The Effect of Behavioral Nudging and Deterrence Factors on the Tax Amnesty Participation Process

Davranışsal Dürtüleme ve Caydırıcılık Faktörlerinin Vergi Afına Katılım Sürecine Etksi

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Abstract

Tax amnesties are implemented for a variety of reasons, including political, economic, and financial motivations. Academic literature encompasses research on the effects of tax amnesty programs on tax revenues, compliance, and justice. Behavioral economics has become increasingly important in the fields of public finance as well as other fields. Behavioral economics offers invaluable insights for policymakers, providing a deep understanding of individual behavior. This knowledge significantly aids in the effective management of policy processes, enabling the development and implementation of more targeted and impactful policies. The comprehension of human behavior concerning public finance will lead to the formulation of appropriate policies. The study examines how taxpayers interact with tax amnesty programs using a behavioral economics framework. This study aims to assess the impact of behavioral nudging and deterrence factors on taxpayers' decisions to participate in tax amnesty programs. This study seeks to examine the impact of variables such as "punishment," "audit," "morality," "justice," and "social norms and the importance of public services." The research was carried out using a personal interview survey of 473 individuals who pay income taxes in Türkiye. The participants were categorized into three groups: two groups for treatment and one group for control. The data collected from the fictitious survey were examined using logistic regression analysis. The examination focused on analyzing variables in the study, documenting taxpayers' ideas and attitudes regarding their involvement in tax amnesties, and exploring the demographic characteristics of taxpayers and their point of view on tax amnesties. The study sought to ascertain the elements that impact taxpayers' engagement in tax amnesty. The results indicated that the variables "Perception of Audit," "Perception of Justice," and "Perception of Social and Public Norms" had a substantial impact on individuals' willingness to participate in tax amnesty. The frequent implementation of tax amnesty poses challenges for taxpayers in meeting their tax obligations. It is essential to identify the influential elements that contribute to participation in tax amnesty in order to successfully implement comprehensive and efficient tax amnesty policies. Additionally, it is crucial to take taxpayer behaviors into account while formulating tax amnesty policies to improve tax compliance among taxpayers.

Keywords: behavioral public finance, logistic regression model, tax amnesty

Öz

Vergi afları, siyasi, ekonomik ve mali motivasyonlar da dâhil olmak üzere çeşitli nedenlerle uygulanmaktadır. Akademik literatür, vergi affı programlarının vergi gelirleri, uyum ve adalet üzerindeki etkilerini ele alan araştırmaları kapsamaktadır. Davranışsal iktisat, kamu maliyesi ve diğer alanlarda giderek daha önemli hale gelmiştir. Davranışsal iktisat, politika yapıcılara birey davranışlarını derinlemesine anlama imkânı sunarak, politika süreçlerinin etkin yönetimine önemli ölçüde katkı sağlar. Böylece hedeflenen ve etkili politikaların geliştirilip uygulanmasını mümkün kılmaktadır. Kamu maliyesi bağlamında insan davranışının anlaşılması, uygun politikaların oluşturulmasına zemin hazırlayacaktır. Bu çalışma, mükelleflerin vergi affı programlarıyla nasıl etkileşime girdiklerini davranışsal iktisat çerçevesinde incelemektedir. Araştırma, mükelleflerin vergi affı programlarına katılım kararları üzerinde davranışsal dürtme (nudging) ve caydırıcılık faktörlerinin etkisini değerlendirmeyi

amaçlamaktadır. Bu çalışmada "ceza", "denetim", "ahlak", "adalet", "sosyal normlar ve kamu hizmetlerinin önemi" gibi değişkenlerin etkisi incelenmiştir. Araştırma, Türkiye'de gelir vergisi ödeyen 473 birey ile yapılan anket yöntemi ile gerçekleştirilmiştir. Katılımcılar, iki deney grubu ve bir kontrol grubu olmak üzere üç gruba ayrılmıştır. Anketten toplanan veriler, lojistik regresyon analizi kullanılarak incelenmiştir. Bu inceleme, mükelleflerin vergi aflarına katılımlarına ilişkin düşüncelerini ve tutumlarını analiz etmeyi, ayrıca mükelleflerin demografik özellikleri ile vergi aflarına bakış açılarını ortaya koymayı amaçlamıştır. Araştırma, mükelleflerin vergi affına katılımını etkileyen unsurları tespit etmeyi hedeflemiştir. Sonuçlar, "Denetim Algısı", "Adalet Algısı" ve "Sosyal ve Kamu Normları Algısı" değişkenlerinin, bireylerin vergi affına katılma isteği üzerinde önemli bir etkiye sahip olduğunu göstermiştir. Vergi affının sıkça uygulanması, mükelleflerin vergi yükümlülüklerini yerine getirmelerinde zorluklar yaratmaktadır. Kapsamlı ve etkili vergi affı politikalarının başarıyla uygulanabilmesi için vergi affına katılımı etkileyen unsurların tespit edilmesi önemlidir. Ayrıca, vergi affı politikalarının oluşturulmasında mükellef davranışlarının dikkate alınması, vergi uyumunu artırmada kritik bir role sahiptir.

Anahtar Kelimeler: Davranışsal kamu maliyesi, lojistik regresyon, vergi affı

Introduction

The concept of amnesty, regulated in criminal law and constitutional law, appears to fall within the scope of private law as well due to the consequences it causes. The word is defined as the act of pardoning or absolving someone from any form of punishment or crime according to the Turkish Language Association's Current Turkish Dictionary. The concept of tax amnesty varies depending on elements such as the tax debt that is eligible for amnesty, the associated penalties, interest, and other relevant considerations (Kaya, 2014 p.185). Tax amnesty refers to the deliberate decision by the public sector to abandon collecting debts from taxpayers for political purposes, and it involves the complete erasure and removal of tax liabilities owed by taxpayers (Doğan & Besen, 2008, p. 24).

The purpose of this study is to examine the impact of deterrence theory and behavioral nudges on individuals' willingness to participate in a tax amnesty programs. The objective of this study is to assess the elements that influence taxpayers' involvement in the tax amnesty procedure. Additionally, it aims to enhance the advancement of this domain by addressing the inadequacy of research in Türkiye on behavioral public finance in relation to participation in tax amnesty.

Unlike previous studies on the impact of tax amnesties, this research aims to identify the key elements that influence individuals' decisions to participate in a tax amnesty program. Taxpayers' willingness to participate in a tax amnesty will be assessed when they experience deterrent and nudge effects. Ultimately, this study aims to provide policymakers with advice to assist them in identifying crucial factors to consider when developing tax amnesty policies.

This study is intended to be conducted with a sample size of 450 taxpayers in Türkiye and designed fictionally. Based on the research scenario, it is aimed at examining the participants' engagement in tax amnesty and evaluating the effects of the relevant variables on them. The study employed a "questionnaire form" as a tool to collect data. This study reveals the determinants that influence individuals' participation in tax amnesty programs, and the findings of this research make a valuable contribution to the existing literature by providing policy recommendations to the relevant authorities. Ethics committee approval was received for this study from the ethics committee of İstanbul University (Approval no: 886118, Date: 16.05.2022). Written informed consent was obtained from participants who participated in this study.

Within this particular framework, the data were acquired through conducting face-to-face interviews with a total of 473 taxpayers in Türkiye. The population of the research comprises taxpayers residing across the country who are 18 years of age or older. The interviews were conducted with income tax payers in a total of eight Turkish provinces, namely Adana, Ankara, Antalya, Bursa, İstanbul, İzmir, Kocaeli, and Konya. The data gathered from these interviews were analyzed using the logistic regression method.

Participating in tax amnesty is crucial for effectively implementing qualified tax amnesty policies through the analysis of taxpayer behavior. Tax amnesty programs, when executed frequently, have a detrimental effect on tax compliance. It is crucial to identify the determinants that impact the success and efficacy of these tax amnesty programs. Consequently, the importance of taxpayer behavior emerges. Within this framework, taxpayer behaviors are discussed regarding behavioral nudging and deterrence, and the research results are presented.

Theoretical Framework: Development of Behavioral Economics and Behavioral Public Finance

Behavioral economics is identified as a defiance in traditional economic policy analysis. Considering the significant matters discussed in this context, it is important to stress the need for a reassessment of current policy errors.

Behavioral economics rejects the assumption that people's choices are rational, with its assumptions of bounded rationality, limited self-control, and restricted self-interest (Posner, 1998). People fall into the error of framing and expressing economic decisions when confronted with manipulations. The prevailing perspective is that the majority of individuals perceive the glass as being half full, while a minority perceive it as half empty (Slemrod & McCaffery, 2006).

Public finance has significantly changed since World War II (Buchanan, 1975, p. 383). Traditional and modern economic approaches have contrasting perspectives on the state's economic roles. Modern economic approaches advocate for a neutral state role in the economy, in contrast to the conventional model that involves an active governmental institution (Aktan et al., 2004). Behavioral public finance has emerged as a novel research subject that integrates insights from behavioral economics and the study of public finance.

The Organisation for Economic Co-operation and Development (OECD) paper "Behavioural Insights and Public Policy" is the first detailed global analysis of how behavioral insights are utilized in public policy (OECD, 2017). Currently, 200 organizations globally utilize behavioral insights to enhance public policies. These entities consist of public organizations (ministries, private agencies, municipal governments, etc.), non-profit research groups, and private firms that work together with public enterprises to utilize behavioral insights in public policy. OECD research indicates that various structures and methodologies can be utilized to integrate behavioral insights into public organizations (T.C. Ekonomi Bakanlığı, 2018, p. 129). Behavioral finance studies and experiments are now being conducted in the realm of public finance.

Behavioral public finance is a novel area of research that arises from the combination of behavioral economics and public finance. Behavioral economics is a field within economics that examines the impact of psychological, social, and cognitive elements on individual decision-making and behavior. The idea of classical economics is that humans are consistently rational, self-interested, and have full knowledge. Behavioral public finance integrates insights from behavioral economics with public finance research to examine how individuals and officials make choices regarding taxation, government spending, and other fiscal policies. Behavioral finance investigates how psychological elements, such as cognitive biases and techniques, influence decision-making in these domains, as well as how public policies might be constructed to account for these factors.

Behavioral public finance is a discipline that merges behavioral economics with public finance to analyze how individuals' behavior and decision-making processes can impact public policies and initiatives. In this context, the behavioral fiscal illusion integrates behavioral economics and public finance for tax compliance.

Studies aimed at improving public policy regarding how individuals make economic decisions and choices necessitate careful consideration. An additional challenging feature of policy design is the inability to anticipate the responses of individuals or the adaptations of markets to such policies. It will be feasible to assess all the impacts of policies and the circumstances that require them by employing a complete analytical methodology. Public finance facilitates the formulation of individual choices and policy frameworks, hence enabling the implementation of these policies (Congdon et al., 2011, p. 40).

To properly comprehend the effects of public policy, it is necessary to adopt a more comprehensive and analytical perspective. Behavioral public finance is employed to guarantee the efficacy of public policy (Congdon et al., 2011, p. 40). Recently, there has been a rise in research focused on the behavior and decision-making processes of taxpayers, as evidenced by the growing number of applied studies conducted in the past decade (Slemrod & Weber, 2012). Applied research has led to an increase in the utilization of scenario and experimental studies for examining individual behaviors.

Behavioral public finance is an emerging discipline. The objective is to analyze the impact of cognitive biases and other behavioral factors on the decision-making processes of individuals and policymakers and to assess how these factors can influence the efficacy of financial policies.

Literature Review
Various studies have examined the impact of behavioral nudging and deterrence aspects on individuals' participation in tax amnesty programs. There are empirical studies in the academic literature that examine these components. The literature extensively examines different aspects of tax amnesties, including the notions of fairness, economic implications, and the political consequences associated with them. Furthermore, numerous research also encompasses the rationales behind the adoption of tax amnesty. Based on the conducted studies, it has been determined that processes involving sanctions, such as punishments and audits, are more efficient in tax amnesty applications. Furthermore, while amnesty applications may have a temporary impact on income, the implementation of tax amnesties on a regular basis does not lead to a sustained improvement in tax compliance over time.

Tax amnesty procedures are a significant component of political agendas globally (Torgler et al., 2003, p. 375). Tax amnesty allows individuals or organizations to settle their tax obligations without incurring any tax penalties (Alm et al., 2009, p. 82). Tax amnesty programs are primarily implemented in response to the financial needs of the government. Nevertheless, it has been noted that taxpayers' expectations of amnesty in later stages also have an impact on them (Bayer et al., 2015).

In 2009, Ibrahim conducted a study to examine the effects of tax amnesties. In his study, he states that tax amnesties are a method in which individuals are taught how to launder their illegally earned or legally earned but not taxed income. In the paper of Andreoni (1991), it is found that tax evaders anticipate the occurrence of subsequent amnesties following the implementation of regular amnesty programs. According to a study conducted by Boise (2006) on tax amnesties and the perception of justice, it was shown that tax amnesty policies can lead to a feeling of injustice among honest taxpayers. The reason for this is that taxpayers who engage in tax evasion are exempt from penalties through tax amnesty. The impacts of tax amnesty methods can be assessed in relation to income, equity, and commitment to regulations.

Alm and Beck (1991) demonstrate that the implementation of tax amnesty programs, along with increasing tax audits following the amnesty period, results in a favorable effect on the collection of revenue. Martinez (1991) observes that states that do not adopt tax amnesty procedures also witness further growth in income and compliance rates, just like governments that implement amnesty programs by implementing enforcement measures. According to Boise (2007), tax amnesty methods are beneficial in generating government revenue. According to Le Borgne and Baer (2008), tax amnesty is a successful mechanism for producing revenue in both the short and long term.

Tekin and Gürçam (2019) performed a survey in Iğdır, where they interviewed 307 individuals who pay personal income tax, in order to examine the relationship between tax amnesties and tax compliance. The study's findings reveal that participants perceived tax amnesty as an advantage for taxpayers who fail to pay their tax arrears promptly, while honest taxpayers appear to be penalized. In addition, they reached the conclusion that regular tax amnesties result in a decrease in the amount of tax paid by honest taxpayers.

In their study, Mujahid and Siddiqui (2019) analyze data from 1990 to 2017 on 28 nations to investigate the economic impacts of tax amnesties. According to the findings of this investigation, tax amnesties have been shown to increase per capita income and indirectly support foreign capital investments. In addition, they help decrease the unemployment rate and have a favorable effect on tax revenues in the long run by promoting greater tax compliance. Hermawan et al.(2020) proposed three suggestions derived from secondary data and the outcomes of their interviews conducted in Indonesia. They believed that a fair legal agreement, diligent taxpayer monitoring, and the tax office's guidance were essential components in ensuring taxpayer commitment to tax laws. In their experimental research, Damayanti et al. (2020) investigated the correlation between taxpayers' confidence in the government and their commitment to tax regulations. They assigned 117 students the role of taxpayers for this purpose. The study concluded that the introduction of tax amnesty has varying impacts on both faith in the government and tax compliance. Within this particular framework, it was asserted that the taxpayer may have a sense of equity and harbor favorable sentiments toward several matters, including tax compliance.

Wadesango et al. (2020) conducted a survey of 20 small and medium-sized enterprises (SMEs) employing the face-to-face interview method. The objective of the study is to ascertain the correlation between the tax compliance level of SMEs and tax amnesties, as well as examine the influence of tax compliance. The study demonstrated a negative correlation between tax compliance and tax amnesty. Furthermore, they suggested that by converting tax amnesty practices into a state of emergency rather than the commonly implemented tax amnesty application and by enhancing the value of the tax amnesty application, it would be possible to decrease instances of tax non-compliance. Inasius et al. (2020) investigated the way taxpayers perceive their compliance with tax regulations

following the introduction of tax amnesties in Indonesia. Data were collected by conducting face-to-face interviews with 410 firms in 2018. The study's findings indicate a direct correlation between faith in the government and the willingness of individuals to comply with tax obligations on a voluntary basis.

Juanda et al. (2022) investigate the impact of wealth, tax fines, audit likelihood, and predictions of future tax amnesty on taxpayers. The study was conducted in a laboratory setting with a sample size of 162 students. The participants were assigned the roles of taxpayers, each with distinct features. Within this framework, it is determined that taxpayers with substantial wealth exhibit a low degree of tax compliance, while also seeking the lowest possible tax amnesty. They reached the conclusion that conducting audits and levying fines were more efficient in guaranteeing tax compliance. In a study conducted by Nuryanah and Gunawan (2022) involving 783 enterprises, it was determined that tax amnesties solely enhance the tax compliance of individual taxpayers. Their conclusion was that implementing tax amnesty for firms would result in a rise in proactive tax planning.

In their empirical research, Fox and Murray (2012) state that tax amnesty processes primarily rely on various economic, financial, and political factors within the scope of research conducted by US states. Additionally, they assert that the initial tax amnesty has a favorable effect on revenue generation, whereas future amnesties have a diminished impact on revenue.

Gupta and Mookherjee (1995) analyzed the consequences of research on the effects of tax amnesty on revenue generation in India. They determine that tax amnesty policies had a minimal impact on revenue collection, except for a temporary surge in revenue collection. According to Alm and Rath (1998), tax amnesty methods have no impact on income, and the amount of income collected through amnesty applications is overstated. Luitel and Sobel (2007) claim that recurrent utilization of tax amnesty policies diminishes the state's capacity to collect taxes. The study conducted by Alm, Martinez-Vazquez, and Wallace (2009) on the tax amnesty implemented in the Russian Federation demonstrates that tax amnesties had minimal influence on income, both in the short and long run. In his study, Villalba Sanchez (2017) finds that tax amnesties in the Tucuman area of Argentina had a temporary positive influence on revenue generation but did not affect the long-term collection of taxes. In their 2019 study on the revenue impact of tax amnesty in Indonesia, Sumanjaya and Waluyo demonstrate that while there has been an enhancement in tax revenues and economic conditions, the anticipated objective of the tax amnesty has not been attained (Sumanjaya & Waluyo, 2019).

Regarding tax justice, it is contended that tax amnesty policies exert an adverse influence on tax fairness. The perceived fairness of the tax system influences taxpayers' decisions regarding tax evasion. According to Vihanto (2003), the tax system may appear unjust because of the implementation of tax amnesty measures.

Fisher, Goddeeris, and Young conducted research on tax amnesty procedures in Michigan in 1989. Consequently, the analysis shows that amnesty methods do not effectively lead to a large rise in the number of taxpayers. The amnesty applications reveal that the current taxpayers were able to settle their obligations and reap the benefits of the amnesty program. Alm, McKee, and Beck examined data from the United States in 1990 (Alm et al., 1990). They find that tax compliance declined following the implementation of the amnesty. Torgler et al. (2003) conducted a cross-cultural comparison study using data from Latin American and European countries. They discovered that granting taxpayers the option to either support or oppose tax amnesty greatly improves tax compliance. According to the study conducted by Malherbe et al. in 2010, tax amnesty leads to a situation where honest citizens feel conflicted when they see dishonest taxpayers being forgiven. Considering that law-abiding taxpayers may view tax evasion as a lucrative endeavor, it can result in a decrease in their commitment to tax regulations. According to Waris and Abdul Latif (2014), amnesty techniques are employed as a means to "launder" or "legitimise" illicitly obtained funds. Bayer et al. (2015) conducted a study that examined the impact of tax amnesties on tax receipts in the United States from 1981 to 2011. This study demonstrates that during periods of financial challenge, governments in this country obtain advantages from implementing tax amnesties. There is a correlation between the expectation of tax amnesty and a potential decline in tax compliance. In a study conducted by Okoye (2019), the author investigated the influence of political trust on tax compliance during the implementation of tax amnesties in Nigeria. The study finds that tax amnesty procedures had a detrimental effect on tax compliance, while effective management and a perception of accountability were shown to enhance tax compliance. In their study, Wadesango et al. (2020) investigated the effects of tax amnesties on enhancing the levels of tax compliance and the amount of tax revenue collected from SMEs in Zimbabwe. The analysis presents a negative correlation between tax compliance and tax amnesty.

Parle and Hirlinger (1986) demonstrate that tax amnesty methods have a little impact on generating income. Research shows that implementing tax amnesty programs can effectively enhance tax compliance while being cost-effective and carrying minimal political risk in addressing budget deficits. According to Stella (1989), the varying tax amnesty procedures among different US states contribute to the effectiveness of the process. However, this success cannot be directly applied to developing countries, as they require additional measures for effective tax amnesty practices. Torgler et al. (2003) assert in their study that the initial implementation of tax amnesty enhances tax compliance. Nevertheless, they find that recurring tax amnesties have an adverse impact on tax compliance. Saraçoğlu and Çaşkurlu (2011) observe that tax amnesty measures enhance tax compliance by facilitating the transition of individuals operating in the informal economy to becoming registered taxpayers through prompt identification. According to Lederman (2012), implementing tax amnesty programs that include stricter penalties can effectively facilitate the

move toward tax compliance. In their study, Alm et al. (2019) investigate the impact of government-issued nudges on taxpayers' return behavior. Upon comparing the content of these messages with the control group, they observe a rise in tax compliance. Sawitri et al. (2019) aim to examine the impact of tax amnesty policy variables, tax sanctions, and intervention variables on taxpayer compliance. Their research reveals that the variables related to the tax amnesty policy have a favorable influence on taxpayer compliance; however, tax punishments do not show a noteworthy impact on tax compliance. In their study, Sayidah et al. (2020) investigate how the sense of justice in tax amnesties impacts post-amnesty tax compliance in Indonesia. According to their findings, implementing a more equitable tax amnesty policy would result in higher levels of tax compliance following the amnesty period. Junaidi and Darmoko (2022) conduct a study on the effects of the tax amnesty program on equity investors in publicly traded companies in the capital market. They also examine how accountability for investors is established. The study employs normative legal research methodology. Pratama (2023) conducts research on the sociological, psychological, and demographic determinants that impact the decision of Indonesian taxpayers to engage in tax amnesty. A survey is undertaken in the study, involving 109 individual taxpayers, and the findings are analyzed using logit regression. The results indicate that taxpayers' participation in the tax amnesty is influenced by three key factors: their behaviors, attitudes, and level of confidence in the government. Research has determined that tax amnesty typically favors female taxpayers, those who are new to paying taxes, individuals with high income levels, and individuals with advanced levels of knowledge and skills.

In his study, Savaşan (2006) examines the qualitative aspects of the benefits and drawbacks of tax amnesty programs. The report contends that the 2003 tax amnesty resulted in an increase in tax revenues but acknowledges that the long-term consequences of tax amnesties on compliance may pose a concern that requires attention. In 2011, Kargı undertook a study to investigate the impact of tax amnesties in Türkiye on the amount of money collected through taxes. The analysis determines that tax amnesties did not generate tax revenues to the extent anticipated over the long term (Kargı, 2011). According to Aygün (2012), tax amnesties just offer immediate cash resources and have a negative impact on taxpayer compliance without any additional benefits. According to Yaraşır (2013), when tax amnesties occur frequently, taxpayers tend to shirk their responsibilities and engage in tax evasion. In a study conducted by Şenyüz (2014), it was found that the regular implementation of tax amnesties has a detrimental psychological impact on honest taxpayers. This is because these amnesties undermine the fair operation of tax justice. Hence, the introduction of tax amnesties demonstrates that fairness could be achieved and the adverse psychological effects could be counteracted by offering economic incentives to taxpayers who fulfilled their obligations. Nar (2015) examines the impact of tax amnesties on taxpayers. He notes that if the tax amnesty applications are carefully formulated and the frequency of these applications, as well as the short- and long-term losses

and gains, are clearly and adequately disclosed, the antici-pated beneficial outcomes can be achieved. Kaya (2014) con-ducted a study to examine the impact of tax amnesty on total tax receipts from 1980 to 2013. The researcher uses public sector borrowing requirements, tax amnesty programs, and tax income as factors in this study. The study concludes that tax amnesties have a negative impact on tax revenues.

In their 2018 study, Berksoy and Kırçiçek examined the impact of tax amnesties on tax receipts in Türkiye. The tax revenues were assessed quantitatively, and it is concluded that tax amnesty policies do not have a long-term impact on tax rev-enues. To quantify the impact on income, they conduct a com-parative analysis of the years from 2002 to 2018, during which a tax amnesty was implemented, and the preceding years. They discover that the adoption of tax amnesty does not result in any notable change in the proportion of tax receipts within the overall budget revenues. Additionally, they conduct a survey to ascertain the impact of tax amnesties on tax collections. It is concluded that tax amnesties have no impact on tax revenues. Bozdoğan and Şimşek (2018) conducted a study using struc-tural vector autoregression (SVAR) to examine the impact of tax amnesties on tax collections from 1980 to 2014. Tax amnesties lack the capacity to produce extra resources or revenue in the long run and have a detrimental impact on tax revenues.

In their study, Yücedoğru and Sarısoy (2020) examine the impact of tax amnesties on the tax compliance choices of 1028 individuals. The study's results indicate that tax amnesties can enhance tax compliance by encompassing economic actors. They assert that amnesties detrimentally affect notions of fair-ness, confidence in the government, and assessment of poten-tial hazards, all of which typically have favorable consequences for commitment to tax regulations by economic agents. In con-trast, Güler (2020) conducts an event analysis to investigate the impact of tax amnesties implemented in Türkiye after 2010 on tax revenues. The study found that these tax amnesties do not have a statistically significant influence on tax revenues, particularly in the short run. Çelikay and Doğankollu (2023) conduct a comprehensive study that includes all 81 provinces in Türkiye. An analysis is conducted to assess the effects of fiscal amnesty on the tax system using a dataset spanning from 2004 to 2020. Their findings indicate that implementing financial amnesty policies leads to a significant rise in both tax collection and accrual in the short run. Nevertheless, it is asserted that this circumstance diminishes tax revenues over an extended period of time.

Various studies have been conducted on taxpayer behavior and tax amnesty. In a recent study, Dunn, Farrar, and Hausserman (2018) conducted an experiment to investigate the relation-ship between guilt and engagement in tax amnesty. It is deter-mined that people declare their intention to participate in a tax amnesty due to feelings of guilt.

The issue of why people fail to pay taxes prompted research on tax compliance. The economic theory is typically employed to answer this question. The foundation of this approach is rooted in Becker's 1968 model of crime economics. According to Becker (1968), if the potential benefit from committing a crime exceeds the potential cost, the offender is more inclined to commit the crime. Individuals will persist in engaging in criminal activities until the additional advantage gained from committing the crime is equivalent to the additional expense incurred as a result of the crime. In this paradigm, it is pre-sumed that individuals will exhibit rational behavior when mak-ing decisions. The initial application of the model of criminal behavior in the field of taxation was established by Allingham and Sandmo (1972), who utilized the expected benefit function of persons who engage in income tax evasion. This activity is grounded in the framework of the criminal economy, as indi-cated by Hasseldine and Bebbington (1991), Alm et al. (1995), and Doran (2009).

The basis of Allingham and Sandmo's (1972) approach to tax compliance was inspired by the expected benefit model established by Becker (1968) on criminal behavior. The logic of this model is that a rational taxpayer will tend to avoid paying his tax debts when the profit gained from tax evasion exceeds the cost of sanctions for violating tax legislation. During the decision-making process, the taxpayer considers ways to optimize the expected benefit. In cases where the audit is carried out, the situation of under-declaration of taxpayers' tax obligations decreases. This theory states that taxpay-ers pay taxes because they do not comply with tax legisla-tion and do not want to be sanctioned (Muturi & Abdul, 2022, p.126). The theory simply assumes that taxpayers are rational individuals who use available alternatives to maximize the expected benefit.

Yılmaz (2018) conducts a study involving 400 SMEs in Bursa. The study focuses on intergenerational tax compliance and aims to determine taxpayers' perspective on tax amnesty. In the study, a face-to-face survey was conducted with 400 SMEs. The results of the study reveal that generations do not differ much in terms of tax amnesty. In addition, he concludes that the BB (1946–1964) and Y (1965–1980) generations have more similar views on tax amnesties. Taytak and Dalkıran (2019) conducted a face-to-face survey with 471 income tax payers in Uşak. With the study, they carry out an empirical study in order to examine the evaluations of taxpayers who have a tax audit perception toward tax amnesty and tax justice. Taxpayers' perceptions of tax determine their attitudes and behaviors toward tax. It is stated that one of the most important factors effective in the formation of tax perception is tax justice, while another is tax amnesty. In their study, cross-sectional analysis is employed, and they obtain significant results about the tax amnesties and tax justice of taxpayers with audit perception. This finding is expressed as an important role of tax audits in ensuring fairness in the taxation system. It is concluded that tax amnesty practices undermine the effectiveness of audit practices.

Contrary to the existing literature, our study specifically exam-ines the factors that impact individuals' involvement in tax amnesty programs. In the course of time, individual behavior

has become significant. The significance of this influence on participation in tax amnesty sets our study apart from prior studies. In our study, we examined the participation of tax-payers in tax amnesty using visual aids and categorized them into three distinct groups. The inquiry into the determinants of tax amnesty participation is distinct from research on the impacts of tax incentives. The objective is to make a contribution to the field of literature using this approach. The objective is to ascertain the conduct of taxpayers in response to deterrence measures and employ subtle prompts to encourage their engagement in tax amnesty initiatives. The determinants of participation in tax amnesties will be identified. The study seeks to offer policymakers recommendations regarding the specific areas they should focus on when formulating tax amnesty policies.

Empirical Analysis

Demographic Data

The survey conducted in this study provides detailed demographic characteristics of the participants, along with frequency and percentage distributions.

Table 1 displays the distribution of participants for both the treatment groups and the control group in the study. Four hundred seventy-three individuals are surveyed in eight districts. There are 155 individuals in the behavioral nudging group, accounting for 32.8% of the total; 161 participants in the second group, representing 34.0%; and 457 participants in the control group, making up 33.2%.

Table 2 presents the distribution of participants by gender. Of the respondents, 20.7% are female, while 79.1% are male.

The age distribution of participants in the study varies from 20 to 78, as seen in Table 3. The mean age of the 473 participants

Table 1.
Participant Group Distribution Table

	Frequency (*n*)	Percentage (%)
Deterrence group	155	32.8
Behavioral nudging group	161	34.0
Control group	157	33.2
Total	473	100.0

Table 2.
Participants Categorized by Gender Distribution

Gender	Frequency (*n*)	Percentage (%)
Female	98	20.7%
Male	374	79.1%
Total	472	100%

Table 3.
Average Age of Participants

	Minimum	Maximum	Average	Standard Deviation
Age	20	78	43	10.88

is 43. The data indicate that most of the surveyed respondents are middle-aged individuals.

Small and Medium Enterprises Development Organization (KOSGEB) classifies small- and medium-sized firms based on the number of employees. Small firms have 1 to 50 employees, medium-sized enterprises have 51 to 150 people, and large-scale firms have more than 150 employees (Karakaş, 2019, p. 86). The number of employees involved in the study has been categorized as displayed in Table 4, and a category for businesses with 1–5 employees has been added.

Table 5 shows the participants' distribution based on region. The study considers the distribution of income of taxpayers in the sample and calculates the rate at the end of the study.

Data Set and Scenario Design

The research is carried out by a face-to-face interview technique involving 473 individuals who pay income tax throughout eight provinces in Türkiye: Adana, Ankara, Antalya, Bursa, İstanbul, İzmir, Kocaeli, and Konya provinces in 2023. Data collection involves the utilization of a well-designed scenario and

Table 4.
How Many Employees Do You Have in Your Workplace

Workplace Headcount	Frequency (*n*)	Percentage (%)
1–5	291	61.5
6–49	152	32.1
50+	30	6.3
Total	473	100.0

Table 5.
Distribution of Participants by Category

City	Frequency (*n*)	Percentage (%)
İstanbul	219	46.3
İzmir	54	11.4
Adana	29	6.1
Ankara	57	12.1
Antalya	36	7.6
Bursa	36	7.6
Kocaeli	21	4.4
Konya	21	4.4
Total	473	100.0

a fictitious questionnaire enriched with graphic elements. The research is designed for three groups, including the control group, and the scenario and visual differ for each group. When assessing individuals' participation in tax amnesty, a comprehensive set of 28 factors is considered. These factors include deterrence, perception of punishment and control, behavioral nudges, perception of morality, perception of fairness, social norms, and perception of the significance of public services. The initial section of the survey study comprises statements that indicate the frequency of the participants' involvement in the tax amnesty and if they actually engaged in it. There are criteria used to ascertain the taxpayer's participation in the tax amnesty. A tax amnesty presentation, designed individually for each group and customized to their specific needs and requirements, is displayed to the participant. The participant is presented with several statements regarding the image in order to ascertain their perspective on the matter. The second part of the survey involves presenting a scenario tailored to each group based on their individual content and study requirements and collecting input from taxpayers on this scenario. The next component of the survey comprises statements designed to assess the impact of deterrence and behavioral nudges across all demographic groups. The final section contains statements to obtain the demographic data of the participants.

The dependent variable of the study is participation in tax amnesties. Following the presentation of the scenario, the phrase "Would you benefit from tax amnesty if you were in this individual's position?" was asked and coded as 1 if the response was "yes" and 0 otherwise (no). The study employs a 5-point Likert scale to measure perceptions of punishment, control, morality, justice, and social norms. The scale was coded as "strongly disagree (1), disagree (2), undecided (3), agree (4), and strongly agree (5)." The study categorizes the groups as "Deterrence Group (1), Behavioral Nudging Group (2), and Control Group (3)," correspondingly. Categories of participants: 0 for illiterate, 1 for literate, 2 for primary school graduates, 3 for secondary school graduates, 4 for high school graduates, 5 for graduates of associate degree programs, 6 for individuals with a bachelor's degree, and 7 for individuals with a postgraduate degree. The categorization of the number of employees in the workplace is as follows: 1–5 individuals are assigned a code of 1, 6–49 individuals are assigned a code of 2, and 50 or more individuals are assigned a code of 3. Numbers 1 through 6 indicate the age ranges of 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 and older, respectively. The study employs logistic regression analysis to analyze the data collected from taxpayers.

Validity and Reliability of the Research Scale
The general purpose of goodness-of-fit tests is to measure how the employed model deviates from the actual data (Archer & Lemeshow, 2006, p. 97). According to Hosmer and Lemeshow (2000), the main goal of goodness-of-fit testing is to see how well the relevant model explains and portrays the observed outcome in the data. Model fit tests provide us with information regarding the appropriateness of the data for the model. Standard methods for evaluating the adequacy of a model's fit

include the Pearson chi-square test, variance statistics, and the Hosmer–Lemeshow test (Saraçbaşı & Dolgun, 2015). The data acquired following the implementation of binary logistic regression will be assessed.

In order to evaluate the accuracy of the constructed model, the validity of the parameters is examined by methods such as the Pearson chi-square test, Omnibus statistics, and the Hosmer–Lemeshow test. Table 6 provides the chi-square and *p*-values for the model parameters included in the Omnibus test, which are used to assess the significance of the model.

The Hosmer–Lemeshow test is frequently employed to assess the compatibility between the model and the data. When Table 7 is examined, it can be said that the coefficients predicted using the test statistics are appropriate for the model since *p* > .05.

The Nagelkerke *R* square value in Table 8 is 47.5%. This means that our model demonstrates a predictive capability of 47.5% in explaining the variation in the dependent variable.

Model and Findings
In this section, the study's logistic regression analysis results are evaluated, and the identified factors that influence participation in tax amnesties are discussed. Furthermore, the outcomes obtained from the dataset are analyzed.

The estimates of the independent variables in the model are shown in Table 9. It also presents the standard errors of these estimates (SE(^{2})), the Wald statistic, the degree of freedom (dof), the Wald statistic's probability ratio (odds ratio Exp(^{2})), and the estimates of the probability ratios at the 95% confidence level. The goodness-of-fit value shown in Table 9 is 91.3%. The Wald test statistic is employed to assess the significance

Table 6.
Omnibus Tests of Model Coefficients

	χ^2	df	Sig.
Step	143.818	29	.000
Block	143.818	29	.000
Model	143.818	29	.000

Table 7.
Hosmer–Lemeshow Test

χ^2	df	Sig.
13.224	8	.104

Table 8.
Nagelkerke R Values

–2Log Likelihood	Cox and Snell *R* Square	Nagelkerke *R* Square
237.270	.264	.475

Table 9.
Logistic Regression Analysis Results

Dependent Variable: Participation in Tax Amnesty
If There Is Participation in Tax Amnesty, 1
If There Is no Participation in Tax Amnesty, 0

	β	Standard Error	Wald	p	Exp(β)
Punishment	.058	.058	.981	.322	1.060
Audit	.164	.062	6.913	.009	1.178
Justice	.115	.048	5.716	.017	1.122
Morality	−.047	.050	.906	.341	.954
Social & public	.124	.043	8.516	.004	1.132
Visual	3661				
Gender					
Woman	−1.112	.659	2.846	.092	.329
Annual Revenue					
0–70.000 TL			3.270	.514	
70.001–150.000 TL	−.212	.571	.138	.710	.809
150.001–370.000 TL	.420	.573	.537	.464	1.522
370.001–1.900.000 TL	.613	.821	.558	.455	1.847
1.900.000 TL and over	18.711	14452.499	.000	.999	133677635.167
How many people live in your household, including you?					
1–5 people			2.686	.261	
6–49 people	.197	.383	.265	.607	1.218
50 and over	2.110	1.303	2.620	.106	8.247
Age					
18–24			2.682	.749	
25–34	−.543	1.376	.155	.693	.581
35–44	−.596	1.671	.127	.721	.551
45–54	−.843	2.075	.165	.685	.430
55–64	−1.725	2.548	.458	.498	.178
65+	−.880	3.264	.073	.788	.415
Education					
Literate			8.874	.181	
Primary school	−15.178	40193.743	.000	1.000	.000
Secondary school	−14.259	40193.743	.000	1.000	.000
High school	−14.572	40193.743	.000	1.000	.000
Associate degree (2-year)	−14.946	40193.743	.000	1.000	.000
Bachelor's degree (4-year)	−14.768	40193.743	.000	1.000	.000
Graduate	−17.207	40193.743	.000	1.,000	.000
Earning types					
Commercial earnings			.031	.999	
Agricultural earnings	17.363	19964.138	.000	.999	34729141.082
Self-employment earnings	−.149	.840	.031	.859	.862
Constant term	8.512	40193.743	.000	1.000	4973.870
Cox and Snell R square			.264		
Nagelkerke R square			.475		
Accurate prediction rate			91.3		

of the β coefficient in logistic regression for each independent variable. Table 9 shows that the variables "Audit, Justice, and Social and Public Norm" had a statistically significant effect on participation in tax amnesty ($p < .05$). The logistic regression model is defined as follows:

Participation in tax amnesty $= 8.512 + 0.164$ audit $+ 0.115$ justice $+ 0.124$ social and public norm

The logistic regression model will be represented using odds ratios:

$$\frac{p}{1-p} = e^{8,512 + 0,164\, Audit + 0,115\, Justice + 0,124\, Social\ and\ Public\ Norm}$$

The estimated probability ratios for each variable are displayed in the Exp (β) column of Table 9. If the Exp (β) values are greater than 1, the probability of the result occurring increases. If the value is less than 1, it is considered to be diminishing.

In the model, the binary logistic regression method was used to estimate the participation of 473 taxpayers in tax amnesties. The dependent variable in this model is defined as whether there is participation in tax amnesty after the scenario. The value of Pi is equal to 1 when the participant decides to participate in a tax amnesty. Based on the significance levels presented in Table 9, the determination of significance or insignificance is made based on the respective variable category. The odds (Exp β) of the non-significant categories are not subject to interpretation.

The audit perception has a p-value of .009, indicating that it is statistically significant at a level of .05. The taxpayer's involvement in tax amnesty is significantly enhanced by the perception of an audit. The p-value for the perception of justice is less than .017, indicating statistical significance. The p-value for the perception of social and public norms is less than .004. Due to a greater awareness and comprehension of social and public norms, taxpayers' participation in tax amnesty increases.

Discussion and Conclusion

Although tax amnesties are intended to promote taxpayer compliance, they have evolved into an instrument for economic, political, administrative, and financial objectives. Tax amnesty, for these various reasons, is ineffective and harms tax compliance and justice. To ensure tax compliance and justice, it is critical to identify the elements that influence tax amnesty participation. In this regard, it is necessary to thoroughly examine the reasons for taxpayers' involvement in tax amnesty in Türkiye. In this regard, the participation of taxpayers in Turkish tax amnesty procedures, as well as the effectiveness of tax amnesty practices, was investigated using behavioral nudging and deterrence features.

In the study, within the context of behavioral nudging and deterrent aspects, the impacts of factors such as perception of audit, perception of justice, and perception of social and public norms on tax amnesty participation were estimated using the logistic regression analysis method. These components are crucial for improving tax amnesty programs' efficiency while ensuring widespread taxpayer engagement.

Strengthening the perception of audit, corroborating the perception of justice, and emphasizing the importance of social and public norms are all effective techniques for encouraging widespread participation in tax amnesty policies. Considering these factors, tax amnesty policies should be designed to ensure tax compliance and justice, rather than only as a short-term financial tool.

The study examines the behavior of individuals toward their participation in tax amnesties, as well as their demographic characteristics and perspectives on such amnesties. Furthermore, the variables that affect the participation of individuals from various backgrounds in tax amnesties are determined. The study employs a fictitious survey and the logistic regression model to evaluate the factors that influence participation in tax amnesty, specifically focusing on the effects of behavioral nudges and deterrence. The study demonstrates that the perception of audit and the behavioral nudge, perception of justice, and perception of the social and public norm are important determinants influencing participation in tax amnesty.

In our tax-amnesty participation model,

"The probability of being audited significantly affects the level of participation in tax amnesty."

"The perception of justice significantly influences individuals' willingness to participate in a tax amnesty programs."

"The influence of societal norms and the perceived significance of public services significantly affect individuals' participation in tax amnesty programs."

Governments implement tax amnesties for numerous reasons, and they are frequently used by both developing and developed countries. Considering that frequent usage of tax amnesties undermines tax compliance and has a detrimental impact on tax justice, the significance of this matter is escalating. Identifying the influential reasons for engaging in tax amnesty is crucial for the successful execution of a comprehensive and efficient tax amnesty program. It is important to determine the factors that contribute to the successful implementation of tax amnesties. This is also important in uncovering the reasons for the non-compliance of taxpayers.

Factors such as the perception of audit, the perception of justice, and the perception of social and public norms play a crucial role in determining participation in tax amnesty. When the taxpayer's involvement in the tax amnesty is seen as a consequence of tax non-compliance, these criteria are also important in relation to tax compliance. Policymakers must carefully

consider these criteria to ensure both tax compliance and the efficacy of tax amnesty applications. In this context, focusing on comprehensive and effective tax amnesties instead of frequent practices will increase the success of amnesty applications.

Discussion

At the end of the survey, an open-ended question was asked: "What do you think about tax amnesties?" "Explain." Participants generally state that "they expect tax amnesty," "it should be automatic at certain intervals," "it provides relief to financially struggling individuals," and they support it. Furthermore, some participants expressed their disapproval of tax amnesty, citing concerns that it undermines justice and leads to unfair competition between taxpayers and non-taxpayers.

In terms of the limitations of this study, suggestions for future studies can be listed as follows:

- A sector-specific comparative investigation of tax amnesty practices can be conducted.
- A comparative analysis can be made regarding the effects of tax amnesty practices implemented over the years.
- An analysis can be carried out on the revenue collected from tax amnesty, budget shortfalls, and their economic consequences

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