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FINANCE

MASTERS FINAL WORK

DISSERTATION

ATTITUDES ON THE ETHICS OF TAX EVASION: A BRAZILIAN SURVEY

ANDRÉ SILVA MONTEIRO BORGES FONSECA

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SUPERVISOR :

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Abstract

The main objective of this dissertation is to assess the attitudes of Brazilians towards the ethics of tax evasion and on a second level to analyze the influence of several socio-demographic variables on tax ethics.

The study of tax ethics in Brazil is relevant, given the numerous cases involving corruption and tax evasion, such as the *Operação Lava Jato*, *Operação dos Zelotes*, among others. Just to have an order of magnitude, the Brazilian Federal Reserve estimates that the *Operação Lava Jato* and *Operação dos Zelotes* have defrauded tax revenues of around 12,8 billion reais and 19 billion reais, respectively.

To analyze this important topic, a questionnaire was carried out on topics such as the shadow economy problem, tax morals, institutional confidence and tax ethics. The sample consisted of 227 respondents from various professional areas, including finance, legal, marketing, health, among others.

The results obtained indicate the existence of a high level of tax ethics among Brazilian taxpayers. It was possible to conclude that age and gender are determining factors for the level of tax ethics, with women and individuals between 30-44 years old presenting the highest levels of ethics, respectively. The study also concluded that non-self-employed people possess the highest levels of tax ethics.

On the other hand, it was not possible to ascertain differences between religious and non-religious people concerning their level of tax ethics.

It would be interesting to expand the sample, by including people with different educational levels, for example, as a way of completing the study of the tax ethics of Brazilian taxpayers.

JEL Classification: H26

Keywords: Tax, Tax Ethics, Tax Evasion, Ethics, Taxpayers, Tax Morals, Tax Compliance

Resumo

O objetivo principal desta dissertação é avaliar as atitudes dos brasileiros em relação à ética da evasão fiscal e, num segundo nível, analisar a influência de diversas variáveis sociodemográficas na ética fiscal.

O estudo da ética no Brasil é relevante, dados os inúmeros casos mediáticos na media mundial envolvendo corrupção e evasão fiscal, como a operação Lava Jato, a operação dos Zelotes, entre outros. Só para se ter uma ordem de grandeza, a Receita Federal estima que a operação Lava Jato e a Operação dos Zelotes tenha fraudado as arrecadações fiscais na casa dos 12,8 biliões de reais e 19 biliões de reais, respetivamente.

Por forma a analisar este importante tópico, foi efetuado um questionário sobre temas como a economia paralela, a moral tributária, confiança nas instituiçoes e ética fiscal. A amostra incidiu sobre 227 inquiridos de variadas áreas profissionais, nomeadamente da área financeira, área juridica, marketing, saúde, entre outros.

Os resultados obtidos indicam a existência de um elevado nível de ética fiscal dos contribuintes brasileiros. Foi possível concluir que a idade e o género são fatores determinante para o nível de ética fiscal, com as mulheres e os individuos entre os 30 e os 44 anos a apresentarem os maiores niveis de ética, respetivamente, o que vai de acordo com a maioria da literatura analisada nesta dissertação. O presente estudo permitiu igualmente concluir que os empregados por conta de outrem apresentam os maiores niveis de ética fiscal.

Por outro lado, não foi possível constatar diferenças entre pessoas religiosas e não religiosas em relação ao seu nível de ética fiscal.

De forma a ter uma imagem mais completa da ética fiscal no Brasil, seria interessante alargar a amostra, incluindo pessoas com diferentes níveis de escolaridade, por exemplo.

Classificação JEL: H26

Palavras-chave: Fiscalidade, Étical Fiscal, Evasão Fiscal, Fraude fiscal, Moral Tributária, Contribuintes

Acknowledgments

This Master's dissertation marks the last stage of the Master of Science in Finance at ISEG, and it is with great happiness that today I envision its realization, representing a long learning path at ISEG, starting with the graduation in Economics and ending with the Master's degree in Finance.

I would like to emphasize the commitment and hard work dedicated to not only the present document but also the entire master's program. I feel proud of all the work developed and the present document marks the end of a very important stage of my life. Ending this project was very challenging since it was not easy to balance it with a very demanding full-time job and another post-graduation course. Nevertheless, I am positive that it was worth it. Besides, the support of my family, professors and friends was essential.

First of all, I thank my advisor, Professor Tiago Diogo, for his availability, quality of guidance and support given throughout this time. Secondly, to my girlfriend, to my parents and to my in-laws, for the unavoidable support and for the many hours subtracted from the normal process of family and personal fraternization while this work was being developed. Then to my friends, whom I will not enumerate, knowing the risk I run from doing some injustice by not mentioning everyone who likewise deserves my gratitude.

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List of Abbreviations and Acronyms

AS Model – Allingham and Sandmo Model

Df – Degrees of freedom

EVS – European Values Survey

Freq. – Frequency

IRPF – *Imposto de Renda da Pessoa Física*

IRS – Internal Revenue Service

KMO – Kayser-Meyer-Olkin

Max. – Maximum

Min. – Minimum

PCA – Principal Component Analysis

RFB – *Receita Federal Brasileira*

SD – Standard Deviation

Sig. – Significance

Std Error – Standard Error

T – T-test statistic

TPB – Theory of Planned Behaviour

TRA – Theory of Reasoned Action

VIF – Variance Inflation Factor

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1. Introduction

1.1 Framework

The problem of tax evasion is as old as the taxes themselves. Even though Benjamin Franklin stated that "*In this world, nothing can be said to be certain, except death and taxes*", there is no doubt that there is almost always a way to avoid taxes or at least part of them.

In the Brazilian scenario, for example, it is widespread in the population the sense that the tax burden is high, in comparison with the government's return to society in terms of public schooling, healthcare, as well as the existence of cases of government corruption, coupled with the desire to increase personal profits, which in turn encourages tax evasive behavior (Gryzybovsky & Hahn, 2006).

Lawmakers and social scientists have recognized that tax evasion is a behavioral problem that threatens the government's ability to raise revenue, which is a problem that transcends cultural and political boundaries (Weigel *et al.*, 1987). In addition to the problem of reducing government revenues, hampering their ability to settle their growing financial commitments, tax evasion also raises concerns about standards of conduct, as it can be argued that evasive behavior will have a disparaging effect on them (Groenland & Veldhoven, 1982). Despite growing concerns about tax evasion, as indicated by McGee, (2012), there are still few studies that examine non-compliance with tax obligations. According to the author, most studies that analyze tax evasion were conducted from an economic or public finance perspective, with few articles discussing the issue based on an ethical point of view (McGee,2012). In addition to this lack of studies on the scope of tax ethics, the studies already elaborated focus mostly on the American, European and Australian populations. Thus, the importance of this research work becomes even more logical, as it analyzes a country that has not been studied enough in terms of the ethics of tax evasion.

1.2. Objectives

The main objective of this dissertation is to assess the attitudes of resident taxpayers in Brazil towards the ethics of tax evasion. For that purpose, a survey was applied, based on the tax ethics literature and previous studies, mainly McGee (2006; 2012; 2014).
On a second level, this dissertation analyzes the influence of several socio-demographic variables on tax ethics by identifying the factors that influence tax compliance, through

an application of a set of hypothesis tests, designed to investigate the existence of possible relationships between the variables under study and the tax attitudes and behavior of taxpayers.

1.3. Dissertation Structure

The present dissertation is organized along the lines described below: Chapter 2 aims to present studies related to tax compliance models based on economic theory – developed from the initial contributions of Becker (1968) and Allingham & Sandmo (1972). Also presented in Chapter 2 is the literature on social and fiscal psychology models, whose pioneering work was that of Schmölders (1959) – from which the concept of tax mentality was developed. Chapter 3 presents the research questions and hypotheses. Chapter 4 sets out the procedures put in place in the data collection process and the quantitative methods used, noting that a questionnaire survey was applied. In Chapter 5, the results obtained are presented and discussed, and in Chapter 6, the conclusions, limitations of the study and topics for future research are presented.

2. Literature review

2.1 Taxation and Tax Compliance: A Short Historical Review

Since the dawn of humanity, in the face of inability to survive and evolve in isolation, mankind discovered the need to coexist with their peers by forming groupings, which gave rise to social collectivities such as tribes, clans and political societies. From the need to regulate common interests, the State was born (Gomes, 2006; Van Brederode, 2020).

There is a direct link between the creation of taxes to the creation of the State itself. The latter, needing a whole structure for its functioning, would need funds to finance its activities, which would explain the need for the State to collect taxes, leading to the legitimation of taxation, both legally and ethically (Baleeiro, 2000). Taxes are mainly intended for the development of infrastructure, public services (education, health, security), combating poverty and guaranteeing social benefits to citizens. (Brautigman, 2008). Taxes can also be intended to promote economic stability (*e.g.*, preventing high inflation and unemployment, by creating a sound infrastructure for the development of business and promoting fiscal harmonization with other countries (Van Brederode, 2020).

At the time of its origin, taxes were mainly established on an *ad hoc* basis, with the main objective of defending the realm and/or support a ruler (Van Brederode, 2020). Indeed, one of the first phases of taxation was the collection of excise duties and customs duties, both established by the Roman Empire (Devos, 2014). Subsequently, for example in the United Kingdom, taxation was seen as a gift of the people to the Crown. This was originally financed through rents paid in cash by the barons who occupied and managed the land belonging to the Crown. With the land privatization process, the main source of funding for the Crowns, which until then consisted of the respective rents, gave way to income and consumption taxes, which form the basis of the taxation of modern governments

The Brazilian Federal Constitution of 1988 possesses numerous rules and provisions that deal with the financial activity of the State, dealing with specific legal relationships arising from taxation and expenditure, the allocation of revenue, the budget, tax jurisdiction and its limitations.

2.2 Tax Evasion and Tax Avoidance

Taxpayers in general seek to reduce their tax burden. Some of these taxpayers use lawful but unethical and harmful to the state means, and practice tax planning and tax avoidance, while others opt for tax evasion, which besides being unethical and harmful to the state, is also illegitimate and criminal (Diogo, 2018).

Pereira (2018) presents the concept of tax planning, a legal way to minimize taxes using strategies given by tax authorities, such as tax benefits and tax exemptions.

Tax avoidance constitutes the delay, the reduction or the mischaracterization of the taxable event that gives rise to the payment of a tax, without, however, violating the law (Cowell, 1985). Therefore, all situations framed in the concept of tax avoidance are considered *extra legem* (Pereira, 2018).

Tax evasion is both an illegal and intentional activity, aimed at reducing tax obligations, by either underreporting income, sales and wealth (Alm & Torgler, 2011). Slemrod (2007) describes it as a situation in which a person, committing fraud, pays fewer taxes than is obliged to. For Benk *et al.* (2015), tax evasion has existed since governments began to collect taxes, regardless of the different motivating factors. When looking at the topic of tax evasion, it is possible to find authors like Andreoni & Feinstein (1998), who claim that this is a topic that can be approached from several perspectives: it can be seen as a public finance problem, coercive, legal, organizational or ethical, or a combination of all of them. Torgler (2008) discusses tax evasion from the perspective of public finances but also addresses some psychological and philosophical aspects of the question. Tax evasion can also be approached from an ethical point of view. In this line, McGee (1999; 2006; 2012; 2014) carried out several studies, verifying ethical aspects related to withholding taxpayers from different countries, religions, ages and genders. Contrary to tax avoidance, all situations framed in the concept of tax evasion are considered *contra legem* (Pereira, 2018).

2.3 Theoretical Perspectives on Tax Evasion

The study of tax evasion has been developed from two perspectives: the theory of economic deterrence and the theory based on the social and fiscal psychology of taxpayers (Devos, 2014). The major drivers of the economic theory regarding tax evasion are Allingham & Sandmo (1972), Srinivasan (1973) and Yitzhaki (1974), with any of these works being inspired by the work of Becker (1968) on the theory of crime (Diogo, 2018).

On the other hand, studies in the field of social and fiscal psychology are based on empirical investigations that focus mainly on the moral and social values of taxpayers (Ajzen & Fishbein, 1980).

In the next two subsections, it will be presented a detailed characterization of both perspectives regarding tax evasion.

2.3.1. Economic Deterrence Models

From the 1960s onwards, several studies were developed with the intent to measure people's behavior and attitudes towards the indicators that best define and justify tax evasion (Devos, 2014). The first studies are supported by Becker's model of economic deterrence (1968), which relates tax defaults with the cost expected by taxpayers derived from the penalty, sanctions and detentions triggered by non-compliance. This model states that the taxpayer's action comes from a rational choice to break the law, in which he weighs the possible gains (increase in income) and losses (the probability of being caught by the authorities and the inherent fines).

Following Becker's model, Allingham & Sandmo (1972) present an economic model based on both the assumptions of the utility maximization theory and the assumption that taxpayers possess actual knowledge of penalty and detection rates. According to this model, the behavior of taxpayers will be dictated by their willingness to maximize their expected utility, when deciding the portion of income not to be declared. This model also takes into account that the greater the probability of inspection and/or the probability of detection, the greater the probability that the taxpayer will declare all of his income. Allingham & Sandmo (1972) conclude that tax evasion will compensate the taxpayers involved if their financial gains outweigh their costs. In this regard, Tittle & Logan (1973) find evidence that the effect on tax compliance is more evident in a scenario of a high probability of inspection given the sanctions imposed. Srinivasan (1973) argues that if the probability of detection was independent of income, then, as taxpayers' income increased, the level of evasion would also increase.

The first sign of a real departure from Allingham and Sandmo's model was provided by Yitzhaki (1974). Yitzhaki (1974) changes one of the assumptions of the AS model, by stating that the penalty must fall on the amount of tax corresponding to undeclared income. Continuing with the computation of the effect of undeclared income in the face of an increase in the tax rate, Yitzhaki (1974) finds that only the positive income effect remains, which leads to greater tax compliance. Yitzhaki (1974) also suggests that the tax

rate should not affect the tax evasion equation, as the penalty should increase *pari passu* with the tax rate.

The AS model is, with the changes proposed by Yitzhaki (1974), again studied by Koskela (1983). This study considers the effects of progressivity and the penalties schemes on tax fraud, concluding that, when the penalty is on undeclared income, tax default increases. In turn, when the penalty is imposed on unpaid tax, the tax default decreases when the tax base is progressive.

The AS model is criticized for not incorporating other relevant determinants, such as sociodemographic, economic and behavioral. These are studied in detail by Jackson & Milliron (1986). The authors identify 14 variables that influence non-compliance, namely: age, gender, education, occupation status, income level, income source, marginal tax rates, sanctions, probability of being detected, the fairness of the tax system, the complexity of the tax system, contact with the IRS, compliant peers and ethics or tax morale.

Cowell (1985) addresses the issue of tax evasion based on its definition. The distinction between tax evasion and tax avoidance may be due to legal or moral issues, or it may be conceived as extremes of a continuum. In his view, tax compliance, as a specific social objective, will not necessarily be achieved by using deterrence measures of an economic nature (*e.g.,* fines and inspections) and without jeopardizing the taxpayer's expected utility.

According to Falkinger & Walther (1991), an effective tax system is made up of penalties and rewards, so the role of positive incentives is essential for tax compliance. In this sense, Falkinger & Walther (1991) introduce an innovation to the AS model – a reward, in the form of a tax refund or a reduction in the tax payable, for compliant taxpayers. This reward is seen as an incentive to tax compliance and, in the authors' analysis, it is desirable in the sense of contributing to the increase in well-being. The authors also demonstrate that it is possible to combine the values of rewards and penalties, in such a way that the State's tax revenue remains unchanged.

Cuccia (1994) reviews the literature on tax compliance, within the model of economic deterrence, encompassing the scope of Allingham & Sandmo's theory (1972). One of his criticisms is the fact that the initial works took certain parameters as exogenous when they could be treated as endogenous (*e.g.,* probability of inspection).

Alm (1991) finds empirical evidence that if detection and punishment were the only factors influencing the taxpayer's compliance behavior, the overall compliance level would be lower than observed, which can only be explained by the existence of social and psychological factors affecting tax compliance. Therefore, demonstrating the limitations of the classic economic paradigm. Hasseldine (2000) affirms that there is no empirical evidence supporting the predictions of economic deterrence models, in line with Feld & Frey (2004), that also believe that the traditional economic approach to tax evasion does not appear to successfully explain the extent of tax compliance.

Considering the economic deterrence model and its deficiencies, it becomes apparent that further refinements and improvements are needed to be developed to address tax evasion and non-compliance. The following section examines alternative approaches that have been pursued under tax and social psychology models.

2.3.2. Social Psychology Models

Studies from a psychological perspective do not exclude economic issues, by involving aspects of the economic deterrence model and models of social psychology (Devos, 2014). Social psychology studies the decision-making process in an environment where individual behavior is governed by its social norms (McKerchar, 2003).

The first studies on social psychology models were presented by Schmölders (1959), who studied tax compliance from a mentality point of view, presenting the concept of tax mentality. According to the author, the taxpayer 's priority is his/her self-interest, rather than contributing to the interests of the community. Schmölders (1959) concludes that the taxpayer's attitudes reflect cultural differences and the tax systems in which they are formed.

Strümpel (1969) states that tax compliance is based on two variables, namely: i) taxpayers' good faith predisposition to the tax system and inspections; ii) tax measurements, assessment processes and bureaucracy in the relationship with tax authorities.

Vogel (1974) and Song & Yarborough (1978) analyze the impact of taxpayers' ethical values on tax compliance, concluding that there is a significant correlation between personal beliefs and tax compliance.

Following the build-up of tax psychology models over the previous decades, an important alternative version is offered by Ajzen & Fishbein (1980) and is referred to as the Theory

of Reasoned Action (TRA). TRA defines the link between the attitudes, beliefs, norms, intentions and behaviors of individuals. The behavior of an individual is determined by his behavioral intention to perform a certain action, which in turn, is determined by his attitudes and subjective norms, that is, the pressure that society exerts on an individual for him to practice a certain behavior. In short, the TRA model argues that behavioral intention is defined by two determining factors: firstly, by an individual's perception of a certain behavior, and secondly by the social pressure placed on an individual to perform a certain behavior. Still, within the TRA framework, Ajzen (1985) introduces a new assumption: the incorporation of volitional control as a determinant of intentions. The author argues that the behaviors are not always under total volitional control, and it may arise the possibility that a certain behavior will fail due to the (in)existence of several factors, called control beliefs. This new extension of TRA gave rise to a new theory called the Theory of Planned Behavior (TPB) (Ajzen, 1991; Madden *et al*., 1992 and Ajzen & Fishbein, 2005).

The empirical work of Beck & Ajzen (1991) uses TPB as a tool for predicting honest/dishonest behaviors. According to Ajzen's (1991) Theory of Planned Behavior, the behavior of a given individual may be related to cognitive, emotional and behavioral components. Ajzen (1991) presents a theory of planned behavior, as an extension of the theory of rational action. The main difference in TPB *vis-à-vis* lies in the analysis of 12 perceived behavioral controls with a relevant factor in determining the taxpayer's behavior Nonetheless, Marandu *et al*. (2015) draw attention to the fact that TPB can fail to capture all the significant behavior determinants of tax compliance since it is a general theory, not specific to analyze tax compliance behavior.

2.4 Tax Morals

A review of the tax compliance literature shows that a significant number of studies have examined the relationship between tax morale and tax behavior (Devos, 2014). One of the pioneering studies, in the field of tax morals, is the one published by Schwartz & Orleans (1967), whose objective was to study, from a social point of view, the effect of the threat of sanctions compared to the awareness of individuals for tax compliance.

Strümpel (1970) and Schmölders (1969) state that tax morality is understood as the intrinsic willingness of taxpayers to pay taxes. Later, Orviska & Hudson (2003) argue that the concept of tax morals consists of a civic duty, whose taxpayers are motivated by

a feeling of social responsibility and loyalty to the society in which they operate. Ultimately, tax morale is described by Alm & Torgler (2006), as the moral principles or values that individuals show concerning the fulfillment of their tax obligations.

Tax morality is not inseparable from the cultural aspect inherent to each country. Countries possess their own culture, their values, their norms, which together influence taxpayers' behavior in tax compliance (Frey 1997). Another factor intrinsic to tax morals is the relationship of trust in governments and religion (institutional confidence). Studies developed by Torgler (2003) and Torgler & Murphy (2004), point out that the greater the trust in the governments and the levels of religiousness of the taxpayers, the greater the tax morale and, consequently, the greater the tax compliance.

In studies carried out on tax compliance, tax morale has not always been considered a relevant variable, as it was understood to be part of the taxpayers' preferences (Feld & Frey, 2004). However, Torgler & Schneider (2009) argue that the practice of illegal behavior increases when taxpayers have low levels of tax morality, inducing the shadow economy problematic. Thus, tax morale becomes a relevant study variable.

2.5 Tax Ethics

Tax Ethics is the science that studies the tax, legislative and administrative morality of the exercise of public power and the behavior of taxpayers concerning taxes. The taxpayers' tax ethics should also be considered in the study of tax compliance, as it aligns taxpayers' beliefs and standards with their tax obligations (Van Brederode, 2020).

Schwartz & Orleans (1967) were pioneers in the analysis of the relationship between tax ethics and tax compliance when they studied the effect between sanctions for non-compliance and the appeal to conscience by taxpayers. With this study, it was concluded that the greater the economic power of the taxpayer, the greater the propensity to commit sanctions. Similarly, the appeal to conscience had further influence on tax compliance than the imposition of sanctions. Song & Yarbrough (1978) investigated the effect of taxpayer ethics on voluntary tax compliance. The results reveal that taxpayers who possess a high level of tax ethics believe that other taxpayers also comply with tax law, whereas taxpayers with a low level of tax ethics are more prone to non-compliance and believe that the remaining taxpayers would also breach tax law. McGee (1998) describes three major views on the ethics of tax evasion: i) tax evasion is never ethical - individuals must pay whatever the State demands. This view is justified in a democracy by the theory

of consent, as part of the notion that the government role is played by specialists; ii) tax evasion is never unethical - there is never or rarely a duty to pay taxes, as the government would always be expropriating the wealth of individuals and it is not the duty of the population to give anything to a corrupt government. McGee (2006) labels this vision as an anarchist view, as the government would be a mere thief who confiscates society's wealth without its consent, arguing that there is no social contract signed between the parties; iii) tax evasion is sometimes ethical in certain circumstances and unethical in others - For McGee (2006), this view is the most widespread. However, there is no clear line regarding when evasion would be ethical or not.

2.5.1 Determinants of Tax Ethics:

There are countless determinants associated with non-tax compliance (Jackson & Millirion, 2002; Fischer *et al*., 1992; Richardson, 2006). These authors report in their studies that tax compliance can be influenced by demographic, economic, sociological and psychological factors.

Next, it will be presented in more detail several determinants associated with non-tax compliance.

2.5.1.1 Gender on Tax Ethics

Gender is perhaps the most widely studied demographic variable, from the perspectives of economics, law, philosophy, political science, psychology, sociology, anthropology, religion, and history, to name a few (McGee, 2012). An early study from Tittle (1980) suggests that female contributors present a higher level of tax compliance. Other studies also found that women are more compliant when it comes to tax matters (Aitken & Bonneville, 1980; Mason & Calvin, 1978). Torgler (2003) and Martinez-Vazquez & Torgler (2009) affirm that female taxpayers are less prone to evade taxes. This is mainly due to differences in the ethical standards revealed by the female and male genders (Chung & Trivedi, 2003). Croson & Gneezy (2009) conclude that female taxpayers are more risk-averse. Kastlunger *et al*. (2010) note that the differences in tax behavior between genders are essentially due to issues related to social traits, self-image and biological differences of the sexes. Collymore (2020) also finds females to be more opposed to tax evasion than males.

On the other hand, Hasseldine and Hite (2003) found no evidence of significant differences between men and women regarding their levels of tax ethics. Several scholars

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have predicted that as more women enter the work force and assume male positions, the differences between men and women will diminish when it comes to ethical decision making (Grasmick *et al.*, 1984; Jackson & Milliron, 1986)

2.5.1.2 Age on Tax Ethics

According to McGee (2012), age is a demographic variable frequently examined in social science studies. Tittle (1980) concludes that taxpayers over the age of 30 possess higher levels of tax ethics than younger taxpayers. As age increases, taxpayers become more aware of the risk of sanctions and social exposure (Braithwaite, 2002). Andreoni *et al.* (1998) find in their research that older taxpayers and heads of households are more compliant, reasoning that the result obtained is explained by the fear of sanctions and social awareness. In line with this viewpoint, Richardson & Sawyer (2001) refer that the majority of the studies examining the age variable conclude that older people are more tax compliant.

Contrarily, Clotfelter (1983) finds evidence that both younger and older taxpayers have the highest degree of compliance, by opposition to the middle-aged population. Porcano (1998) did not find a consistent relationship between age and tax evasion, suggesting that this demographic variable does not significantly influence tax evasion. Paz *et al* (2017) find that older taxpayers are more willing to engage in evasive behavior than younger taxpayers.

2.5.1.3 Education Level on Tax Ethics

Studies show that taxpayers with higher levels of education tend to be more compliant with tax duties than taxpayers with lower education, as they have a greater knowledge of the functioning and purpose of the tax system (Lewis, 1982; Jackson & Milliron (1986). Supporting this idea, Kasipillai *et al.* (2003) found statistical evidence suggesting a positive relationship between the level of education and tax compliance.

Divergently, McGee (1998) characterizes education as an irregular variable, as taxpayers with a higher level of education tend to be more understandable with tax compliance but, on the other hand, they are also the taxpayers with the highest income and, consequently, with the highest tax burden, the reason why they may avoid taxes because they do not think the tax burden to which they are subject is fair. Due to their greater knowledge, educated taxpayers, also have more opportunities to find loopholes in the law to find opportunities for tax non-compliance (Torgler & Schneider 2009). Chan *et al*. (2000)

warn that a higher level of schooling may translate into greater preparation for tax management.

2.5.1.4 Occupation on Tax Ethics

Occupation is also presented as a justifying factor for tax compliance, with the variable being distinguished between the self-employed, employed and unemployed. Jackson & Milliron (1986); Andreoni *et al.* (1998) and Torgler (2003) state that the unemployed and the self-employed are more prone to tax evasion. As for the employed, since taxes are paid by the employer, the opportunities for tax non-compliance are reduced. Other authors also reached similar conclusions, confirming that self-employed workers are more likely to commit tax evasion. (Aitken & Bonneville, 1980; Groenland & Veldhoven, 1983; Houston & Tran, 2001).

2.5.1.5 Religion on Tax Ethics

One of the historical reasons found in tax literature to justify why people pay taxes is a sense of moral and religious obligation (Benk *et al.*, 2015). Torgler (2006) finds religion to be a determining factor in the taxpayer's motivation to pay taxes, concluding that the higher the taxpayers' religious beliefs, the higher the level of tax compliance. In the same vein, Torgler & Murphy (2004) find that in countries where there is a larger religious population, tax non-compliance is smaller Stack and Kposowa (2006) pinpoint the importance of religion in determining cultural attitudes on the unacceptability of tax evasion.

3. Research Questions and Hypotheses

3.1 Research problem identification

This research work aims to assess whether ethics is a determining factor that can be positively related to compliance or non-compliance with tax obligations, as well as to ascertain whether there are statistically significant differences within the scope of sociodemographic variables and religion.

It is necessary, for competent treatment of the proposed research theme, a wide set of hypotheses for development (Devos, 2014). To ensure that the research problem presented is treated robustly, a holistic approach was used, which is more advisable for the treatment of the research problem (McKerchar, 2003 and Devos, 2014).

3.2 Research Questions and Hypotheses

The main goal of this dissertation is to answer the following research questions "The attitudes of Brazilian taxpayers on the ethics of tax evasion and their beliefs towards tax compliance are in line with the past literature findings?", "Do Brazilians present high levels of tax ethics?" and "What are the determinants of tax ethics for Brazilian taxpayers?"

To answer these research questions, several hypotheses were considered.

H1: Are female taxpayers more likely to be ethical than male taxpayers in their attitudes towards tax evasion?

H2: Are financial professionals more likely to be ethical than non-financial professionals in their attitudes towards tax evasion?

H3: Are tax educated taxpayers more likely to be ethical than those who are not tax educated?

H4: Are married taxpayers more likely to be ethical than non married in their attitudes towards tax evasion?

H5: Are taxpayers with children more likely to be ethical than those who do not have children in their attitudes towards tax evasion?

H6: Are non-self employed taxpayers more likely to be ethical than those who are self-employed in their attitudes towards tax evasion?

H7: Are taxpayers with high religiosity levels more likely to be ethical than those who are not religious in their attitudes towards tax evasion?

H8: Are taxpayers with higher income levels more likely to be ethical than those who have lower income in their attitudes towards tax evasion?

H9: Are older taxpayers more likely to be ethical than younger taxpayers in their attitudes towards tax evasion?

4. Data and Methodology

4.1 Introduction

In this chapter, the methodology followed in the work is presented, with special detail for the data collection technique, the statistical instruments chosen for the respective analysis and the testing of the defined hypotheses. The chapter is organized in several parts: 2) procedures followed in data collection; 3) content of the questionnaire; 4) target population and sample and 5) quantitative methods used.

4.2 Procedures followed in data collection

The studies that address tax evasion and tax attitudes become complex to analyze since it is a sensitive topic to obtain reliable data. Taxpayers tend not to respond in a completely honest manner (Alm, 2012). Although this limitation exists, Kirchler & Wahl (2010) state that the questionnaire survey is one of the most used and most effective methods to analyze the level of tax compliance. The questionnaire also permits to gather objective results since information is collected without the intervention of the researcher (Lopes & Brites, 2016).

In the present case, the questionnaire consists of closed-answer questions, considering that this type of question enables the coding of the answers and facilitates the analysis of the data obtained. (Saunders *et al*, 2009; Sekaran & Bougie, 2010). The questionnaire was disseminated through an online link in the platform Qualtrics distributed via e-mail and social media (Facebook and Linkedin) and there was no place for incomplete answers.

4.3 Content of the questionnaire

The questionnaire was divided into 5 Parts:

Part A – Shadow Economy – The first part of the questionnaire addresses the term "cash in hand" - income paid in cash and not declared for tax purposes. The questions presented follow the suggestions of Onu (2017), as measuring the attitudes of respondents towards this tax issue is a challenge, as respondents do not always act according to the answers reported, a limitation also mentioned by Alm (2012).

Part B - Tax Morals - Torgler & Murphy (2004) refer the relationship between government and citizens as one of the key elements for understanding tax morality. On

the other hand, the inclusion of tax morality as an analysis variable is justified by the fact that it is considered a key determinant of the shadow economy (Torgler, 2011; Daude, Gutierrez & Melguizo, 2013).

Part C – Institutional Confidence - Institutional Confidence was measured by the degree of confidence in the following institutions: police, courts, government, political parties, federal senate and Brazilian IRS.

Part D - Tax Ethics - In this part, a series of arguments that justify or not tax evasion are presented in 21 statements, where participants are asked "Tax evasion is ethical if …", using a 5 point Likert scale, ranging between 1 = strongly disagree and 5 = strongly agree.

Part E - Socio-Demographic Data - Eight variables are identified and used abundantly in the literature: gender, age, marital status, religion, level of education, tax education, type of employment relationship and degree of comfort with income.

4.4 Target Population and Sample

The target population for this research work is made up of singular taxpayers' resident in Brazil, which in 2020 amounted to 32 million people, according to the *Receita Federal* and *Ministério da Economia*. Regarding the sample, 227 responses were collected.

In the application of the questionnaire, electronically, a non-casual sample was used. In this type of sample, the elements are chosen according to the degree of availability shown. This method has the advantage of being quick, easy and cheap (Hill & Hill, 2008). However, considering the sample used, any extrapolation to the population will be considered abusive and inappropriate.

In terms of characterization of the sample, about 48.9% are male and 51.1% female. As for age, respondents are between 18 and 72 years old, with an average age of 35 years. At the age group level, the Clotfelter approach (1983) was followed, including only one new age group - up to 29 years old. About 44.9% of respondents are aged up to 29 years; 34.8% are aged between 30 and 44 years old and 20.3% are older than 45 years old. Regarding marital status, the largest group of respondents is made up of single, divorced or widowed people, 60.8%. The rest, are married or in a stable relationship, corresponding to 39.2% of the sample.

Regarding the level of education, the majority have attended university (97.4%) while the remainder (2.6%) of respondents did not. Despite the level of education being considered

an important factor to study ethics on tax compliance, the sample was not representative. Therefore, the schooling level was left out of the statistical analysis. In professional terms, 83.7% are employed or retired, 8.8% are unemployed and 7.5% are studying or in another situation. Concerning the present or past professional situation, most respondents work/worked for others 79.7%, while 20.3% are self-employed. An important point, in the characterization of the sample, concerns the household income. Nevertheless, considering the reluctance of many respondents to answer questions of this nature, the question about household income was replaced by another question about the degree of comfort provided, according to the European Values Survey (EVS). In these terms, almost half of the respondents (47.6%) answered that the household income allows them to live comfortably. Concerning questions of a religious nature, our sample is mostly - 118 respondents (52 %) - made up of people with a current positive feeling of belonging to a religion. Of the remaining respondents, 109 say they have not had a feeling of belonging to a religion in the past.

4.5 Quantitative Methods

The first phase of the empirical work consists of a descriptive analysis of the whole questionnaire, with the presentation of the frequency distribution for most of the questions, followed by a short commentary.

The questions (also referred to as indicators) will then be grouped into dimensions. The indicators, components of each dimension, will be those that maximize Cronbach's alpha. The indicators in each dimension are subject to a Likert scale of five points, where 1 = I totally disagree and 5 = I totally agree. To highlight the robustness of the analysis, considering both the sample size and the thematic nature of the present research work, dimensions whose Cronbach's alpha is less than 0.60, value suggested by Marôco & Garcia-Marques (2006), Stephenson (2010) and Silva (2015), will not be considered. For, if this were to happen, the validity of the dimension would be questioned. The respective descriptive statistics: minimum, maximum, mean and standard deviation will be presented for the dimensions created. The dimensions will be constructed through the arithmetic mean of the respective constituent indicators. A brief description of the dimensions will be carried out together with the creation of the dimensions.

At a later stage, statistically significant differences between the various subgroups of the sample will be tested. Appendix B presents the list of sociodemographic and religious

variables and their subgroups. The statistical tests to be performed will be parametric and the type of test will always depend on the number of subgroups.

With the execution of the PCA, the respective scores will be reserved, which represent the weighted (not arithmetic) average individual value for each dimension. The adequacy of the PCA will be verified with the Kaiser-Meyer-Olkin and Bartlett sphericity tests.

Using the standardized scores obtained with the PCA, a cluster analysis was then performed, which is an exploratory technique of multivariate analysis that allows subjects or variables to be grouped into homogeneous groups for one or more common characteristics. Subsequently, 3 multiple linear regression econometric models were created, to infer which variables have explanatory power of the 3 components of the "Tax Ethics" dimension obtained with the PCA analysis.

The statistical treatment of the data was done through the Statistical Package for Social Sciences (SPSS) V23, Stata, 14th version, StataCorp (2015) and Microsoft Excel 2016.

5. Analysis and Discussion of Results

5.1. Descriptive analysis of the questionnaire

This chapter aims to analyze and discuss the results. It integrates a descriptive analysis of the administered questionnaire and concatenates the indicators to create synthetic indices, or dimensions, which arise from the literature review.

5.1.1 Shadow Economy

For the analysis of the shadow economy problematic, the indicators in section A of the questionnaire were measured, which are presented in Table C.1 (see Appendix C), with the respective descriptive statistics. Both indicators present a mean above the center of the scale (3), which indicates a high level of discomfort of respondents regarding the theme of the shadow economy.

The "Shadow Economy" index was then created through the arithmetic mean of the indicators (A1) and (A2), obtaining a Cronbach alpha of 0.79, considered to be a moderate level of reliability (George & Mallery, 2003 and Stephenson, 2010). The results show that the "Shadow Economy" dimension has a higher average than the center of the scale, revealing the discomfort of taxpayers regarding the payment and receipt through cash to evade taxes.

Table 1 – T-Test Shadow Economy

Control Variable		Descriptive Statistics			T Test	P value
Designation	**Subgroups**	**Freq.**	**Mean**	**SD**	**σx≠σy**	
Gender	Male	111	3,64	1,30	-1,429	0,155
	Female	116	3,87	1,08		
Professional Area	Others	129	3,62	1,21	2,047**	0,042**
	Economics/Finance	98	3,94	1,15		
Tax Education	Yes	81	3,75	1,19	-0,023	0,982
	No	146	3,75	1,20		
Conjugality	Yes	89	3,94	1,11	1,904*	0,058*
	No	138	3,64	1,23		
Children	No	151	3,68	1,21	-1,448	0,150
	Yes	76	3,91	1,16		
Employment Relationship	Self-Employed	45	3,51	1,24	-1,495	0,140
	Employed	182	3,82	1,18		
Belonging to a Religion	Yes	118	3,71	1,17	-0,627	0,531
	No	109	3,81	1,22		
Degree of comfort with household income	Non comfortable	119	3,60	1,23	2,074**	0,039**
	Comfortable	108	3,93	1,13		

*p<0,10; ** p<0,05; *** p<0,01

Table 2 – Scheffé Test for Age – Shadow Economy

Subgroups (years old)	Descriptive Statistics			ANOVA Test		Scheffé Test	
	Freq.	Mean	SD	F	Bartlett	Up to 29	30-44
Up to 29	102	3,62	1,22			-	-
30-44	79	3,83	1,20	1,355	0,697	0,497	-
≥45	46	3,93	1,10			0,327	0,892

*p<0,10; ** p<0,05; *** p<0,01

Table 3 Scheffé Test for Level of Religiosity – Shadow Economy

Subgroups	Descriptive Statistics			ANOVA Test		Scheffé Test	
	Freq.	Mean	SD	F	Bartlett	Not religious	Very religious
Not religious	78	3,60	1,38			-	-
Very religious	30	3,70	1,13	1,32	6,44**	0,921	-
Some religious	119	3,87	1,07			0,280	0,775

*p<0,10; ** p<0,05; *** p<0,01

According to the results obtained, it is possible to note that the dimension is higher among females, those who live in conjugality, those who have children, those who are not self-employed, those who do not currently belong to a religion, those who are over 45 years old, those who live comfortably, those whose professional area is related to the economic/financial field and those who identify themselves as being somewhat religious. Statistically, significant differences are found in the professional area, in conjugality and in the degree of comfort with the household income. It should also be noted that in the Scheffé test by the degree of religiosity, the hypothesis of equality of variances is rejected for a level of significance of 0.05.

5.1.2 Tax Morals

The second section of the questionnaire concerns tax morale. For its measurement, the indicators in section B of the questionnaire were measured, which are presented in Table C.2 (see appendix C), with the respective descriptive statistics. For the indicator - Tax Morals - the proposed sub-indicators present a lower mean than the center of the scale, meaning that, on average, respondents disapprove of the undue claim for tax benefits (B1), as well as the intentional tax evasion (B2), as well as the non-payment of the public transportation ticket (B3).

The "Tax Morals" dimension was not created, as the Cronbach alpha was too low, compromising the reliability of the dimension (Marôco & Garcia-Marques (2006) and Stephenson (2010).

5.1.3 Institutional Confidence

"Institutional Confidence" was measured through the degree of trust in the following institutions: police, courts, government, political parties, federal senate and Brazilian IRS. The results are shown in Table C.3 (see Appendix C), allowing to conclude that respondents have a lower degree of confidence in institutions of a political nature when compared to non-political institutions. The institution with the highest level of confidence by respondents is the Brazilian IRS.

The "Institutional Confidence" dimension was then created, measured based on the arithmetic mean of the indicators presented in Table C.3 (see Appendix C). The Cronbach alpha obtained was 0.77, showing a moderate level of reliability. Based on the results obtained, it can be concluded that the "Institutional Confidence" dimension presents an average below the center of the scale, revealing a feeling of distrust on the part of respondents towards national institutions. In comparative terms, "Institutional Confidence" was evaluated according to the various control groups, whose results are presented in tables 4 to 6.

Table 4- T-Test – Institutional Confidence

Variable		Descriptive Statistics			T-Test	P-Value
Designation	Subgroups	N	Mean	SD	σx≠σy	σx≠σy
Gender	Male	111	2,37	0,70	2,055	0,041**
	Female	116	2,17	0,80		
Professional Area	Others	129	2,23	0,81	-0,864	0,389
	Economics/Finance	98	2,32	0,69		
Tax Education	Yes	81	2,41	0,73	2,116	0,036**
	No	146	2,19	0,77		
Conjugality	Yes	89	2,26	0,71	-0,083	0,934
	No	138	2,27	0,79		
Children	No	151	2,34	0,79	2,279	0,024**
	Yes	76	2,11	0,68		
Employment Relationship	Self-Employed	45	2,14	0,77	-1,203	0,233
	Employed	182	2,30	0,76		
Belonging to a Religion	Yes	118	2,27	0,77	-0,006	0,995
	No	109	2,27	0,75		
Degree of comfort with household income	Non comfortable	119	2,30	0,82	0,738	0,461
	Comfortable	108	2,23	0,69		

*p<0,10; ** p<0,05; *** p<0,01

Table 5 – Scheffé Test for Age – Institutional Confidence

Subgroups (years old)	Descriptive Statistics			ANOVA Test		Scheffé Test	
	Freq.	Mean	SD	F	Bartlett	Up to 29	30-44
Up to 29	102	2,36	0,82			-	-
30-44	79	2,15	0,70	1,79	2,6152	0,170	-
≥45	46	2,26	0,72			0,752	0,724

*p<0,10: ** p<0,05: *** p<0,01

Table 6- Scheffé Test for Level of Religiosity – Institutional Confidence

Subgroups	Descriptive Statistics			ANOVA Test		Scheffé Test	
	Freq.	Mean	SD	F	Bartlett	Not religious	Very religious
Not religious	78	2,25	0,73			-	-
Very religious	30	2,34	0,75	0,16	0,4622	0,864	-
Some religious	119	2,26	0,79			0,996	0,882

*p<0,10: ** p<0,05: *** p<0,01

Through the analysis of tables V-4 to 6, it can be concluded that "Institutional Confidence" is similar between those who currently belong or not to a religion. Regarding the other control groups, "Institutional Confidence" is higher among men, among those who are tax educated, who do not live in conjugality, who are up to 29 years old, who do not live comfortably, who are very religious and who work on the economic/financial area. There are statistically significant differences between gender, tax education and whether the taxpayer is a parent or not.

5.1.4 Tax Ethics

For the analysis of Tax Ethics, the indicators in section D of the questionnaire were measured, which are presented in Table C.4 (see Appendix C), with the respective descriptive statistics. All the indicators, minus the one related with a Jew paying taxes while living in Nazi Germany (D15), present values below the center of the scale, meaning that, on average, the respondents strongly disagree or at least disagree with the arguments justifying tax evasion. Therefore, the participants present a high level of ethics towards tax evasion.

The "Tax Ethics" index was then created through the arithmetic mean of the indicators (D1-D21), obtaining a Cronbach alpha of 0.94, considered to be a very high level of reliability (George & Mallery, 2003 and Stephenson, 2010). The results show that the "Tax Ethics" dimension presents a lower average than the center of the scale, which once again reveals that taxpayers, on average, present a high level of ethics towards tax evasion.

Table 7- T-Test – Tax Ethics

Variable		Descriptive Statistics			T-Test	P-Value
Designation	Subgroups	N	Mean	SD	σx≠σy	σx≠σy
Gender	Male	111	2,28	0,94	3,162	0,002***
	Female	116	1,92	0,78		
Professional Area	Others	129	2,08	0,88	-0,270	0,788
	Economics/Finance	98	2,11	0,88		
Tax Education	Yes	81	1,97	0,81	-1,633	0,104
	No	146	2,16	0,91		
Conjugality	Yes	89	1,97	0,85	-1,825	0,069*
	No	138	2,18	0,88		
Children	No	151	2,19	0,88	2,390	0,018**
	Yes	76	1,90	0,86		
Employment Relationship	Self-Employed	45	2,33	0,88	2,003	0,05**
	Employed	182	2,04	0,87		
Belonging to a Religion	Yes	118	2,07	0,93	-0,506	0,614
	No	109	2,13	0,83		
Degree of comfort with household income	Non comfortable	119	2,11	0,91	0,259	0,796
	Comfortable	108	2,08	0,85		

p<0,10; ** p<0,05; *** p<0,01

Table 8- Scheffé Test for Age -Tax Ethics

Subgroups (years old)	Descriptive Statistics			ANOVA Test		Scheffé Test	
	Freq.	Mean	SD	F	Bartlett	Up to 29	30-44
Up to 29	102	2,25	0,88	2,90*	0,11	-	-
30-44	79	1,20	0,85			0,162	-
≥45	46	1,93	0,89			0,122	0,913

*p<0,10: ** p<0,05: *** p<0,01

Table 9 – Scheffé Test for Level of Religiosity – Tax Ethics

Subgroups	Descriptive Statistics			ANOVA Test		Scheffé Test	
	Freq.	Mean	SD	F	Bartlett	Not religious	Very religious
Not religious	78	2,23	0,81	1,92	3,59	-	-
Very religious	30	1,89	0,74			0,190	-
Some religious	119	2,06	0,94			0,383	0,648

*p<0,10: ** p<0,05: *** p<0,01

According to the results obtained, it is possible to note the considerable difference in the level of tax ethics between men and women, with women possessing a higher level of ethics regarding tax evasion. Concerning the other control groups, the ones who are more ethical are the following: those who possess tax education, who live in conjugality, who are not self-employed, who currently belong to a religion, who are very religious, those who are between 30 and 44 years old, who live comfortably, who are not linked to the economic/financial area and who have children. There are statistically significant differences regarding gender, employment relationship, conjugality, whether they have children or not and age.

5.2 Robustness Analysis

With the analysis and discussion of the various sections of the questionnaire and the creation of the respective dimensions, the PCA was carried out for each set of indicators capable of maximizing the Cronbach alpha. This procedure aimed to prove the unidimensionality of the dimension and the results are presented in Table D.1 (see Appendix D).

It is possible to conclude that the PCA has statistically significant suitability for all dimensions. However, the results indicate that unidimensionality does not apply to the dimension "Tax Ethics" and the new dimensions proposed by the PCA are presented below. Note that the indicators belonging to section B do not constitute any dimension.

5.2.1 Tax Ethics

For the initial dimension called "Tax Ethics", the PCA identified three dimensions, presented in the following table.

Table 10 – Tax Ethics - PCA

Item	Component		
	Illegitimacy of Governments	**Moral reasons for not paying taxes**	**Paying Taxes is a duty**
D15	**,826**	-,038	-,055
D17	**,798**	,027	,042
D10	**,784**	,023	,182
D5	**,772**	-,052	,126
D20	**,762**	,157	,064
D11	**,748**	,020	,347
D3	**,728**	,275	,285
D13	**,718**	,208	,349
D8	**,642**	,370	,136
D12	**,602**	,300	,419
D4	**,602**	,305	,289
D18	**,561**	,371	,050
D2	,049	**,862**	,139
D1	-,018	**,840**	,197
D7	,081	**,733**	,333
D21	,212	**,664**	,416
D19	,279	**,594**	,356
D16	,409	**,478**	,451
D14	,138	,338	**,795**
D9	,185	,358	**,790**
D6	,179	,271	**,763**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

With the interpretation of the indicators associated with components 1, 2 and 3, the components are now designated with the following nomenclatures: component 1 of

"Illegitimacy of Governments", component 2 of "Moral reasons for not paying taxes" and component 3 of "Paying Taxes is a duty". The respective Cronbach alphas are 0.931, 0.876 and 0.867, whose reliability is moderate to high. The results are presented below.

Table 11 – Tax Ethics – New Dimensions

Indicator	Freq.	Min.	Max.	Mean	SD
Illegitimacy of Governments	227	1,00	5,00	2,38	1,11
Moral reasons for not paying taxes	227	1,00	5,00	1,81	0,94
Paying Taxes is a duty	227	1,00	5,00	1,53	0,90

All the new dimensions, as well as the initial dimension, present an average below the center of the scale, meaning that on average, the respondents strongly disagree or at least disagree with the arguments justifying tax evasion.

Nonetheless, it is clear from the new dimensions created that taxpayers disagree more notoriously with the arguments "moral reasons for not paying taxes" and "duty to pay taxes" when compared with the argument of the "illegitimacy of governments".

Statistical tests were carried out to infer the existence of statistically significant differences among the various control variables. Comparing the new dimensions with the initial one, "Tax Ethics", the statistically significant differences are presented in the table below.

Table 12 – Tax Ethics – Mean Differences

Control Variable	Tax Ethics	Illegitimacy of Governments	Moral reasons for not paying taxes	Paying Taxes is a duty
	T-test	T-test	T-test	T-test
Gender	***	**	***	***
Professional Area				
Tax Education			***	**
Conjugality	*	*		
Children	**	***		*
Employment Relationship	**		**	
Belonging to a Religion			*	
Degree of comfort with household income				
Age	*	**		*
Level of Religiosity		**		

*p<0,10; ** p<0,05; *** p<0,01

Regarding component 1, the statistically significant differences are the same as in the initial dimension, except for the employment relationship and the level of religiosity. However, the "Illegitimacy of Governments" component loses some statistical

significance in the gender group when compared to the initial dimension.

For the component "Moral reasons for not paying taxes", the statistically significant differences in common with the initial dimension are those related to gender and employment relationship. When compared with the initial dimension, Component 2, presents statistical differences in tax education and whether one belongs to a religion.

The statistically significant differences in common between component 3 and the initial dimension are related to gender, whether one has children and age.

5.3 Clusters Analysis

Table 13 – Clusters Description

	Illegitimacy of Governments		Moral reasons for not paying taxes		Paying Taxes is a duty	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Cluster 1	-,0259	,907	1,994	,724	-,976	,516
Cluster 2	,977	,596	-,395	,545	-,367	,606
Cluster 3	,229	,966	,641	,939	1,869	,816
Cluster 4	-,788	,428	-,478	,361	-,118	,415

Scale of the original variables: 1=completely agree; 5=completely agree

Table 14 – Clusters Distribution

Item	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Male	9,9%	33,3%	23,4%	33,3%
Female	12,9%	31,9%	6,9	48,3%
Tax Educated	8,6%	35,8%	8,6%	46,9%
Not Tax Educated	13,0%	30,8%	18,5%	37,7%
Up to 29 years old	9,8%	40,2%	15,7%	34,3%
30-44 years old	12,7%	24,1%	19,0%	44,3%
More than 44 years old	13,0%	30,4%	6,5	50,0

Through the analysis of table 13, it is possible to verify that cluster 2 is the one that most agrees with the argument of "Illegitimacy of Governments", thus disagreeing with the other 2 arguments. Regarding the "Moral Reasons for not paying taxes" argument, the cluster with the highest level of agreement is cluster 1. Finally, cluster 3 is the one with the highest level of agreement with the "Paying taxes is a duty" argument.

Figure 1 – Cluster Analysis
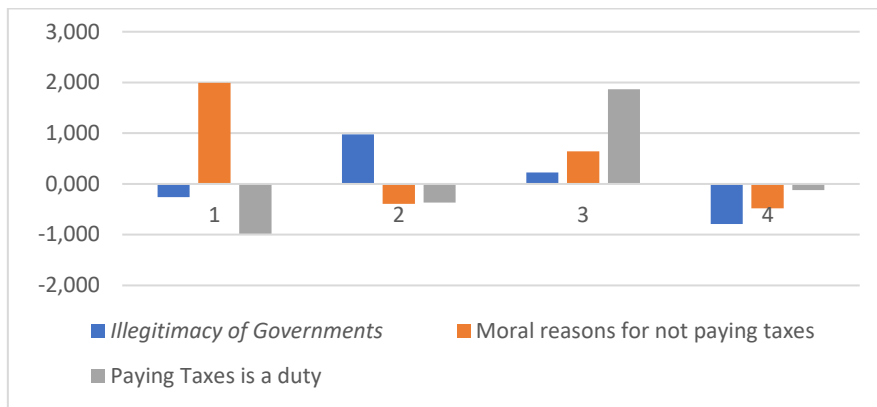
5.4 Analysis Of An Econometric Model

A multiple linear regression econometric model was performed, with the 3 components of the PCA analysis as dependent variables; Illegitimacy of Governments (Model 1); Moral Reasons for not paying taxes (Model 2); and Paying taxes is a duty (Model 3). The Independent variables used were the following: Gender, Tax Education, Conjugality, Income, Children, Age, Degree of Religiosity, Clusters, Professional Area, Employment Relationship, Shadow Economy, Institutional Confidence and the Tax Ethics components extracted from the PCA analysis (see Table E.1, Appendix E)

Table 15 – Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	,783	,613	,579	,649	2,225
2	,843	,711	,686	,560	2,110
3	,836	,698	,672	,572	1,973

Table 16 – ANOVA – Multiple Linear Regression Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	138,524	18	7,696	18,299	,000
1	Residual	87,476	208	,421		
	Total	226,00	226			
	Regression	160,659	18	8,926	28,413	,000
2	Residual	65,341	208	,314		
	Total	226,00	226			
	Regression	157,828	18	8,768	26,753	,000
3	Residual	68,172	208	,328		
	Total	226,00	226			

Through the analysis of the Durbin-Watson statistics presented in table 15, it is possible to note that the residuals of the 3 models are not correlated since they are all very close to 2. By analyzing the Adjusted R Square values presented in table 15, it is possible to

conclude that the degree of variation of the 3 Tax Ethics components is strongly explained by the independent variables. By analyzing the VIF values (see Appendix E), it is possible to conclude that the models do not present multicollinearity, since all VIF values are below 4. It is also possible to conclude, by analyzing the F statistics presented in Table 16, that the model is, at a global level, for the 3 cases, statistically significant. (Brites, 2016).

Through the analysis of Table E.1 (Appendix E), it is possible to note that the only independent variables included in the estimation of Model 1 which possess a positive impact on the "Illegimitacy of Governments" argument as an ethical justification for tax evasion are the following: gender, tax education, employment relationship and the clusters. Contrary to the univariate analysis, only the clusters and Shadow Economy variables showed statistical significance

In model 2, 12 of the 19 independent variables have a positive impact on the "Moral Reasons for not paying taxes" argument. The only exceptions are tax education, conjugality, degree of religiosity, employment relationship, shadow economy, illegitimacy of governments and paying taxes is a duty. In the same vein of the conclusions verified in the tests of differences of means presented previously, gender maintains its statistical significance. Cluster 1, cluster 3, belonging to a religion and shadow economy now also present statistical significance.

In model 3, as in model 2, 12 of the 19 independent variables have a positive impact on the "Paying taxes is a duty" argument for tax evasion. In this model, only cluster 1 and 3 present statistical significance, contrary to what was observed in the tests of differences of means presented previously.

6. Conclusion

6.1 Main Conclusions

The main objective of this dissertation is to assess the attitudes of Brazilians towards the ethics of tax evasion and on a second level to analyze the influence of several socio-demographic variables on tax ethics. For that purpose, a questionnaire was applied, based on the tax ethics literature and previous studies. The sample obtained, consisting of 227 responses, is not considered representative of the target population - the individual taxpayers living in Brazil.

To achieve the objective of this work, empirical work was carried out in three phases. The first phase consisted of a descriptive analysis of the questionnaire. The descriptive analysis allowed the verification of the high degree of discomfort of taxpayers regarding the payment and receipt through cash to evade taxes and their disapproval of the undue claim for tax benefits. The descriptive analysis also revealed a feeling of distrust on the part of respondents towards national institutions and that the Brazilian taxpayers tend to present a high level of ethics towards tax evasion. This research work also contributed on the finding of the arguments that are more valued by taxpayers when trying to justify tax evasion, namely: an unfair tax system; if part of the tax revenue is used to finance a war that the taxpayer disapproves; if the taxpayer does not possess the means to pay the taxes due; and if the government discriminates the taxpayer in any way (race, religion, ethnicity). Subsequently, the dimensions associated with the research work and its analysis were created: Shadow Economy, Institutional Confidence and Tax Ethics.

The second phase consisted, after the presentation of the dimensions, of inferring about the differences in means (t-test and Scheffé test) using the various control variables suggested by Devos (2014): gender; age, professional area; tax education; conjugality; employment relationship; belonging to a religion; degree of religiosity; degree of comfort with household income and whether or not someone had children.

Concerning the "Tax Ethics" dimension, it was possible to conclude that gender is a determinant factor for the taxpayer's level of ethics, becoming clear that women have higher levels of tax ethics, which is in line with past studies, such as the studies conducted by Torgler (2003), Martinez-Vazquez & Torgler (2009) and Tittle (1980).

With this dissertation, it was also possible to conclude that age is a determinant factor for the taxpayers' level of ethics, being possible to verify that the individuals between 30-44

years old present higher values of tax ethics, which is in line with the studies conducted by Tittle (1980), Braithwaite (2002), Andreoni (1998) and Richardson & Sawyer (2001).

Occupation is also a determinant factor for the tax ethics level, with the variable being distinguished between the self-employed, employed, and unemployed. Employed people are found to possess higher levels of tax ethics, which presents the same conclusions as previous studies done by Jackson & Milliron (1986); Andreoni *et al.* (1998) and Torgler (2003).

Contrary to most of the literature, the religiosity level was not a determinant factor for the tax ethics level, with no evidence found that the ethics towards tax evasion was different between religious and non-religious people.

With the realization of the PCA, it was concluded that it would make more sense to subdivide the dimension "Tax Ethics" by the three components suggested: "Illegitimacy of Governments", "Moral Reasons for not paying taxes" and "Paying taxes is a duty". The creation of these three new variables is one of the contributions of this work.

The third phase of the empirical work consisted of evaluating, through a multiple linear regression model, which variables have explanatory power of the 3 components of the "Tax Ethics" dimension obtained with the PCA analysis. Overall, it was found that the degree of tax ethics is determined by the following variables: belonging to one of the clusters, gender, belonging to a religion and the level of discomfort of taxpayers towards the shadow economy problematic.

6.2 Limitations

Research work involving empirical studies is subject to several constraints, namely, those concerning the quality of the data collected and its respective treatment. After carrying out this research work, it is possible to highlight the following limitations:

1) The sample, despite its considerable size (N=227), is not representative of the target population. It would be important to apply the questionnaire to a representative sample of the target population, which must be larger.

2) The answers obtained in the questionnaires may, in some cases, be biased from the true perception of the respondent. This is a common problem when research is based on the application of questionnaires (Alm, 2012), as taxpayers may be ashamed or fear reprisals.

However, to overcome this limitation, respondents had full privacy when answering the questionnaire.

3) Absence of the "Tax Morals" dimension, since its Cronbach alpha was very small, making its insertion in this dissertation unfeasible.

4) Concerning the dimensions created, the "Shadow Economy" dimension consists of only two indicators, respecting the maximization of its Cronbach's alpha. It would be advisable to build the identified dimension with new indicators.

6.3 Further Research

This dissertation allowed the identification of a set of topics for future research, of which the following are highlighted:

1) Considering the theme of this work, tax ethics is studied from the point of view of individual taxpayers living in Brazil. It would be relevant to study this interaction from the point of view of other players in the tax system, such as: non-resident Brazilian individual taxpayers, collective taxpayers residing in Brazil, taxpayers previously identified by the Federal Revenue Service as defaulters, among others;

2) As already mentioned, one of the dimensions measured is only constituted by two indicators. It would be important, and interesting, to redefine this same dimension and to include new dimensions, such as Tax Morals, outside the spectrum of this dissertation, given that its Cronbach alpha was extremely small.

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8. Appendixes

Appendix A – Questionnaire

Questionnaire Nr. ☐☐☐

A – Shadow Economy

Below are some statements on compliance with tax obligations., which relate to an aspect of the shadow economy problematic.

In this case, the statements relate to situations on which income is received in cash. Therefore, they constitute income paid in notes and coins, not declared to the Federal Revenue of Brazil (RFB).

A1. Please indicate your degree of agreement for each of the statements below.

Possible answers: SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree.

		SA	A	N	D	SD
1	I find it unfair to work, constantly, receiving cash without paying taxes.					
2	It is unfair to make payments in cash in order not to pay taxes					

B – Tax Morals

B.1 Please indicate your degree of agreement for each of the statements below.

Possible answers: SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree.

		SA	A	N	D	SD
1	It is justifiable to claim government and/or tax benefits for which we are not entitled					
2	It is justifiable to evade taxes if we have a chance					
3	It is justifiable not to pay the ticket for public transportation					

C – Institutional Confidence

C.1. How confident are you of the following institutions? ST = Strongly Trust; T = Trust; N = Neutral; DT = Do not trust; SDT = I strongly do not trust

		ST	T	N	DT	SDT
1	Police					
2	Courts					
3	Government					
4	Political Parties					
5	Federal Senate					
6	Brazilian Internal Revenue Service (IRS)					

D.1. Please indicate your degree of agreement for each of the statements below.

Possible answers: SA = Strongly agree; A = Agree; N =Neutral; D = Disagree; SD = Strongly Disagree.

	Tax evasion/fraud is ethical...	SA	A	N	D	SD
1	Even though a large part of tax revenue is spent on fair cause projects					
2	Although a large part of the tax revenue is spent appropriately					
3	If the tax system is unfair					
4	If a large part of the tax revenue is spent on projects that I morally disapprove of					
5	If part of the tax revenue is to finance a war that I consider unfair					
6	If everyone does that					
7	Even though a large part of the tax revenue is spent on projects that benefit me					
8	If I can't pay the taxes due					
9	If I was sure I'd never get caught					

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10	If the government discriminated against me in any way because of my religion, race or ethnicity					
11	If a significant portion of tax revenue ends up in the pockets of corrupt politicians or their families and friends					
12	If tax rates are too high					
13	If a large part of the tax revenue is wasted					
14	If the probability of being caught is low					
15	If I was a Jew living in Germany during the Nazi regime during World War II					
16	Because the government does not have the right to charge me so much (even if the tax figures are not too high)					
17	If I lived in a dictatorship					
18	If I lived in a state of emergency due to a health crisis (example: covid-19)					
19	Even if it means that if I pay less, others will pay more					
20	If the government conditioned the political opinion of the people					
21	Even though a large part of the tax revenue is spent on projects that do not benefit me					

E - Socio-Demographic Data

E1. Gender: M •   F •

E2. Age: _____

E3. Have you ever had any training in Taxes, Tax/Fiscal Law or any other area related to such areas?
Yes •   No •

E4. **What is your current employment status?**   Unemployed •   Employed•

E5. In your profession you...

1	Work for a company, regardless of size.	
2	Self-employed	
3	Work in a family business or company, regardless of size.	
4	Another situation. What? _____	

E6. What is your professional area of expertise?

1	Administration and Economics	
2	Financial Services	
3	Informatics and Information Technology	
4	Legal	
5	Marketing	
6	Architecture/Urbanism	
7	Human Resources	
8	Logistics/Operational	
9	Health and Wellness	
10	Engineering	

E7. Which of the following statements comes closest to your current income?

1	Current income allows you to live comfortably	
2	The current income is enough to live on	
3	It is hard to live with your current income	
4	It is very difficult to live with your current income	

E8. What is your marital status?

1	Single	
2	Married	
3	Divorced	
4	Widower	

E9. Number of children?

1	0	
2	1	
3	2	
4	3	
5	More than 3	

E10. Regardless of your particular religion, you would say you are a person:
Nothing religious •   Not very religious •   Very religious •

E10.1. Do you currently have any religion? Yes •   No •

Appendix B - Subgroups
Table B.1 - " Sociodemographic variables and their subgroups"

Sociodemographic variable	Subgroups	Dimension of the subgroups
Gender	Male	111
	Female	116
Professional Area	Others	129
	Economics/Finance	98
Tax Education	Yes	81
	No	146
Conjugality	Yes	89
	No	138
Children	No	151
	Yes	76
Employment Relationship	Self-employed	45
	Employed	182
Belonging to a Religion	Yes	118
	No	109
Degree of comfort with household Income	Non comfortably	119
	Allows to live Comfortably	108
Degree of Religiosity	Not religious	78
	Very religious	30
	Some religious	119
Age	Up to 29 years	102
	30-44 years	79
	≥45 years	46

Appendix C – Descriptive Statistics
Table C.1 – Shadow Economy

	Item	Freq.	Min.	Max.	Mean	SD	Cronbach Alpha
A1.	I think it is unfair to work, constantly, receiving in cash without paying taxes	227	1	5	3,65	1,34	
A2.	It is unfair to make payments in cash in order not to pay taxes	227	1	5	3,86	1,29	0,79
Shadow Economy		227	1	5	3,76	1,19	

Table C.2 – Tax Morals

	Item	Freq.	Min.	Max.	Mean	SD	Cronbach Alpha
B1.	It is justifiable to claim government and/or tax benefits for which we are not entitled	227	1	5	1,58	1,16	
B2.	It is justifiable to evade taxes if we have a chance	227	1	5	1,70	1,11	0,58
B3.	It is justifiable not to pay the ticket for public transport	227	1	5	2,14	1,34	

Table C.3 – Institutional Confidence

	Item	Freq.	Min.	Max.	Mean	SD	Cronbach Alpha
C1	Police	227	1	5	2,68	1,20	
C2	Courts	227	1	5	2,71	1,22	
C3	Government	227	1	5	1,87	1,11	
C4	Political Parties	227	1	4	1,50	,86	0,77
C5	Federal Senate	227	1	5	1,91	1,05	
C6	Brazilian Internal Revenue Service (IRS)	227	1	5	2,92	1,26	
Institutional Confidence		227	1	4,17	2,27	,76	

Table C.4 - Tax Ethics

	Item	Freq.	Min.	Max.	Mean	SD	Cronbach Alpha
D1	Even though a large part of tax revenue is spent on fair cause projects	227	1	5	1,77	1,24	
D2	Even though a large part of the tax revenue is spent appropriately	227	1	5	1,78	1,24	
D3	If the tax system is unfair	227	1	5	2,26	1,41	
D4	If a large part of the tax revenue is spent on projects that I morally disapprove of	227	1	5	2,16	1,34	
D5	If part of the tax revenue is to finance a war that I consider unfair	227	1	5	2,44	1,53	
D6	If everyone does that	227	1	5	1,59	1,08	0,94
D7	Even though a large part of the tax revenue is spent on projects that benefit me	227	1	5	1,67	1,09	
D8	If I cannot pay the taxes due	227	1	5	2,56	1,45	
D9	If I was sure I'd never get caught	227	1	5	1,51	,97	
D10	If the government discriminated against me in any way because of my religion, race or ethnicity	227	1	5	2,47	1,52	
D11	If a significant portion of tax revenue ends up	227	1	5	2,31	1,57	

	in the pockets of corrupt politicians or their families and friends					
D12	If tax rates are too high	227	1	5	2,05	1,30
D13	If a large part of the tax revenue is wasted	227	1	5	2,20	1,39
D14	If the probability of being caught is low	227	1	5	1,50	,99
D15	If I was a Jew living in Germany during the Nazi regime during World War II	227	1	5	3,04	1,69
D16	Because the government does not have the right to charge me so much (even if the tax figures are not too high)	227	1	5	2,22	1,39
D17	If I lived in a dictatorship	227	1	5	2,57	1,55
D18	If I lived in a state of emergency due to a health crisis (example: covid-19)	227	1	5	2,37	1,47
D19	Even if it means that if I pay less, others will pay more	227	1	5	1,61	,99
D20	If the government conditioned the political opinion of the people (e.g. oppressed press)	227	1	5	2,15	1,35
D21	Even though a large part of the tax revenue is spent on projects that do not benefit me	227	1	5	1,80	1,22
Tax Ethics		227	1	5	2,10	,88

Appendix D – PCA Results

Table D.1 - PCA Results

Dimension	KMO	Bartlett	Explained Variance	Commonalities (Minimum Value)	#Indicators	Unidimensional
Shadow Economy	0,500	124,849***	82,656	0,827	2	Yes
Institutional Confidence	0,737	352,259***	46,842	0,289	6	Yes
Tax Ethics	0,930	3179,377***	65,021	0,455	21	No

*$p < 0,10$; ** $p < 0,05$; *** $p < 0,01$

Appendix E – Regression Analysis

Table E.1 – Regression Analysis Results

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std Error	Beta	T	Sig	Tolerance	VIF
1	Constant	-0,546	0,227		-2,403	0,017		
	Gender	0,004	0,098	0,002	0,045	0,964	0,765	1,307
	Tax Education	0,032	0,094	0,015	0,343	0,732	0,910	1,099
	Conjugality	-0,098	0,105	-0,048	-0,932	0,352	0,704	1,421
	Income	-0,034	0,090	-0,017	-0,376	0,708	0,909	1,100
	Kids	-0,081	0,136	-0,038	-0,597	0,551	0,452	2,213
	Up to 29	-0,121	0,161	-0,060	-0,752	0,453	0,289	3,460
	From 30 to 44	-0,217	0,135	-0,104	-1,613	0,108	0,450	2,221
	Some religious	-0,025	0,121	-0,012	-0,202	0,840	0,508	1,968
	Very religious	-0,087	0,131	-0,030	-0,665	0,507	0,937	1,067
	Cluster 1	0,482	0,245	0,154	1,970	0,050**	0,305	3,276
	Cluster 2	1,709	0,110	0,803	15,548	0,000***	0,698	1,433
	Cluster 3	1,064	0,229	0,381	4,656	0,000***	0,278	3,591
	Professional Area	-0,079	0,097	-0,039	-0,809	0,420	0,795	1,258
	Employment Relationship	0,049	0,116	0,019	0,420	0,675	0,872	1,147
	Belonging Religion	-0,018	0,051	-0,017	-0,355	0,723	0,860	1,162
	Shadow Economy	-0,115	0,050	-0,115	-2,293	0,023**	0,744	1,345
	Institutional Confidence	-0,005	0,047	-0,005	-0,097	0,923	0,844	1,185
	Moral Reasons for not paying taxes	-0,024	0,080	-0,024	-0,300	0,765	0,289	3,457
	Paying taxes is a duty	-0,053	0,078	-0,053	-0,680	0,497	0,302	3,308
2	Constant	-0,637	0,194		-3,282	0,001***		
	Gender	0,185	0,084	0,093	2,204	0,029**	0,783	1,277
	Tax Education	-0,126	0,081	-0,061	-1,557	0,121	0,920	1,087
	Conjugality	-0,101	0,091	-0,049	-1,112	0,268	0,705	1,418
	Income	0,031	0,078	0,015	0,395	0,693	0,909	1,100
	Kids	0,169	0,117	0,080	1,446	0,150	0,456	2,195
	Up to 29	0,097	0,139	0,048	0,698	0,486	0,289	3,461
	From 30 to 44	0,095	0,117	0,046	0,817	0,415	0,446	2,241
	Some religious	0,129	0,104	0,064	1,237	0,217	0,512	1,954
	Very	-0,024	0,114	-0,008	-0,215	0,830	0,935	1,069

	religious						
	Cluster 1	2,292	0,142	0,731	16,091	0,000***	0,673	1,487
	Cluster 2	0,051	0,140	0,024	0,363	0,717	0,323	3,097
	Cluster 3	1,069	0,194	0,382	5,514	0,000***	0,289	3,460
	Professional Area	0,080	0,084	0,040	0,948	0,344	0,796	1,256
	Employment Relationship	-0,097	0,100	-0,039	-0,971	0,333	0,875	1,143
	Belonging Religion	0,076	0,044	0,070	1,753	0,081*	0,873	1,146
	Shadow Economy	-0,178	0,042	-0,178	-4,249	0,000***	0,788	1,269
	Institutional Confidence	0,000	0,041	0,000	0,006	0,995	0,844	1,185
	Illegitimacy of Governments	-0,018	0,060	-0,018	-0,300	0,765	0,387	2,582
	Paying taxes is a duty	-0,092	0,068	-0,092	-1,365	0,174	0,304	3,286
3	Constant	-0,469	0,201		-2,338	0,020		
	Gender	-0,023	0,087	-0,011	-0,260	0,795	0,766	1,306
	Tax Education	-0,063	0,083	-0,030	-0,762	0,447	0,912	1,097
	Conjugality	0,015	0,093	0,007	0,159	0,874	0,701	1,426
	Income	-0,016	0,080	-0,008	-0,204	0,839	0,909	1,100
	Kids	0,131	0,120	0,062	1,094	0,275	0,454	2,204
	Up to 29	0,228	0,141	0,114	1,613	0,108	0,292	3,427
	From 30 to 44	0,036	0,120	0,017	0,303	0,762	0,445	2,248
	Some religious	0,108	0,107	0,054	1,014	0,312	0,510	1,959
	Very religious	0,038	0,116	0,013	0,328	0,743	0,936	1,069
	Cluster 1	-0,592	0,214	-0,189	-2,767	0,006*	0,311	3,219
	Cluster 2	-0,164	0,142	-0,077	-1,155	0,250	0,325	3,080
	Cluster 3	2,121	0,153	0,759	13,889	0,000***	0,486	2,057
	Professional Area	0,061	0,086	0,031	0,714	0,476	0,795	1,259
	Employment Relationship	0,104	0,102	0,042	1,023	0,307	0,876	1,142
	Belonging Religion	0,029	0,045	0,027	0,652	0,515	0,862	1,161
	Shadow Economy	-0,042	0,045	-0,042	-0,948	0,344	0,728	1,373
	Institutional Confidence	0,020	0,041	0,020	0,484	0,629	0,845	1,183
	Illegitimacy of Governments	-0,042	0,061	-0,042	-0,680	0,497	0,388	2,578
	Moral reasons for not paying taxes	-0,096	0,071	-0,096	-1,365	0,174	0,292	3,428

*p < 0,10; ** p < 0,05; *** p < 0,01*