pays direct taxes.	TK1
	Pakistan is collecting taxes that are way below (50-60%) the tax collection rate of other countries.	TK2
	Do you know the system of tax collection and tax incidence in Pakistan?	TK3
	Do you know how taxes are collected on incomes and who pays most taxes?	TK4
	Tax can only be levied by law under the Act of Parliament.	TK5
	Are you aware of the process of tax registration?	TK6
	Are you aware about system of direct taxes and why you should pay taxes?	TK7
6	**Tax Awareness (TAW)**	
	I feel I am well informed about tax reforms to address issues.	TAW2
	Pakistan has one of the lowest tax-to-GDP ratios.	TAW3
	Tax Policy/Government has discretion to issue certain benefits on individual business basis	TAW5
	Are you aware that tax policy and tax collection is done by the same department?	TAW8
	Are you aware of all information that is published by tax authorities (reports/websites etc.)?	TAW9
	Are you aware of who makes tax policy in Pakistan?	TAW10
	Are you aware that FBR Act is by is still not fully implemented?	TAW11
	Are you aware that political government appoints the Chairman of FBR?	TAW12

Are you aware that majority of eligible taxpayers are not tax-registered?	TAW13
Are you aware of the powers of FBR provided under FBR Act 2007?	TAW14
Certain individuals (Army/Public Sector/Parliamentarians/Foreigners) get legal tax exemptions.	TAW15
Are you aware of tax administration and its functions in Pakistan?	TAW16

Appendix: 2

Table:

Summary of Results of Inner Model Bootsrapping

	PATH COEFFICIENTS				TOTAL INDIRECT EFFECT				SPECIFIC INDIRECT EFFECT				TOTAL EFFECT			
	Original Sample (t-Values)	P Values	Conf. Int. 2.5%	97.50 %	Original Sample (t-Values)	P Values	Conf. Int. 2.5%	97.50 %	Original Sample (t-Values)	P Values	Conf. Int. 2.5%	97.50 %	Original Sample (t-Values)	P Values	Conf. Int. 2.5%	97.50 %
PTF -> VTC	0.35(16.66)	0	0.31	0.39									0.35(16.66)	0	0.31	0.39
SN -> VTC	0.15(8.88)	0	0.12	0.19									0.15(8.87)	0	0.12	0.19
SN*TAW -> VTC		0.015	0.01	0.08									0.04(2.43)	0.02	0.01	0.08
TAW -> VTC	0.11(3.6)	0	0.05	0.17									0.11(3.6)	0	0.05	0.17
TK -> PTF	0.22(11.30)	0	0.18	0.25									0.22(11.23)	0	0.18	0.25
TK -> VTC	0.10(3.15)	0.002	0.04	0.16	0.08(9.13)	0	0.059	0.1					0.17 (5.63)	0	0.11	0.23
TSIMP -> PTF	0.36(16.56)	0	0.32	0.41									0.37 (16.56)	0	0.32	0.41
TSIMP -> VTC	0.29(15.02)	0	0.25	0.33	0.123(11.06)	0	0.105	0.15					0.42 (21.65)	0	0.38	0.46
TSIMP -> PTF -> VTC									0.13 (11.06)	0	0.11	0.15				
TK -> PTF -> VTC									0.08(9.13)	0	0.06	0.09				