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The impact of religiosity, legal enforcement and good governance on tax evasion: A study on SAARC countries

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Abstract
The study aims to examine the impact of religiosity, legal enforcement and good governance on tax evasion. The study utilizes a panel data of 7 SAARC countries covering the period of 2002 to 2015 and ordinary least square (OLS), fixed effect (FE) and random effect (RE) model have been applied as statistical technique to analyze the data. The results of the study show that (a) the religiosity has a negative impact on tax evasion, (b) enforcement level has been found positive in OLS and random effect but negative in fixed effect model, and (c) good governance in public sector has a negative impact on tax evasion. The results of the study are supposed to offer valuable insights to the researchers, tax practitioners and government for the development of an international tax framework, and implementing a sound policy.

Keywords Tax evasion, Religiosity, Legal enforcement, Good governance, SAARC countries

Paper type Research paper

1. Introduction

Tax evasion has been considered as a subject of discussion for academic research in both developed and developing countries. It has become a burning issue over the decades since the policymakers have been unable to find out a better solution to tackle the increasing problem (Nurunnabi, 2018). Most of the studies on tax evasion record from the side of economics perspective, although ethical issues may be mentioned briefly. Even fewer studies have looked at tax evasion from a religious perspective (Benk, McGee, & Yuzbasi, 2015). The most comprehensive twentieth century work on the ethics of tax evasion was a doctoral thesis written by Crowe (1944), titled – The Moral Obligation of Paying Just Taxes. This thesis reviewed the theological and philosophical debate that had been going

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on, mostly within the Catholic Church, over the previous 500 years. Some of the debate took place in the Latin language. Crowe introduced this debate to an English language readership. A more recent doctoral dissertation on the topic was written by (Torgler, 2006), who discussed tax evasion from the perspective of public finance but also touched on some psychological and philosophical aspects of the issue. Tax evasion is described as an escape or attempt to pay tax as less than the real sum as relatively as necessary. Tax evasion implies the act of paying less tax than legal obligation to pay as per the tax structure set by the state (Bishop, 2009). It is regarded a serious loss of government revenue, leading in the government being pressured to provide smooth public services. Therefore, increasing tax revenue from taxpayers has been a difficult problem for both governments and tax officials.

According to the Asian Development Bank (ADB)'s Key Indicators for Asia and the Pacific 2017, the region accounted for 40.9% of worldwide gross domestic product (GDP) at purchasing power parity in 2016, up from 29.4% in 2000 (Araki & Nakabayashi, 2018). Despite the region's financial prosperity, the same statistics also indicate that approximately 330 million individuals still live on less than $1.90 a day in Asia and the Pacific (parity of purchasing power in 2011), accounting for approximately 9.0 percent of the region's total population, and three-quarters of the region's countries had a fiscal deficit in 2016. As regards the tax-to-GDP ratio, the Asia-Pacific economy remains considerably smaller than that of member nations of the Organization for Economic Co-operation and Development (OECD) (Araki & Nakabayashi, 2018).

Tax evasion in SAARC countries

The South Asian Association for Regional Cooperation (SAARC) is the regional intergovernmental organization and geopolitical union of nations in South Asia. It has eight member states including Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan and Sri Lanka. SAARC comprises 3% of the world's area, 21% of the world's population and 3.8% (US$2.9 trillion) of the global economy, as of 2015 of *Global Economic Prospects* (World Bank, 2015).

South Asia remains the world's fastest growing region. India's domestic demand is strengthening as the country reaps the benefits of structural reforms and of a revival of credit growth. Growth in the region is projected to accelerate to 7.1 percent in 2019 from 6.9 in the previous year. Over the medium term, robust domestic demand will continue to underpin growth, which is expected to average 7.1 percent (World Bank, 2019). However, risks

to the outlook are tilted down. Domestic vulnerabilities are being exacerbated by fiscal slippages and rising inflation, escalation in political uncertainty, and the possibility of delays in the needed structural reforms to address weaknesses in balance sheets of banks and nonfinancial corporates. The challenging political environment could adversely affect the ongoing reform agenda and economic activity in some countries (e.g., Afghanistan, Sri Lanka) (World Bank, 2019).

As per the global economic perspective, South Asia's share of informal employment is the largest among EMDE regions, despite a below-average share of informal output. Heavy tax burdens, above-average corruption, and low government effectiveness have contributed to high employment informality. Large informal sectors in addition to other factors such as inefficient tax administration and narrow tax base weigh on tax revenues in South Asian economies. On average, tax revenues as a percent in GDP have historically been below the EMDE average (World Bank, 2019). The lack of tax revenues ultimately affects the ability of governments to fund its infrastructure investment, social programs, etc., and therefore limiting their ability to tackle poverty and inequality (Gupta, 2015).As discussed in the January 2015 edition of *Global Economic Prospects,* raising more in tax revenues is critical for the South Asia region. Firstly, fiscal buffers have diminished since the 2008/09 global financial crisis. Although efforts to consolidate are underway, evident for example in the recent fuel subsidy reforms in India, replenishing buffers will also require raising more in revenue. Secondly, given low tax ratios and debt levels over 60 percent of GDP in some countries (India, Pakistan and Sri Lanka), long-term fiscal sustainability hinges upon better revenue mobilization. SAARC countries have struggled to increase their tax-to-GDP ratios over the last decade despite ongoing tax reform. Moreover, as research shows the region lags not just in the mobilization of total tax revenue, but also of different types of tax revenues (Gupta, 2015). The average tax evasion is increasing significantly in this region; for example, in Bangladesh, it is averaged 31.02% for the period 1981–2014, but was 47.20% in 2014 (Nurunnabi, 2019). Table 1 also shows that majority of the SAARC countries are in the worst position in tax collection as India, Bangladesh, Afghanistan, Sri Lanka, and Pakistan are in the last 25 countries of 170 countries as per the countries of world economy.

Table 1. Tax revenue situations and richest countries in SAARC of 170 countries

Country	Rank (2017)	% Of GDP	GDP per capita
India	164	9.2	$1,850
Bangladesh	163	9.6	$1,754
Afghanistan	161	11.2	$559
Sri Lanka	156	13.8	$3,930
Pakistan	147	15.4	$1,629
Nepal	103	23.8	$866
Maldives	94	26.4	$9,550
Bhutan	88	27.2	$2,870

Source: Countries of the world https://photius.com/rankings/2019/economy/taxes_and_other_revenues_2019_1.html) and World atlas (https://www.worldatlas.com/articles/the-richest-countries-in-south-asia.html)

Tax evasion is one of the central problems facing the governments of transition countries (Hanousek & Palda, 2006). Quite often, the system of taxation in those countries target narrow groups of wealthy people that are capable of endowing the state budget, which leads to inefficient system of taxation and low tax morale. There is various reason of tax evade. The issue of tax evasion has been in existence ever since governments attempted to collect taxes. Sometimes the penalty for tax evasion was death or other severe punishment, while in other cases penalties were less severe. Due to fear of state punishment and religious obligation men pay taxes (Crowe, 1944). There is often less opposition to tax evasion in cases where the tax system is perceived as unfair, where the government is corrupt or oppressive, where the government violates human rights or where there is inability to pay or where tax rates are considered to be too high (McGee, 1999). Nurunnabi (2018) documented that Shariah regulation plays a significant role in determining the lower level of tax evasion in Muslim-majority countries. Richardson (2008) commented that non-economic determinates have the most substantial impact on tax evasion in comparison with economic determinants. The opinion of many policymakers are the same this area have concentrated on mainly economic variables (Alm, Martinez-Vazquez, & McClellan, 2016; Herwartz, Tafenau, & Schneider, 2015; Richardson, 2008, 2016; Schneider & Enste, 2000; Tsakumis, Curatola, & Porcano, 2007). However, the typical neoclassical loom to tax evasion (Allingham & Sandmo, 1972) cannot explain the socio-behavioral dynamics (Gangl, Hofmann, & Kirchler, 2015). It is not the aim of the present study to discount economic factors as irrelevant but, instead, it aims to extend the scope of work in this field to include religious, legal enforcement, and good governance.

There are so many researches on tax evasion from various aspects and many researchers showed the impact of religion on tax evasion for different countries. For instance, Nurunnabi (2018) showed the relationship between Muslim and tax evasion, while Bose (2012) showed the relation of Hindu ethical and tax evasion. Torgler (2006) found that Orthodox and Protestants tend to lower tax morale than the Catholics, Hindus, Buddhists while Richardson (2016) found no significant relationship of Catholic and Protestant with tax evasion. Despite having a lot of studies on the relationship between religiosity and tax evasion worldwide, a few theoretical or empirical studies could be found in addressing the issue of tax evasion under Buddhism and Hinduism in SAARC countries, even though these are the major religions in the region. Several researchers have examined the impact of business freedom, property right, culture, GDP, inflation, good governance, ethics etc. on tax evasion separately in their studies (Blaufus, Möhlmann, & Schwäbe, 2019; Crocker & Slemrod, 2005; Epaphra, 2015; Nurunnabi, 2018; Tanno & Putri, 2019; Zaman, Hassan, Akhter, & Brodmann, 2019). Very few studies have been found to show the relationship between those variables and tax evasion in single research except the study of Nurunnabi (2018). Nurunnabi (2018) considered only the Muslim countries in his study and showed that religiosity, legal enforcement, and good governance are negatively related to tax evasion. But in South Asian countries, the work on tax evasion still is limited which is a major gap in the existing literature. Some researchers have conducted their study on institutional factors (governance indicators) and tax evasion while some others showed the relationship between legal enforcement and tax evasion. For example, Yamen, Allam, Bani-Mustafa, and Uyar (2018) exhibited the impact of institutional factors on tax evasion comparing old and new European Union (EU) countries. They found that governance indicators are negatively significant with tax evasion. Moreover, the study of Umar, Derashid, Ibrahim, and Bidin (2019) adopts a conceptual approach to explain the relationship between public governance quality and tax compliance in developing countries. Richardson (2008) examined the relationship between national cultural dimensions and tax evasion and found that the lower the level of individualism, legal enforcement, trust in government, and religiosity, the higher is the level of tax evasion across the developed countries.

Most of the previous researcher analyzed either the impact of religiosity on tax evasion or the impact of public sector governance and legal enforcement on tax evasion. No study has been found in conducting the impact of religiosity, legal enforcement and good governance on tax evasion in SAARC countries. Therefore, the study raises the following research

question. To what extent do the religiosity, legal enforcement and good governance impact the tax evasion in SAARC countries?

In order to address the issue, this research aimed at investigating the influences of religion of Muslim, Hindu, and Buddha along with legal enforcement and good governance on tax evasion in SAARC countries. Besides, the study will contribute in several ways to existing literature. First, the research offers a helpful insight into the causes of tax evasion in SAARC countries, which are non-economic variables. Second, the outcome of this research will guide the government and policymakers to understand the interrelationship among religiosity, legal enforcement, good governance, and tax evasion which help to take necessary steps to develop policy frameworks for reducing tax evasion. Finally, the study provides a key summary of multiple data sources for future international tax researcher and practitioners on the related issue.

The remaining of this paper is organized as follows: Section 2 presents a review of the literature on tax evasion. Section 3 describes the research design and methodology. Section 4 contains the analysis of the empirical results of this study. Section 5 shows the implication and conclusion.

2. Literature review

2.1. Theory of the study

Smith (1976) in The Theory of Moral Sentiments, also analyzed religiosity is an of rational type point of view and notes that religiosity acts as a type of internal moral enforcement mechanism. (Marquette, 2012) stated that the religious persons are more concerned with morality than the non-religious, even though many of the most corrupt economies in the world also rank highly in terms of religiosity. Legal enforcement based on property rights provides an essential foundation for government action in preventing and prosecuting tax evasion (Allingham & Sandmo, 1972). Conventional theories of tax evasion originate out of the acknowledgment that tax evasion is a crime. Once this consensus is established, tax evasion can be investigated in the same fashion as any other criminal activity. From an economic perspective, the number of offenses committed by an individual is negatively related to his probability of conviction and punishment per offense (Becker, 2013). The economic deterrence theory is one of the most important and pioneering theories in the field of tax compliance research. This model presents the taxpayer as an economically rational being who will evade taxation as long as the reward from evading is greater than the expected cost of being caught (Ahmed, 2016). Tax payers also try to pay lower tax by cheating or they pay taxes when they are detected or rewarded by tax

authority. Usually, they try to evade tax as much as possible. Therefore, it can be said that tax evasion is a gamble. There needs a legal enforcement to control this system. The economic deterrence theory suggests to detect and to punish the tax payers who are engaged with tax evasion. This theory was first proposed by the Nobel laureate economist and sociologist Gary S. Becker in his seminal work on the economics of crime. Feld and Frey (2007) developed the concept of a psychological tax contract to establish a fair and reciprocal obligation between government and taxpayers, where one party gives and another take something - a quid pro quo situation. Based on this theory, taxpayers feel discouraged to pay tax if they perceive poor government institutional quality in general. Therefore, based on the moral sentiments, economic deterrence and psychological contract theories, this study considers religiosity, legal enforcement and good governance which may affect tax evasion.

2.2. Hypotheses development

Legal enforcement and tax evasion

Legal enforcement based on the rule of law provides an important foundation for government action in preventing and prosecuting tax evasion (Allingham & Sandmo, 1972; Schneider & Enste, 2000). The literature finds that weak and arbitrary enforcement of laws and regulations encourages corruption and tax evasion (Erard & Feinstein, 1994; Ivanyna, Moumouras, & Rangazas, 2016; Riahi-Belkaoui, 2004; Richardson, 2008). Richardson (2008) pointed out that a lack of law enforcement leads to a lack of confidence in government, which in turn leads to tax evasion. However, Borck (2004) argued that stricter enforcement may make redistributive taxation more attractive to the decisive voter. The tax rate and transfer may rise, which in turn may increase tax evasion. This discussion leads to the following hypothesis:

H1: The higher the legal enforcement in a country, the less tax evasion.

Business freedom and tax evasion

The business freedom is defined as the extent of shareholder governance index is the average of the extent of shareholder rights, ownership and control, and corporate transparency index (Nurunnabi, 2018). The higher the index indicates stronger rights of shareholders in corporate governance. The study of Nurunnabi (2018) supposed that there is less business freedom led to high levels of tax evasion. In the line of the study, the present study proposes the following hypothesis:

H2: The higher the level of business freedom in a country (shareholder governance), the less tax evasion there is, ceteris paribus.

Monetary freedom and tax evasion

The study uses inflation to mean monetary freedom as higher inflation indicates a lower level of monetary freedom. The prior studies found a mixed relationship between tax evasion and monetary freedom (inflation). For example, conducting a study in Muslim world, Nurunnabi (2018) showed that with increasing the level of inflation, the level of tax evasion decreases. On the contrary to the study of Nurunnabi (2018), the study of Fishlow and Friedman (1994) in Latin American countries evidenced a long experience of both high inflation and tax evasion over the last 40 years. Pappa, Sajedi, and Vella (2015) also documented similar results in conducting a study in four European countries, Greece, Italy, Portugal, and Spain, arguing that the level of tax compliance declines when inflation rises. Considering the view of most of the studies, the study hypothesizes the following:

H3: The higher a country's inflation (representing less monetary freedom), the more tax evasion there is, ceteris paribus

Religiosity and tax evasion

Tittle (1980) argued that religiosity discourages deviant forms of behavior and is therefore important in shaping social norms. Religiosity does not allow evasion of tax as it teaches the morality among the people and moral person pay their tax to the state. (Torgler, 2006) found that religious faith has a strong effect on shaping the tax morale of taxpayers, which subsequently influences tax compliance behavior.

According to Islam, Allah will penalize us if we do not pay to the country (Jalili, 2012). Allah is the first accountability for all deeds in life (Forster & Fenwick, 2015). The Islamic religion applies directly to all spheres of life, including the conduct of trade and commerce according to several studies (Saleh, 1998; Othman, Hamzah, & Hashim, 2014) various Quranic verses highlight the importance of values, ethics, and equality. In Islam, Zakah (tax and paying tax) is the third pillar of Islam and is mandatory. Corruption is strictly prohibited in Islam. Allah says in Suratul Hud (11:85): "And O my people, give full measure and weight in justice and do not deprive the people of their due and do not commit abuse on the earth, spreading corruption."

According to Hinduism Generally, Hindu ethics believes in the concept of joint family system in community living. Under this system all the members of a family, including married brothers, their children, and grandchildren live

together under a common roof. This fundamental principle of Spindaship or family relationship promises better living to Hindu families offering certain values and principles through sharing their common house, properties, business, income, wealth, and food (Chawla, 1972). Vedic-period literatures insist on certain element of certainty in Hindu tax –system. According to Hindu ethics, taxes had to be certain and made known to the tax payers – the amount of tax, articles to be taxed and the time frame for payment –otherwise the tax collectors could realize more than what is prescribed and appropriate a part of the collection for their own benefit (Waldauer, Zahka, & Pal, 1996). This maxim of certainty in the Hindu fiscal thoughts appears to be close to the second principle of Adam Smith's philosophy, i.e., - the tax which each individual is bound to pay ought to be certain and not arbitrary.

H4: The higher the impact of religion (Muslim, Hindu and Buddhism), the lower the level of tax evasion there is, ceteris paribus

Table 2. Number of people in each religion of each sample countries

Country	Muslims	Hindu	Buddhism
Bangladesh	90.39%	8.54%	0.64%
Bhutan	0.1%	22.6%	74.9%
India	14.23%	79.80%	0.70%
Maldives	98.40%	0.7%	0.35%
Pakistan	96.3%	2.12%	1.59%
Sri Lanka	9.70%	12.6%	70.2%

Source: Wikipedia (2015) and government websites of sampled countries.

Tax evasion and governance

Discussing the significance of public sector governance (institutional quality), Torgler and Schneider (2009) argue that policymakers often propose strict enforcement strategies to fight the shadow economy/tax evasion and to increase tax morale. However, there is an alternative bottom-up approach that decentralizes political power to those who are close to the problems. There is a positive (negative) relationship between local autonomy and tax morale (size of the shadow economy). Prior research like that of Richardson (2008) also addresses governance issues and confirms that a lack of institutional quality may increase tax evasion. Good quality governance will ensure individuals believe that the government will act in their interests and that its procedures are fair, and will increase trust in government (Feld & Frey, 2002). Torgler and Schneider (2009) stated that:

If citizens perceive that their interests (preferences) are properly

represented in political institutions, their willingness to act in the underground economy decreases. On the other hand, in an inefficient state where corruption is rampant the citizens will have little trust in authority and thus a low incentive to cooperate. A more encompassing and legitimate state may be an essential precondition for a more adequate tax system.
Ultimately, this psychological contract encourages individuals to commit themselves to obedience and compliance with tax laws. Torgler and Schneider (2009) find strong support for the idea that higher tax morale and higher institutional quality lead to a smaller shadow economy/less tax evasion. This discussion leads to the following hypothesis:

H5: The higher the quality of a country's public sector governance (institutional quality), the less tax evasion there is, ceteris paribus.

Table 4. Hypothesis of the study

	Hypotheses	Theoretical effect on tax evasion
Property-right (Legal enforcement)	H1 Higher level of legal enforcement	Lower tax evasion
Business freedom	H2 Higher Business freedom	Lower tax evasion
Monetary freedom (Inflation)	H3 Higher inflation (lack of monetary freedom)	Higher tax evasion
Religiosity	H4 Higher Impact on religion	lower tax evasion
Governance	H5 Higher quality of public sector governance	Lower tax evasion

3. Methodology

The aim of the study is to explore the influence of religion (MUS, HIN, BUD), legal enforcement, business freedom, good governance on tax evasion of the 7 South Asian countries, namely-Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The data are for the year 2002-2015 and extracted from a wide range of data sources and government websites of sampled Muslim countries. A total of 98 observations are used in the study. The study adopts OLS model, FE model, and RE model. And the Hausman test validates that the suitable method for the study is FE (fixed effect) model. The FE model demonstrates that the Religiosity is significant to influence tax evasion.

3.1. The sample

For the purpose of this paper, data were collected from the seven SAARC countries and conducted in the period of 2002-2015.The criteria for the inclusion of individual countries in the study were: (1) countries of south Asian and (2) data are available on tax evasion. There were eight countries of SAARC and 21% of the world's population (https://en.wikipedia.org).

However, due to the unavailability of tax evasion data one country Afghanistan was excluded from the study, Hence the final sample of countries included in the study consists of seven countries data were used for study – Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

3.2. Dependent variable

We have used shadow economy as a proxy of tax evasion for this study. In this study, the dependent variable is tax evasion (TE), which is represented by a measure based on a country's mean estimation of the shadow economy as a percentage of GDP for the 14 years 2002-2015. Schneider, Buehn, and Montenegro (2010) describe the shadow economy as:

—…including all market-based legal production of goods and services that are deliberately concealed from public authorities for any of the following reasons: (1)[avoiding] payment of income, value added or other taxes, (2) [avoiding] payment of social security contributions, (3) [avoiding] having to meet certain legal labor market standards, such as minimum wages, maximum working hours, safety standards, etc., and (4) [avoiding] complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms.

According to many researchers, a similar economic estimate of actual unreported income has been counted as a proxy for tax evasion (Herwartz, Tafenau, & Schneider, 2015; Kirchler, Maciejovsky, & Schneider, 2003; Schneider, 1997, 2005; Schneider & Enste, 2000; Tsakumis, Curatola, & Porcano, 2007). Most of the previous studies estimated the size of the shadow economy at the macro levels (Schneider & Buehn, 2012). This research is based on the MIMIC model (Multiple Causes Multiple Indicators), a shadow economy macroeconomic measure. This MIMIC model takes into account various factors such as tax burden, regulatory burden, economic freedom index, business freedom index, unemployment rate and GDP per capita (Schneider, Buehn, & Montenegro, 2010), which directly affects the dimensions of the shadow economy over time.

3.3. Independent variables

The five independent variables have measured for this study - enforcement level (PRGT), business freedom (BFDM), monetary freedom, good governance (GOV), and religion: MUS, HIN, and BUD. The measurements with data source of the variables are set out in the Appendix.

3.4. Control variables

It is important for panel study is that a few variables are included to control

for the social and economic difference between the countries. To control the social and economic differences, three control variable are included in the model: unemployment rates (UNEM), and agriculture (AGR) as a percentage of GDP and GDP per capita GDP (Yamen, Allam, Bani-Mustafa, & Uyar, 2018). The higher the unemployment rate, the lower the expected level of tax evasion. As a source of income, the higher the agriculture of a country, the lower tax evasion there is. Similarly, the higher the country's GDP, the lower the possibility of tax evasion.

3.5. Model specification

Panel data include N*T observations for the model that provide more information for the analysis. This analysis includes 7 south Asian countries for the year 2002-2015 for studying tax evasion. Each of the following models are used for ordinary least square (OLS), fixed effect (FE), and random effect (RE) model. For the analysis the primary model is given below;

$$TEV_i = \alpha_0 + \beta_1 PRGHT_i + \beta_2 BEDM_i + \beta_3 AGE_i + \beta_4 MUS_i + \beta_5 HIN_i + \beta_6 BUD_i + \varepsilon_i \ldots.(1)$$

Where, TEVi = tax evasion score; PRGHT = property rights score; BEDMi = doing business; AGEi = the percentage of agriculture; MUSi = the percentage of Muslim; HINi = the percentage of Hindu; BUDi= the percentage of Buddho and ε_i =error term.

i = number of countries

β_0 = Intercept term;

$\beta_1, \beta_2, \beta_3 \ldots\ldots \beta_6$ = Slope coefficient of the variables. There are three different estimations; the Ordinary Least Square (OLS) Method, the Fixed Effects Method, and the Random Effects Method are applied to the model.

Moreover, to examine the relationship between governance and tax evasion, the second model is for OLS, FE and RE.

$$TEV_i = \alpha_0 + \beta_1 PRGHT_i + \beta_2 BEDM_i + \beta_3 AGE_i + \beta_4 GOV_i + \beta_5 MUS_i + \beta_6 HIN_i + \beta_7 BUD_i + \varepsilon_i \ldots(2)$$

Where, GOVi = public sector governance score for country i.

Again, to examine the relationship between inflation, GDP and tax evasion

$$TEV_i = \alpha_0 + \beta_1 PRGHT_i + \beta_2 BFDM_i + \beta_3 AGR_i + \beta_4 GOV_i + \beta_5 INFLA_i + \beta_6 GDP_i + \beta_7 MUS_i + \beta_8 HIN_i + \beta_9 BUD_i + \varepsilon_i \ldots..(3)$$

Whereas, INFLAi = inflation rate for country i; GDPi = the percentage of GDP for country i ;

The final model used to examine the effect of unemployment problem (UNEM) on tax evasion.

Therefore, the final model for OLS, FE and RE is:

$$TEV_i = \alpha_0 + \beta_1 PRGHT_i + \beta_2 BFDM_i + \beta_3 AGR_i + \beta_4 GOV_i + \beta_5 INFAL_i + \beta_6 GDP_i + \beta_7 UNEM_i + \beta_8 MUS_i + \beta_9 HIN_i + \beta_{10} BUD_i + \varepsilon_i \ldots (4)$$

Whereas, UNEMi = Unemployment level.

3.6. OLS regression model

Ordinary Least Square (OLS) regression model can be elaborated to involve multiple explanatory variables by simply including extra variables to the equation. To examine potential relationship between property right, business freedom, agriculture, religion (MUS, HIN, BUD) and shadow economy across the south Asian countries.

3.7. The Fixed Effects Method [FEM]

The individuals of fixed effect [FE] of the panel estimation don't differ over time. But the individuals may or may not be correlated with the individual dependent variables. In a repeated test, the levels are the same for the fixed effects of the variables and this effect uses df (degrees of freedom) for every level (minus one). So, there is a loss of df in fixed effect.

Where, the constant slope-coefficient exists for all the individuals and time. But intercept term is different for different countries, not for the different time periods of the individuals. And the individual heterogeneity [each country's specific character regardless of time is captured by individual intercept term which is also known as the FE. A model with FE characteristics is known as FEM. The intercept term in FE is assumed to differ in the model.

3.8. The Random Effects Method [REM]

If the individuals are selected randomly then the individual differences are treated by the random effects [RE]. In random effect, it is assumed that the samples are drawn randomly and can influence the population and the intercept value is random too. For unbalanced data Random effect is important. The individuals of the random effect differ across the time and the regressed are running toward the mean. One df [degrees of freedom] is used in the random effect as it estimates the effect in terms of variance. And the standard errors are large in this effect. The random effects model for the study is-

Where, $\alpha_{0i} = (\alpha_0 + u_i)$

And α_0 denotes the fixed part of α_{0i} that refers population average while u_i denotes the difference part of that α_{0i} refers the difference of random individual from population average. The random error term u_i is known as the Random effect that shows the difference between random individuals from the mean. The error term in random effect is assumed to differ in the model.

3.9. Hausman test

For choosing the right effect between the RE and FE model, we use Hausman test. It is used to compare the estimated coefficient of the FE from RE model. The hypothesis for the Hausman are-

H0= the suitable effect is a Random effect [i.e., consistent and efficient RE].

H1= the Fixed effect is appropriate [i.e., inconsistent RE].

If the probability of the cross-sectional chi-square is more than 5% level, we do not reject the Null hypothesis. That means the Random effect estimators would be proper to explain the model. In case of less than 5% chi-square value, we reject the Null hypothesis, which stands for using fixed effect estimators.

3.10. Measurement instrument

STATA software has been used to analyze the data. We have done descriptive statistics. Descriptive statistics are used to describe overall summary of a set of data. They provide insights from raw data. Therefore, it is a very important instrument for any research. We have checked correlation which indicates relationship between two variables that changes in one variable influence to changes in another variable. To check the multicollinearity problem, variance inflation factors (VIF), has been used. Finally, OLS regression test, fixed effect and random effect model were run to investigate the impact of the hypothesized variables on tax evasion. Furthermore, Hausman test was conducted to ensure whether the results suggest fixed effect or random effect.

4. Results

4.1. Descriptive statistics

In the Table 5 we represent the descriptive statistics for the full sample of seven countries. For the dependent variable, TEV (as a percentage of GDP)

has a mean of 30.63% and a range of 17.89–48.85% over the 14-year period (2002–2015), which indicates considerable variation with regard to tax evasion across countries. There is significant variation in the independent variables too. For example, UNEM ranges from 0.4 to 8.76 (mean = 4.01), INFL ranges from -18.10 to 22.56% (mean= 6.05%), BEDM ranges from 35.5 to 89.7% (mean = 62.65%), PRIGHT ranges from 20 to 60 (mean = 37.34), AGR ranges from 5.19 to 36.15 (mean = 18.04), GOV ranges from -1.18 to 0.36 (mean = -0.49), Religion (MUS) ranges from 0.1 to 98.7 (mean = 44.44), HIN ranges from 0.5 to 81.3 (mean = 29.69) and BUD ranges from 0.35 to 74.8 (mean = 22.58).

Table 5. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Tax eversion	98	30.62806	7.427172	17.89	48.85
GDPPC	98	2170.477	2143.856	465.5453	8124.708
Unepmt	49	4.01381	2.271118	0.3977	8.7603
Inflation	98	6.051469	4.445807	-18.1086	22.5645
Pright	83	37.3494	12.02988	20	60
Bfreedom	84	62.64524	12.5804	35.5	89.7
Agricuture	98	18.0456	8.195588	5.190605	36.1503
Muslim	98	44.44827	43.73947	0.1	98.42
Hindu	98	29.69143	33.007	0.5	81.3
Buddhism	98	22.57745	31.8787	0.35	74.8
GG	98	-0.48737	0.438126	-1.17871	0.363539

4.2. Pearson correlation

The Pearson correlation results are shown in Table 6. In this table we see that there are a number of significant correlations between TE and the independent variables. For instance, there are fairly high correlations ($p<0.01$) between TEV and UNEM ($r = -0.5922$), GOV ($r = -0.3699$), BUD ($r = 0.2917$), GDP ($r = -0.221$), BEDM ($r = 0.2442$), and significant PRIGHT ($r = -0.1988$). However, no significant correlations are found between TEV and INFL, MUS, HIN, and AGR. In fact, the highest correlation coefficient of 0.7995 is found between PRIGHT and GOV ($p\backslash0.01$). Besides, significant correlations are found among independent variables. BEDM has significant correlation with PRIGHT ($r = - 0.316$).

Table 6. Pairwise correlations for dependent and independent variables

	Taxeversion	Pright	Bfreedom	Agricu~e	Muslim	Hindu
Taxeversion	1					
Pright	-0.1988*	1				
Bfreedom	0.2442**	-0.316***	1			
Agricuture	0.166	-0.2216**	-0.4212***	1		
Muslim	-0.1155	-0.6905***	0.3364***	-0.3317***	1	
Hindu	-0.1632	0.2855***	-0.6105***	0.5772***	-0.6581***	1
Buddhism	0.2917***	0.5974***	0.2393**	-0.1559	-0.6186***	-0.1836*
GG	-0.3699***	0.7995***	0.0182	-0.4706***	-0.4564***	0.0062
Unepmt	0.5922***	0.1468	0.1137	-0.4595***	-0.1268	-0.1861
Inflation	0.1553	0.248**	-0.1406	-0.0442	-0.2065**	0.1857*
GDPPC	-0.221**	0.0026	0.6336***	-0.7683***	0.3422***	-0.4403***
	Buddhism	GG	Unepmt	Inflat~n	GDPPC	
Buddhism	1					
GG	0.5996***	1				
Unepmt	0.2313	0.1086	1			
Inflation	0.0649	-0.0701	0.1236	1		
GDPPC	0.0061	0.442***	0.1884	-0.0708	1	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4.3. Regression analysis (OLS, FE, RE)

We represent the results of regression (OLS, FE, and RE) analysis in Table 7.1 and 7.2. We have use 4 regression (OLS, FE, and RE) model for our study. From Model 1 we have found the negative significant relationship with TEV and PRIGHT, BEDM, HIN, MUS, BUD, and also found positively significant relation with AGR in OLS and random effect test but fixed effect test shows the positively significant relationship with PRIGHT and BUD. In model 2 shows that result is few changes with model 1 there is no relation founded with GOV and BEDM in regression OLS, FE, and RE. Again, we see that in the Model 3 TEV and INFAL has positive significant relation where (P>0.05) and found no relation with GDP in OLS and RE. But GDP has negatively significant relation with tax evasion where (P>0.001) in fixed effect. Further we see that the result of Model 4 UNEM has positive significant relation with tax evasion where (P>0.001) and found no relation with GDP in OLS and RE. But GDP has negatively significant relation with tax evasion where (P>0.001) in fixed effect. In four models, we see that religion (Mus, Hin, and Bud) has negative significant relation with tax evasion without Buddho from model 1 in fixed effect test.

Table 7.1. Regression (OLS, FE and RE)

	(O1)	(f1)	(r1)	(O2)	(f2)	(r2)
	Taxeversion	Taxeversion	Taxeversion	Taxeversion	Taxeversion	Taxeversion
Pright	-0.1509***	0.3398***	-0.1509***	-0.1402***	0.3388***	-0.1402***
	(0.0449)	(0.0802)	(0.0449)	(0.0509)	(0.0794)	(0.0509)
Bfreedom	-0.0592*	-0.0535	-0.0592*	-0.0530	-0.0509	-0.0530
	(0.0310)	(0.0418)	(0.0310)	(0.0340)	(0.0414)	(0.0340)
Agricuture	0.6867***	0.6074***	0.6867***	0.6447***	0.5766***	0.6447***
	(0.0518)	(0.1466)	(0.0518)	(0.1060)	(0.1465)	(0.1060)
Muslim	-3.9691***	-8.6109***	-3.9691***	-3.8564***	-8.4911***	-3.8564***
	(0.2184)	(1.6900)	(0.2184)	(0.3308)	(1.6750)	(0.3308)
Hindu	-4.3035***	-3.9092***	-4.3035***	-4.1756***	-3.5597***	-4.1756***
	(0.2370)	(1.2493)	(0.2370)	(0.3684)	(1.2572)	(0.3684)
Buddhism	-4.0366***	4.2906**	-4.0366***	-3.9120***	4.7546**	-3.9120***
	(0.2365)	(1.8498)	(0.2365)	(0.3625)	(1.8556)	(0.3625)
GG				-1.1769	-3.2224	-1.1769
				(2.5835)	(2.0737)	(2.5835)
_cons	422.8855***	422.9644***	422.8855***	410.5867***	395.3974***	410.5867***
	(21.1554)	(100.1113)	(21.1554)	(34.3681)	(100.6897)	(34.3681)
N	83	83	83	83	83	83
F	135.2392	27.3336		114.7402	24.2473	
r2	0.9144	0.7009		0.9146	0.7110	
r2_a	0.9076	0.6496		0.9066	0.6565	
N_g		7.0000	7.0000		7.0000	7.0000

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7.2. OLS, FE and RE

	(O3)	(f3)	(r3)	(O4)	(f4)	(r4)
	Taxeversion	Taxeversion	Taxeversion	Taxeversion	Taxeversion	Taxeversion
Pright	-0.1591***	0.0480	-0.1591***	-0.1124	-0.0657	-0.1124
	(0.0524)	(0.0782)	(0.0524)	(0.0755)	(0.1224)	(0.0755)
Bfreedom	-0.0360	-0.0674**	-0.0360	-0.0850	-0.0816	-0.0850
	(0.0382)	(0.0317)	(0.0382)	(0.0563)	(0.0531)	(0.0563)
Agricuture	0.7274***	0.2463**	0.7274***	0.7146***	0.3229	0.7146***
	(0.1106)	(0.1212)	(0.1106)	(0.1553)	(0.2037)	(0.1553)
Muslim	-4.0541***	-4.5829***	-4.0541***	-3.0712***	-47.4428	-3.0712***
	(0.3315)	(1.4046)	(0.3315)	(0.4237)	(32.8421)	(0.4237)

Hindu	-4.4077***	-2.1233**	-4.4077***	-3.3286***	-4.6775*	-3.3286***
	(0.3702)	(1.0100)	(0.3702)	(0.4709)	(2.4098)	(0.4709)
Buddhism	-4.1452***	0.9779	-4.1452***	-3.0569***	40.5783	-3.0569***
	(0.3650)	(1.5413)	(0.3650)	(0.4668)	(31.2548)	(0.4668)
GG	1.7602	-5.0604***	1.7602	-5.9632	-8.6597***	-5.9632*
	(2.9155)	(1.7134)	(2.9155)	(3.5292)	(2.5301)	(3.5292)
Inflation	0.2057**	-0.0668	0.2057**	0.2475**	-0.0143	0.2475**
	(0.0831)	(0.0511)	(0.0831)	(0.0987)	(0.0818)	(0.0987)
GDPPC	-0.0002	-0.0054***	-0.0002	0.0006	-0.0049***	0.0006
	(0.0003)	(0.0008)	(0.0003)	(0.0006)	(0.0013)	(0.0006)
Unepmt				0.9651***	0.4034**	0.9651***
				(0.1763)	(0.1594)	(0.1763)
_cons	430.3607***	283.7493***	430.3607***	321.5836***	860.0820*	321.5836***
	(34.4390)	(81.9835)	(34.4390)	(44.8258)	(447.3747)	(44.8258)
N	83	83	83	45	45	45
F	95.1428	38.0449		70.0165	20.7249	
r2	0.9214	0.8363		0.9537	0.8810	
r2_a	0.9118	0.7997		0.9401	0.8130	
N_g		7.0000	7.0000		7.0000	7.0000

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4.4. Hausman Test

Table 8 reports the result of the Hausman Test. The test reports that p-value for the chi-square statistic is (Prob>chi2 = 0.0011) which is less than 5% that indicates to reject the H0 of the Hausman test. That is there is no evidence that the fixed effect model is inconsistent. So, the appropriate model seems to be the fixed effect model, which is efficient and consistent to explain the variables.

4.5. Results of hypotheses tests

Hypothesis 1 predicted that higher the legal enforcement is related to the lower tax evasion in countries. The regression coefficient is negative and highly significant ($p < 0.01$) in OLS and random effect. Thus, we can conclude that, higher level of enforcement lead to lower tax evasion across countries, this is supported by H1.

Hypothesis 2 predicted that higher Business freedom is related to less tax evasion levels across countries. The regression coefficient is negative and

significant ($p < 0.10$) in OLS and random effect. Thus, we can conclude that, higher level of business freedom lead to lower tax evasion across countries, this is supported by H2.

Table 8. Hausman Test

	(b)	(B)	(b-B)	Sqrt (diag (V_b-V_B))
	f3	r3	Difference	S.E.
Pright	-0.06571	-0.11241	0.0467	0.172581
Bfreedom	-0.08164	-0.08503	0.00339	0.059212
Agricuture	0.322859	0.714632	-0.39177	0.272158
Muslim	-47.4428	-3.07121	-44.3716	50.52375
Hindu	-4.67754	-3.32864	-1.34891	3.677237
Buddhism	40.57833	-3.05685	43.63518	48.08133
GG	-8.65972	-5.9632	-2.69652	1.641698
GDPPC	-0.00492	0.000601	-0.00552	0.00198
Unepmt	0.40339	0.965071	-0.56168	0.170556
Inflation	-0.01431	0.247545	-0.26185	0.078213

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic
chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
=22.17
Prob>chi2 = 0.0011
(V_b-V_B is not positive definite)

Hypothesis 3 predicted that higher a country's inflation (representing less monetary freedom), is related to the higher tax evasion in countries. The regression coefficient of inflation is positive and highly significant ($p < 0.01$). Thus, we can conclude that, higher inflation rate lead to higher tax evasion across countries, this is supported by H3.

Hypothesis 4 predicted that higher Impact on religion is related to less tax evasion levels across countries. The regression coefficient is negative and significant ($p < 0.001$) in regression OLS, random effect and fixed effect. Thus, we can conclude that, higher impact on religion lead to lower tax evasion across countries, this is supported by H4.

Hypothesis 5 predicted that higher quality of good governance is related to lower tax evasion levels across countries. The regression coefficient is negative and significant ($p < 0.001$) in regression fixed effect. Thus, we can

conclude that, higher level of good governance lead to lower tax evasion across countries, this is supported by H5.

4.6. Control variables

The study shows that Higher GDP per capita is related to lower tax evasion levels across countries. The regression coefficient is negative and significant ($p < 0.001$) in fixed effect. Thus, we can conclude that higher GDP rate is lead to lower tax evasion across countries. The higher rate of unemployment is related to the higher tax evasion in countries. The regression coefficient of unemployment is positive and highly significant ($p < 0.01$) in fixed effect. Thus, we can conclude that, higher unemployment rate lead to higher tax evasion across countries. The higher level of agriculture is related to the higher tax evasion in countries. The regression coefficient is positive and highly significant ($p < 0.01$) in OLS, random effect, fixed effect. Thus, we can conclude that, higher rate of agriculture lead to higher tax evasion across countries.

5. Discussion and conclusions

Our study is consistent with the economic deterrence theory which indicates that the taxpayers have a natural habit of evading tax. Since they become economically rational, they always try to get reward from their paying or to pay lower tax by cheating (Ahmed, 2016). According to this theory there need to have some rules and regulations which ensure the tax revenue from the taxpayers. There should be an arrangement of control and punishment for those who will try to evade tax by cheating or any other illegal way. There should also have an arrangement of reward for those taxpayers who are very responsible to their tax obligation. The result of our study also showed that institutional instability, unethical behavior of tax collection authority, inefficient rules and regulation increase the tax evasion. Very tight policy is also a matter of increasing tax evasion.

The result of our study is expected to help the government, tax regulatory authority, tax law makers and tax collection authority of a respective country to build up a proper taxation system which may be able to reduce tax evasion. It may also be able to increase government tax revenue. By this result one can able understand that how or in which ways are used to focusing to evade taxes by taxpayers. Furthermore, this study will help to the researchers who are interested to long this research line in the future. They can get some valuable information from this study.

There are some limitations we have to face to go for this thesis. First of all, we did not find actual data of tax evasion. Therefore, we have to use

shadow economy data as proxy for tax evasion. Secondly, though our study on the basis of Asian countries, we did not find available data of the sample religion for all of the SARRC countries. Due to some resource constraint and time the study focuses on a few major determinants [Property right, Business freedom, inflation, agriculture, GDP, Governance, unemployment, religion] of the tax evasion among a host of potential determining factors such as tax rate, corruption, intimacy freedom, good governance, culture, education, job satisfaction, political stability etc. Further study with the inclusion of such other determinants can improve the tax evasion study of South Asia. Moreover, this study is conducted on 7 South Asian countries only. Afghanistan was excluded due to the data unavailability. Upon the availability of data, a further investigation including that country would give the whole picture.

The findings suggest that religiosity should be emphasized as a policy intervention to minimize the tax evasion level in SAARC countries. One of the major sources of government revenue is taxation which can be called as lifeblood a government. For a government it is obligatory to collect sufficient tax revenue to support the government expenditures like health, education, social infrastructure, security, public goods and so on. It is also important to reduce poverty level of a country. Now a day, this important source of government revenue is affected by increasing tax evasion. this is not only a problem for SAARC countries but also a global problem. However, developing countries have to face this problem more and more. Therefore, the government and tax authority should try to reform a good taxation system to ensure the government tax revenue. This thesis may be helpful to detect some most important factors that increase the tax evasion and to suggest some valuable technique to overcome this problem. The result of the study provides some valuable guidelines for the tax administration of the SAARC countries.

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Appendices

Definition and sources of variables used in the study

Variables	Description	Sources
Tax evasion (TEV)	The tax evasion scores are mean estimates of each country's shadow economy (i.e., estimates of all market-based legal production of goods and services that are deliberately concealed from public authorities) as a percentage of GDP for the years 2002–2015, and are taken from Schneider et al. (2010) Shadow Economies All Over the World. Countries with larger (smaller) shadow economies (as a percentage of GDP) are classed as higher (lower) tax evasion countries. This variable is averaged for 2002-15.	https://www.imf.org/en/Publications/WP/Issues/2018/01/25/Shadow-Economies-Around-the-World-What-Did-We-Learn-Over-the-Last-20-Years-45583
GDPPC	GDP is the gross domestic product or output that recognized within a country. GDP is a measure of the production of "value" in an economy. And, GDP per capita =GDP/Midyear population. Tax evasion (TEV) is represented by a measure based on a country's mean estimation of the shadow economy as a percentage of GDP for the 14 years 2002–2015.	World Development Indicators, 2017
Unemployment	Unemployment refers to the share of the labor force that is without work but available for and seeking employment. The state of being without any work yet looking for work is called unemployment. The labor market in order to study the relation between tax compliance (both voluntary and enforced), tax evasion and unemployment.	www.InternationalLabourOrganization.com, ILOSTAT database. Data retrieved in September 2018.

Variables	Description	Sources
Inflation (INFL)	The weighted average inflation rate for the most recent 3 years (2012–2014) serves as the primary input into an equation that generates the base score for monetary freedom. Higher inflation indicates a lower level of monetary freedom.	The Heritage Foundation (2015). http://www.heritage.org/index/excel/2014/index2014_data.xls IMF, International Financial Statistics and data files.
Property rights (PRIGHT)	As legal enforcement, this variable measures the degree to which a country's laws protect private property rights and the extent to which its government enforces those laws. The score ranges between 0 and 100 in the year of 2014. A score of 100 indicates private property is guaranteed by the government, the court system enforces contracts efficiently and quickly, and the justice system punishes those who unlawfully confiscate private property. A score of 0 indicates private property _is outlawed, and all property belongs to the state. People do not have the right to sue others and do not have access to the courts, and corruption is endemic.	The Heritage Foundation (2015). http://www.heritage.org/index/excel/2014/index2014_data.xls
Business freedom	As business freedom, the extent of shareholder governance index is the average of the extent of shareholder rights index, the extent of ownership and control index and the extent of corporate transparency index derived from the World Bank (2013)'s Doing Business 2014. The index ranges from 0 to 10, with higher values indicating stronger rights of shareholders in corporate governance.	World Bank (2013). https://openknowledge.worldbank.org/bitstream/handle/10986/16204/19984.pdf?sequence=1

Variables	Description	Sources
Agriculture	Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3 or 4.	World Bank data base
Religion (MUS, HIN & BUD)	Religiosity does not allow evasion of tax. Religiosity teaches the morality among the people and moral person pay their tax to the state. In this paper show that the percentage of religion of sample countries.	Government websites of sampled countries and Pew Research Center (2014), Wikipedia (2015)
Governance (GOVN)	As public sector governance, this variable is the average score of the World Bank's (2015) six dimensions of Worldwide Governance Indicators (WGI) for the year of 2014, on a scale from -2.5 to 2.5, with higher values corresponding to better governance.	World Bank (2015). http://data.worldbank.org/data-catalog/worldwide-governance-indicators