

The Role of Budget Transparency in Reducing Tax Evasion Tendencies: An Empirical Analysis

Bütçe Şeffaflığının Vergi Kaçırma Eğilimini Azaltmadaki Rolü: Ampirik Bir Analiz

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Abstract

This study empirically investigates the effect of budget transparency on individuals' tendency to justify tax evasion, using data from 19 developed and developing countries over the period 2006–2021. The analysis employs the System Generalized Method of Moments (GMM) approach. The tendency to justify tax evasion is measured using a question from the World Values Survey (WVS) that assesses individuals' attitudes toward tax evasion, while budget transparency is proxied by the Open Budget Index published by the International Budget Partnership (IBP). The findings reveal that greater budget transparency significantly reduces the tendency to justify tax evasion. Furthermore, increases in individuals' religious beliefs, education levels, perceived tax burden, corruption levels, and income inequality are associated with a higher justification of tax evasion. No statistically significant relationship is found between economic growth and the tendency to justify tax evasion. These results underscore the importance of fiscal transparency and social factors in shaping tax-related behaviors.

Keywords: Budget Transparency, Tax Evasion Justification, System Generalized Method of Moments (GMM), Panel Data Analysis.

Öz

Bu çalışmada, 2006–2021 döneminde gelişmiş ve gelişmekte olan 19 ülke için bütçe şeffaflığının bireylerin vergi kaçırma hakkı görme eğilimi üzerindeki etkisi ampirik olarak analiz edilmiştir. Çalışmada tahmin yöntemi olarak Sistem Genelleştirilmiş Momentler (System-GMM) yaklaşımı kullanılmıştır. Bağımlı değişken, Dünya Değerler Araştırması (World Values Survey - WVS) veri setindeki “vergiden kaçınmayı haklı görme” sorusuyla ölçülmüştür. Bağımsız değişken olan bütçe şeffaflığı ise Uluslararası Bütçe Ortaklığı (IBP) tarafından yayımlanan Açık Bütçe Endeksi (Open Budget Index) ile temsil edilmiştir. Ampirik bulgular, panel ülkelerde bütçe şeffaflığının bireylerin vergi kaçırma hakkı görme eğilimini anlamlı biçimde azalttığını ortaya koymaktadır. Diğer yandan, artan dini inanç düzeyi, eğitim seviyesi, hissedilen vergi yükü, ülkedeki yolsuzluk düzeyi ve gelir dağılımındaki bozulma, bireylerin vergi kaçırma hakkı görme eğilimini artırmaktadır. Ekonomik büyüme ile vergi kaçırma hakkı görme eğilimi arasında ise istatistiksel olarak anlamlı bir ilişki saptanmamıştır. Bu sonuçlar, vergiyle ilgili davranışların şekillenmesinde mali şeffaflığın ve sosyal faktörlerin önemini vurgulamaktadır.

Anahtar kelimeler: Bütçe Şeffaflığı, Vergi Kaçırma Eğilimi, Sistem Genişletilmiş Momentler Yöntemi, Panel Data Analizi.

Jel Kodları: H69, H26, C33.

Araştırma Makalesi [Research Paper]

Submitted: 26 / 01 / 2025

Accepted: 23 / 09 / 2025

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Introduction

Budget transparency and the tendency to evade taxes are two fundamental concepts shaping the effectiveness of public finance systems and individuals' tax compliance behaviors. Budget transparency refers to the provision of open, understandable, and accessible information by governments regarding fiscal processes and budgetary practices. This transparency typically enhances perceptions of fiscal fairness and is expected to improve the efficiency and equity of public resource allocation. On the international level, tools such as the Open Budget Index are widely used to measure the level of transparency in public budgeting practices across countries.

The tendency to evade taxes reflects individuals' attitudes toward tax compliance and their justifications for engaging in tax evasion. Rather than being solely shaped by economic incentives, this behavioral inclination is also influenced by psychological, cultural, and institutional factors. Societies with a low justification tendency for tax evasion tend to display higher voluntary compliance, which in turn supports fiscal sustainability and strengthens the legitimacy of public finance systems.

A transparent and accountable budget structure can contribute to improved perceptions of fairness and governmental accountability, which are among the psychological foundations that influence individuals' inclination to evade taxes. Although the behavioral aspects of tax compliance have been extensively discussed in the literature, the specific relationship between budget transparency and the tendency to justify tax evasion has been addressed in only a limited number of empirical studies. Therefore, rather than claiming that no studies exist on the topic, it is more accurate to note that empirical evidence remains scarce and fragmented, especially in comparative, data-driven analyses.

This study aims to address this gap by empirically examining whether budget transparency influences individuals' tax evasion tendency across a broad set of countries. Utilizing panel data from 19 developed and developing countries between 2006 and 2021, the study measures budget transparency through the Open Budget Index and proxies individuals' justification of tax evasion using self-reported attitudes from the World Values Survey. Countries were selected to reflect diverse levels of socio-economic development, governance quality, and institutional capacity, thereby enhancing the generalizability of the findings. By capturing cross-country variation in income inequality, corruption perceptions, and institutional trust, this study provides new insights into how fiscal transparency may shape tax compliance behaviors. The empirical analysis is conducted utilizing the System Generalized Method of Moments (GMM) estimation technique, which is particularly suitable for addressing endogeneity and heterogeneity concerns in dynamic panel data settings.

The findings are expected to make both theoretical and practical contributions by clarifying the relationship between budget transparency and the behavioral tendency to justify tax evasion, and offering valuable guidance for policymakers seeking to design effective fiscal and institutional reforms in diverse governance contexts.

1. Theoretical Framework

The relationship between budget transparency and tax evasion tendency lies at the intersection of public finance, behavioral economics, and institutional theory. This section draws upon multiple theoretical perspectives to explain how transparent governance can influence individuals' behavioral inclinations to evade taxes.

The Trust in Government Theory is among the first to examine how citizens' trust in the state influences tax compliance. This theory emphasizes how transparency and accountability shape citizens' perceptions of governmental institutions (Dom et al., 2022: 1981). Public trust can increase with strengthened perceptions of transparent governance, positively impacting individuals' motivation to pay taxes (Feld & Frey, 2007: 113). Accordingly, individuals' tax compliance behavior is directly associated with the trust developed through transparent and accountable governance. Recent studies have further emphasized that fiscal transparency strengthens public confidence by reducing informational asymmetries and ensuring that governments are held accountable for their fiscal decisions (Boadway & Shah, 2007: 11). Moreover, transparency initiatives, when perceived as credible and meaningful by citizens, significantly enhance trust in public institutions (Grimmelikhuijsen, 2012: 51). Strengthened trust, in turn, is widely recognized as a key driver of higher tax evasion tendency (Torgler, 2005: 526; Alm & Torgler, 2006: 226). These findings underline that transparency not only influences perceptions of fairness but also acts as a fundamental mechanism through which governments can reinforce voluntary tax compliance among citizens.

The Behavioral Public Finance Theory underscores that individuals' tax behaviors are not solely governed by economic rationality but are also shaped by social and psychological factors. This perspective highlights the significance of a fair tax system and transparent governance in encouraging tax compliance (Alm & Torgler, 2006: 243). Transparent budget management enhances perceptions of fairness in fulfilling tax obligations, fostering the belief that government

expenditures are directed toward public welfare.^[1] This belief positively influences tax compliance behaviors. The theory further suggests that economic decisions are shaped by social and psychological contexts, with transparency contributing to more informed and cooperative decision-making (Thaler, 2015: 337). Recent empirical studies emphasize that transparency initiatives must be not only implemented but also perceived as meaningful and credible by citizens to positively affect compliance behaviors (Capasso et al., 1033). In particular, transparency mechanisms that increase citizens' understanding and perceptions of fairness significantly enhance voluntary compliance and tax evasion tendency. As a result, if citizens believe that decisions regarding the allocation of public goods provided by the state are made transparently and fairly, their willingness to fulfill tax obligations will be positively influenced (Şentürk, 2014: 137).

From a Collective Action Theory perspective, tax compliance is a social dilemma in which individuals may be tempted to free ride unless mutual cooperation is perceived. Transparency fosters the sense that everyone contributes fairly, and that public funds are allocated efficiently and equitably (Olson, 1965: 128; Ostrom, 1990: 32). When individuals believe others are also complying and government behavior is observable and accountable, they are more likely to fulfill their obligations (Torgler, 2003: 292). Transparency acts as a coordination mechanism, reducing uncertainty about others' behavior and reinforcing shared responsibility in tax systems (Papadopoulos, 2003: 477; Fukuyama, 2013: 354).

The strength of the relationship between budget transparency and tax evasion tendency depends on broader institutional and socio-economic contexts. Countries with high institutional quality, such as robust rule of law and low corruption, are more likely to convert transparency into trust and compliance (Grimmelikhuijsen et al., 2013). In contrast, in countries where institutional trust is weak, transparency may not effectively influence taxpayer behavior, especially if perceived as symbolic or manipulative. For example, in New Zealand, where fiscal transparency is institutionalized and supported by public accountability mechanisms, citizens tend to exhibit higher tax evasion tendency (Badun, 2009: 482; IMF, 2023). In the United States, transparency varies across federal and state levels but is generally associated with strong institutional oversight (Bastida & Benito, 2007). Chile, although a developing country, demonstrates above-average transparency for its income group, showing that institutional reforms can shape tax behaviors regardless of development status (IBP, 2021).

Conversely, countries such as Türkiye, Brazil, India, and Ukraine face challenges related to corruption, inequality, and weak institutional credibility. In these contexts, the availability of budget information alone may not suffice to foster trust or reduce tax evasion tendency, especially when civic engagement is low or skepticism about government persists.

Socio-cultural factors also moderate the effect of transparency. For example, in collectivist cultures prevalent in developing countries, institutional trust tends to be lower, and citizens may rely more on informal norms than formal transparency mechanisms. In contrast, in individualistic societies, there is often a stronger internalized motivation to comply, and transparency is more likely to be interpreted as a sign of institutional integrity (Kidd et al., 2020).

Moreover, income levels, social protection mechanisms, and perceptions of vertical equity influence how transparency is received. In developed countries, high income and extensive welfare structures amplify the positive effects of transparency on tax evasion tendency, whereas in developing countries, high inequality and perceptions of unfairness may dilute this effect. Thus, the same transparency reform can have divergent outcomes depending on institutional robustness and societal trust.

2. Literature Review

The relationship between budget transparency and tax evasion tendency remains relatively underexplored in public finance research. Existing studies have examined the impact of budget transparency on individuals' tax compliance behaviors using various methodological approaches and analytical techniques, offering valuable insights into how citizens' perceptions of the efficient and fair use of public resources are shaped.

Institutional theories and systematic reviews provide critical perspectives on the relationship between budget transparency and tax evasion tendency. Horodnic (2018) examined tax evasion tendency within the framework of institutional theory, emphasizing the pivotal role of strong institutional structures in shaping tax compliance behaviors. Al-Maghrebi et al. (2016) adopted a conceptual framework to argue that budget transparency enhances public trust in fiscal management, thereby promoting tax compliance. Alm and Torgler (2006), analyzing social and cultural norms in the United States and Europe, highlighted the significant role of cultural factors in shaping tax individuals' willingness to comply with tax obligations.

Survey and regression analyses are frequently employed to explore the effects of budget transparency on tax-related behaviors. Zvereva et al. (2021), using data from 40 countries over the 2007–2017 period, assessed the relationship between budget transparency, tax morale, and compliance. Their findings, derived from correlation and regression

analyses, showed that government disclosure of budget sources and expenditures reduces individuals' justification of tax evasion. Furthermore, tax compliance tendency was found to positively correlate with trust in government, national pride, and levels of democratic development. Engin et al. (2021), in a field study conducted in Türkiye, demonstrated that local governments' fiscal transparency policies encourage democratic participation and enhance public trust through citizen involvement in budgetary processes. Göksu (2020) examined the awareness of budget processes in Türkiye and found that transparency increases trust in fiscal management and reduces individuals' inclination to evade taxes. Similarly, Mangoting et al. (2019), in their study in Indonesia, concluded that transparency enhances trust in public institutions, while ethical norms strengthen the motivation to comply with tax rules.

Panel data analysis has proven to be an effective tool for examining the relationship between budget transparency and tax evasion tendency across different countries and time periods. Hsu (2024), using panel data from 48 countries, investigated this relationship over time and concluded that while higher levels of transparency generally discourage tax evasion, this effect weakens in countries with poor government performance or high corruption perception. Engin and Öksüz (2023), analyzing data from 21 OECD countries for the 2009–2020 period, found that public sector size and budget balance positively influence transparency, while debt stock and primary budget balance have no statistically significant effect. Capasso et al. (2021), in their panel data analysis of EU countries for the 2006–2019 period, revealed that higher budget transparency correlates with improved tax ethics and reduced evasion tendencies, mainly due to strengthened public trust. Focusing on emerging economies, Dibo (2021) examined the relationship between transparency and fiscal discipline during 2006–2019 and discovered that transparency reduces budget deficits, although it may increase debt stock. Lastly, Alt and Lassen (2006) used panel data to explore the relationship between fiscal transparency, political parties, and public debt in 19 OECD countries using cross-sectional data from 1999. Their study highlighted that countries with greater fiscal openness tend to have lower public debt and better budget discipline.

The literature consistently shows that budget transparency strengthens individuals' perceptions of the efficient and fair use of public resources, which, in turn, decreases their tendency to justify tax evasion. Studies such as those by Capasso et al. (2021) and Hsu (2024) emphasize the critical role of trust and transparency reforms in shaping compliance behaviors. It is evident that transparency policies play a particularly important role in fostering responsible tax behavior in developing countries. These findings suggest that fiscal management reforms not only enhance tax collection capacities but also bolster citizens' trust in government institutions, thereby reducing tax evasion tendencies.

3. Econometric Analysis

3.1. Data Set

This study empirically investigates the impact of budget transparency on tax evasion tendency. The analysis focuses on 19 developed and developing countries³, using aggregated samples for the years 2006, 2008, 2010, 2012, 2015, 2017, 2019, and 2021. The budget transparency variable is represented by the Open Budget Index (OBI) measured by the International Budget Partnership (IBP). The index is calculated biennially, for the years 2006, 2008, 2010, 2012, 2015, 2017, 2019, 2021. The empirical analysis employs the System Generalized Method of Moments (GMM) as the primary estimation technique.

The sample was selected based on the availability and temporal alignment of data from both the Open Budget Index and the World Values Survey for the period 2006–2021. These countries offer sufficient diversity in terms of economic development, governance quality, and cultural context, allowing for a broad comparative analysis.

The dependent variable in this study is tax evasion tendency derived from the World Values Survey (WVS) dataset. Specifically, the variable is based on responses to the survey question: *"If you had the chance, would you cheat or evade taxes?"* The response scale ranges from 1 to 10, with higher values indicating a greater inclination toward tax evasion. For instance, a score of 10 represents the perception that cheating on taxes is always justifiable. The standard deviation of the responses within each country is used as the measure of tax evasion tendency, as mean values tend to cluster around 1 and may not serve as a robust indicator. This methodological choice aligns with prior research (Capasso et al., 2021).

The World Values Survey data from Wave 5, Wave 6, and Wave 7 are utilized to ensure the availability of tax evasion tendency variables corresponding to the study's timeline and sample. Other variables included in the estimation model are religious beliefs, corruption control, direct tax burden, total tax burden, economic growth, unemployment, income inequality, education level, and population density. These variables are sourced from the World Bank's World

³Argentina, Brazil, Chile, China, Colombia, Egypt, India, Jordan, Republic of Korea, Malaysia, Mexico, Morocco, New Zealand, Romania, Russia, Thailand, Turkey, Ukraine, and the United States.

Development Indicators, the International Monetary Fund, the International Budget Partnership, and the World Values Survey datasets. The descriptions and sources of these variables are listed in Appendix 1. Correlation coefficients and variance inflation (VIF) values between variables are presented in Appendix 2. Additionally, Table 1 provides descriptive statistics for the variables used in the analysis.

Table 1. Descriptive Statistics of Variables

Variables	Mean	Median	Std. Dev.	Min.	Max.
Tax Evasion Tendency	1.967	1.912	0.506	0.953	3.018
Transparency	56.328	57.5	18.250	11	93
Religion	0.634	0.745	0.230	0.14	0.908
Corruption	-0.024	-0.301	0.814	-1.125	2.329
Direct Tax	6.273	6.014	3.792	0.530	20.239
Tax	15.686	14.522	5.487	6.719	35.733
Growth	3.337	3.026	3.331	-9.443	12.093
Unemployment	7.239	7.260	3.566	0.58	19.837
Inequality	39.566	39.4	7.683	24.7	55.6
Education	57.146	52.013	25.628	12.136	125.763
Population	109.814	78.386	133.148	8.716	530.425

As seen in Table 1, the averages of all variables except for the control of corruption are positive. Additionally, the mean of the tax evasion tendency variable is 1.967, with maximum and minimum values of 3.018 and 0.953, respectively. The mean of the open budget variable is 56.328, with minimum and maximum values of 11 and 93, respectively. Moreover, the mean of the religion variable is 0.634, with the lowest and highest values being 0.14 and 0.908, respectively. When examining the standard deviations of the variables, it is observed that population density, education level, and the open budget index are the variables with the highest standard deviations.

Figures 1 and 2 illustrate the trend graphs of tax evasion tendency and budget transparency variables for the 19 developed and developing countries included in the study.

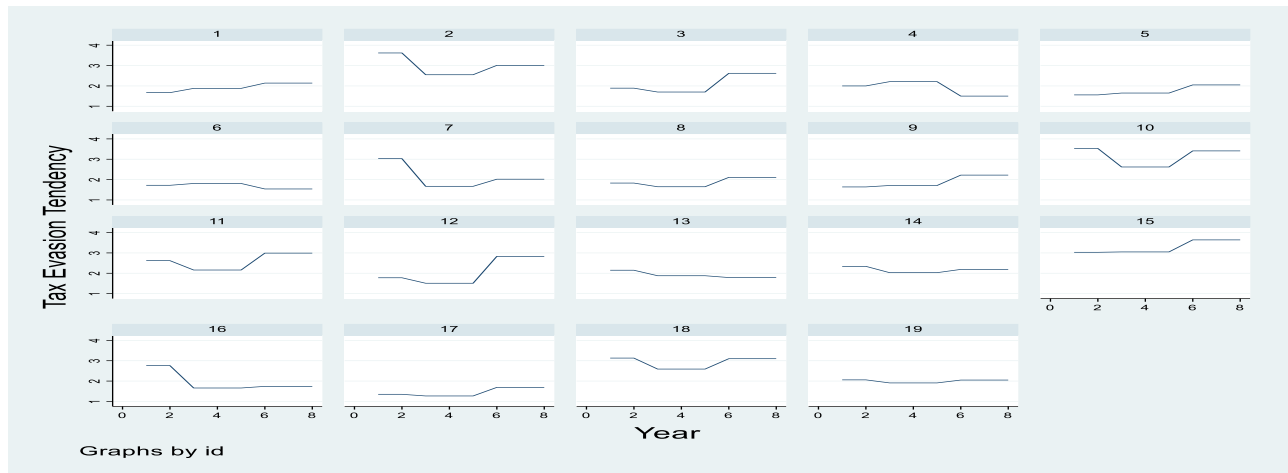


Figure 1. Trends in Tax Evasion Tendency Across Countries

When examining the tax evasion tendency trends of the countries (Figure 1), it is observed that Brazil (2), Malaysia (10), Mexico (11), Romania (14), Russia (15), and Ukraine (18) generally exhibit high levels of tax evasion and avoidance tendencies. In contrast, Egypt (6), South Korea (9), New Zealand (13), Thailand (16), Türkiye (17), and the United States (19) generally demonstrate low levels of such tendencies.

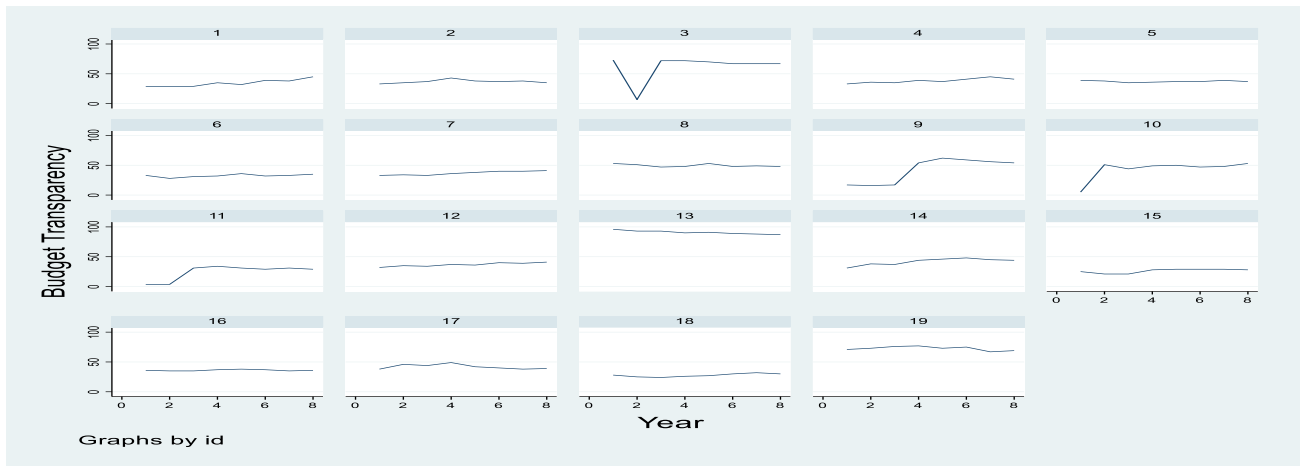


Figure 2. Trends in Budget Transparency Across Countries

When examining the trends in budget transparency (Figure 2), Chile (3), Jordan (8), New Zealand (13), and the United States (19) generally exhibit high levels of transparency, while Argentina (1), Brazil (2), China (4), Colombia (5), Egypt (6), India (7), Morocco (12), Russia (15), Thailand (16), Türkiye (17), and Ukraine (18) generally demonstrate low levels of transparency.

Figures 3 through 11 illustrate the relationship between tax evasion tendency and budget transparency for the 19 panel countries across different periods. Figure 3 covers the 2006–2021 period, while Figures 4 through 11 represent the years 2006, 2008, 2010, 2012, 2015, 2017, 2019, and 2021, respectively. The scatter plots, which aggregate and display the relationships separately for each year, reveal a negative correlation between tax evasion tendency and budget transparency. In other words, as budget transparency increases, individuals' tendencies toward tax evasion decrease in the panel countries under study.

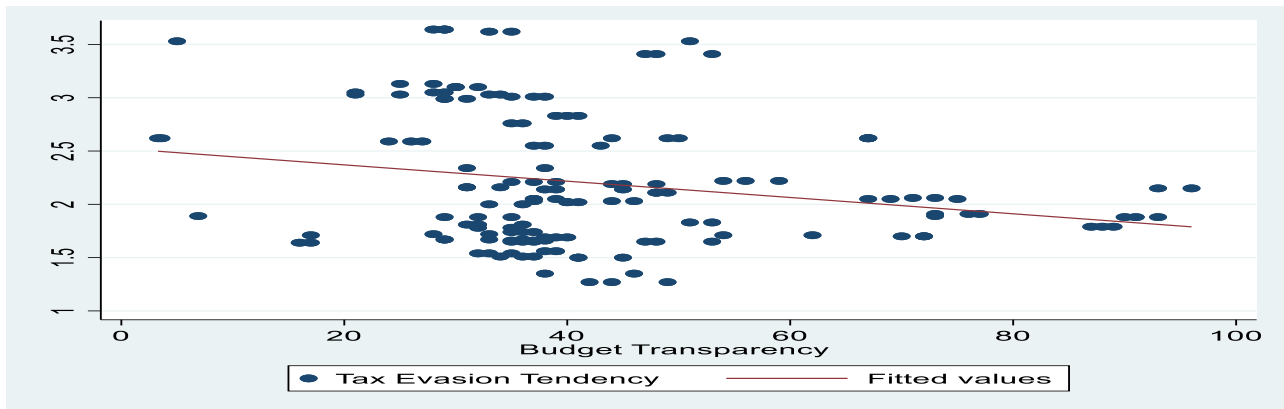


Figure 3. The Relationship Between Tax Evasion Tendency and Budget Transparency

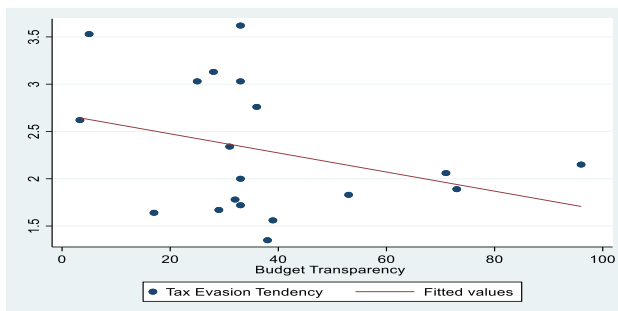


Figure 4. The Relationship Between Tax Evasion Tendency and Budget Transparency (2006)

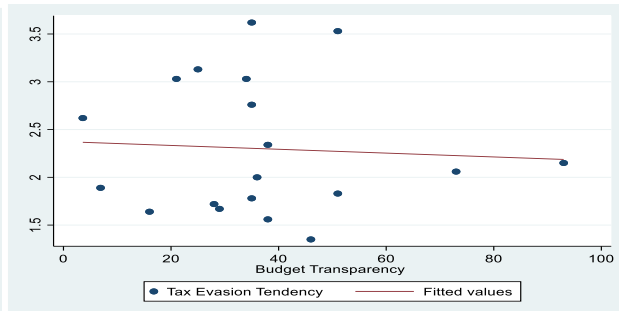


Figure 5. The Relationship Between Tax Evasion Tendency and Budget Transparency (2008)

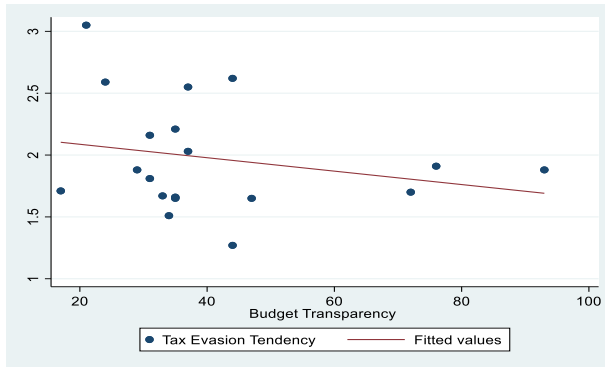


Figure 6. The Relationship Between Tax Evasion Tendency and Budget Transparency (2010)

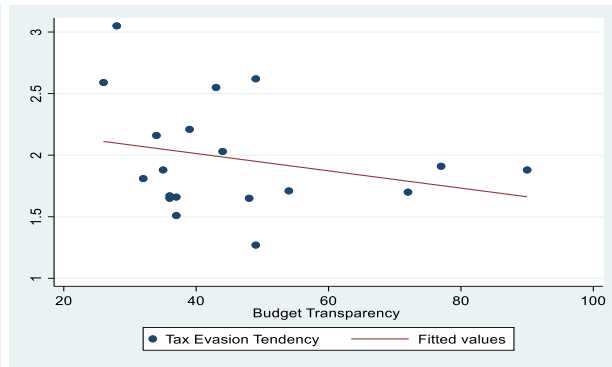


Figure 7. The Relationship Between Tax Evasion Tendency and Budget Transparency (2012)

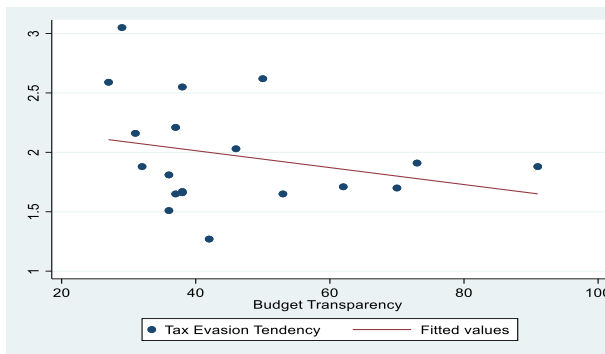


Figure 8. The Relationship Between Tax Evasion Tendency and Budget Transparency (2015)

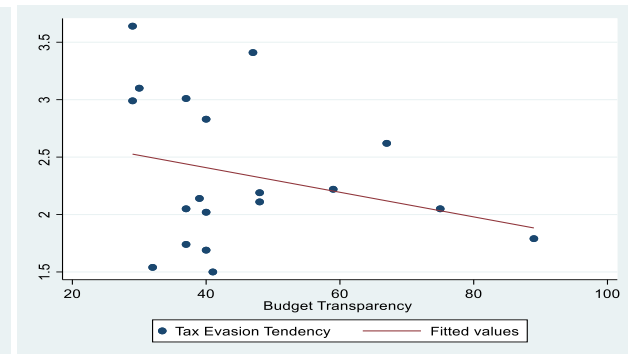


Figure 9. The Relationship Between Tax Evasion Tendency and Budget Transparency (2017)

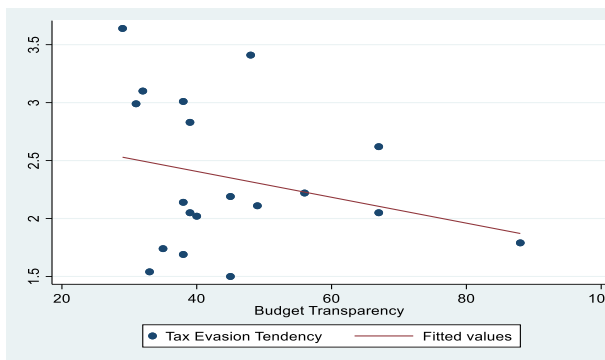


Figure 10. The Relationship Between Tax Evasion Tendency and Budget Transparency (2019)

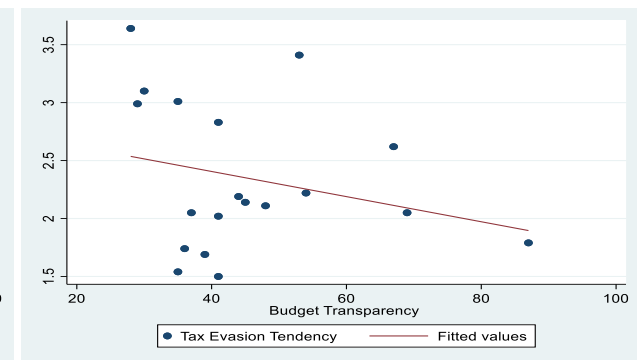


Figure 11. The Relationship Between Tax Evasion Tendency and Budget Transparency (2021)

3.2. Econometric Method

The relationship between budget transparency and tax evasion tendency is analyzed using the System Generalized Method of Moments (GMM). This method, developed by Arellano and Bover (1995) and Blundell and Bond (1998), is suitable for situations involving unobserved country-specific effects, endogeneity of variables, heteroskedasticity, and autocorrelation in the data. In this approach, the lagged value of the dependent variable is included in the model as an independent predictor (Gujarati, 2004). The dependent variable is influenced both by other independent variables and by its past values.

The method proposes an efficient instrumental variable estimator by utilizing the orthogonal deviations approach for dynamic panel data models. Moreover, it allows for the calculation of the differences in the averages of all possible values of the variable, thus minimizing data loss and making it applicable to unbalanced panel datasets. The econometric model used for estimation in this study is as follows:

$$\text{Tax Evasion Tendency}_{it} = \alpha \text{Tax Evasion Tendency}_{it-1} + \beta_1 \text{Transparency} + \beta_2 \text{Controls}_{it} + \mu_{it} + \varepsilon_{it} \quad (1)$$

In Equation (1), countries are denoted by the subscript i (1, 2, 3...21), and the time periods are represented by the subscript (2006, 2008, 2010, 2012, 2015, 2017, 2019 and 2021). The dependent variable is Tax Evasion Tendency $_{it}$ representing tax evasion tendency in the panel countries. Transparency $_{it}$ represents budget transparency in the panel countries. The term Controls $_{it}$ includes the control variables used in the estimation model: religious belief (religion), control of corruption (corruption), direct tax burden (direct tax), total tax revenues (tax), economic growth (growth), unemployment rate (unemployment), income inequality (inequality), school enrollment in higher education (education) and population density (population). The term μ_{it} accounts for unobserved heterogeneity, while ε_{it} represents the error term. Additionally, the coefficient β_1 is associated with budget transparency.

The System GMM method is suitable for cases where the time dimension of the model is smaller than the cross-sectional dimension ($T < N$) (Roodman, 2006). In this study's dataset, $T=8$ periods, which is smaller than the number of countries ($N=19$). This method is essentially an instrumental variable approach. Instead of potentially endogenous variables, instruments with similar moment characteristics are used. For the GMM estimator to be consistent, two assumptions must be met simultaneously: (1) no correlation among the error terms in the model, and (2) validity of the instrumental variables. To test for autocorrelation, AR(1) and AR(2) tests developed by Arellano-Bond (1991) were used. The null hypothesis H_0 for the AR(1) test states, "there is no first-order autocorrelation," while the null hypothesis for the AR(2) test states, "there is no second-order autocorrelation." The presence of first-order autocorrelation is expected and not problematic for the Generalized Method of Moments (GMM) estimator. However, the absence of second-order autocorrelation is essential for the efficiency of the GMM estimator. In other words, models without second-order autocorrelation are deemed appropriate for the GMM estimator. To test the validity of the instrumental variables, the Sargan test was used. The null hypothesis H_0 of this test states, "the instrumental variables are valid," and it is expected that the null hypothesis will be accepted (Yerdelen Tatoğlu, 2013).

3.3. Econometric Findings

Table 2 presents the estimation results for the System-GMM model. Model I evaluates the relationship between budget transparency and tax evasion tendency without considering control variables, whereas Model II includes control variables in the analysis of the relationship between budget transparency and tax evasion tendency. When examining the diagnostic tests of the System-GMM estimator, it is evident that first-order autocorrelation is present across all models, while second-order autocorrelation is absent in the models. Additionally, based on the Sargan test results, the null hypothesis H_0 cannot be rejected in any of the models, indicating that the instrumental variables are valid. These diagnostic tests demonstrate that the findings derived from the System-GMM estimator are consistent and efficient.

Table 2. Analysis Results

Dependent Variable: Tax Evasion Tendency		
Variables	I	II
Tax Evasion Tendency $_{t-1}$	0.401*** (109.61)	0.411*** (10.41)
Transparency	-0.003*** (-8.82)	-0.002** (-1.13)
Religion		1.296*** (3.35)
Corruption		-0.027** (-0.23)
Direct Tax		0.071*** (4.55)
Tax		0.012* (1.76)
Growth		-0.004 (-1.10)
Unemployment		0.013* (1.35)
Inequality		0.026*** (2.95)
Education		0.004*** (4.05)

Population		0.003** (2.03)
AR (1) (p-value)	-2.808 (0.005)	-2.574 (0.001)
AR (2) (p-value)	2.212 (0.027)	0.465 (0.641)
Sargan Test (p-value)	15.595 (0.112)	11.409 (0.326)
Number of Observations	19	19
Number of Instruments	114	114

***, **, * are statistically significant at 1%, 5% and 10% levels, respectively.

According to the System-GMM estimation results, the lagged dependent variable in both Model I and Model II is statistically significant at the 1% level, with a positive coefficient. The budget transparency variable is statistically significant at the 1% level in Model I and at the 5% level in Model II, with negative coefficients in both models. Specifically, a one-unit increase in the Open Budget Index reduces the tax evasion tendency by 0.003 units in Model I and by 0.002 units in Model II. In other words, higher budget transparency is associated with lower tax evasion tendencies, implying that openness in fiscal processes discourages non-compliant tax behavior by enhancing citizens' trust in government.

Among the control variables, the "religious belief" variable is statistically significant at the 1% level and positively associated with tax evasion tendency. A one-unit increase in religious belief increases the tendency to justify tax evasion by 1.296 units. This suggests that as individuals become more religious, their likelihood of perceiving tax evasion as acceptable also increases. This result may be driven by the perception that religious duties such as zakat are more legitimate than state-imposed taxes, or by a belief that state expenditures are misaligned with religious values.

The "control of corruption" variable is statistically significant at the 5% level and its coefficient is negative. A one-unit increase in the control of corruption decreases the tendency to justify tax evasion by 0.027 units. This finding supports the idea that strong governance and institutional accountability are crucial in reducing individuals' tolerance for tax evasion.

Direct and total tax burdens are positively and significantly related to tax evasion tendency. A one-unit increase in the direct tax burden and the total tax burden increases the justification for tax evasion by 0.071 and 0.012 units, respectively. This implies that as tax pressure increases, so does individuals' inclination to evade taxes. Similarly, the unemployment rate is positively associated with tax evasion tendency, with a one-unit increase raising the justification level by 0.013 units at the 10% significance level. The income inequality variable also shows a significant and positive effect, indicating that worsening income distribution increases tax evasion tendencies by 0.026 units.

Education and population density are both positively and significantly associated with tax evasion tendency. Specifically, a one-unit increase in education level and population density raises tax evasion tendency by 0.004 and 0.003 units, respectively. These findings suggest that individuals with higher education may better exploit the tax system's weaknesses, while densely populated environments may facilitate norm-breaking behaviors due to social anonymity.

No statistically significant relationship was found between economic growth and tax evasion tendency. This may indicate that short-term fluctuations in growth do not directly influence tax behavior, which is shaped more by long-term institutional, cultural, and psychological dynamics. The role of growth in tax evasion behavior may be indirect and context-dependent, potentially mediated by variables such as trust in institutions or perceived fiscal justice.

Conclusion and Evaluation

This study examined the effects of budget transparency on individuals' tax evasion tendencies—measured as their tendency to justify tax evasion—using the System Generalized Method of Moments (GMM) approach for 19 developed and developing countries during the 2006–2021 period. The findings reveal that budget transparency significantly reduces individuals' justification of tax evasion, indicating that openness in fiscal processes is associated with lower tax evasion tendencies. Moreover, various socio-economic and cultural variables also influence this perception-based measure of tax behavior.

The primary finding of the study is that an increase in budget transparency significantly reduces tax evasion tendencies. A one unit decrease in transparency reduces the tendency to tax evasion by 0.003. This suggests that transparency policies enhance public trust in government and encourage compliance with tax obligations. However, transparency

levels vary across countries, with lower levels in developing countries limiting the effectiveness of this relationship is limited in countries where transparency levels remain low.

Other findings indicate that religious belief has a statistically significant positive effect on the tax evasion tendency, meaning that as religiosity increases, individuals' justification of tax evasion also increases. Various factors may contribute to this outcome. In highly religious societies, individuals may prioritize religious obligations over state-imposed taxes, or perceive state budgetary allocations as misaligned with religious values. Moreover, informal redistribution mechanisms such as zakat may be seen as more legitimate or moral compared to formal taxation. These findings underscore that the relationship between religious beliefs and tax-related attitudes must be interpreted within the sociocultural and institutional context of each country.

A statistically significant negative association was found between the control of corruption and tax evasion tendencies. In other words, as corruption control improves, individuals' tendency to justify tax evasion decreases. Although the control of corruption index is commonly interpreted as an inverse measure of corruption, the study avoids implying strict causality. Instead, it emphasizes that perceived improvements in governance and accountability reduce citizens' tolerance for tax evasion.

The study also found that higher education levels and greater population density are associated with increased tax evasion tendencies. This may reflect greater awareness of tax system loopholes among educated individuals, or critical views on the use of public funds, especially in contexts where transparency is low. In densely populated areas, social norms and a lower sense of personal accountability may also contribute to a rise in collective tax evasion behavior.

Income inequality and high unemployment rates were similarly found to increase the tendency to justify tax evasion. These findings suggest that perceptions of economic injustice and exclusion from the labor market weaken individuals' willingness to comply voluntarily with tax obligations. Addressing inequality and unemployment is thus essential to enhancing trust and compliance.

The recommendations presented in this section are based on the empirical findings of the study and evaluations grounded in the existing theoretical literature:

- In developing countries, transparency reforms aligned with the Open Budget Index should be implemented to enhance budget transparency. Mechanisms that enable citizens to directly participate in budget processes should be developed. Such participatory methods can increase tax compliance by fostering a sense of ownership in decision-making.
- To address the negative impact of education on tax behavior, tax literacy and public finance courses should be integrated into educational curricula. Public awareness campaigns should also highlight how taxes contribute to societal welfare, especially in densely populated areas, to strengthen collective responsibility.
- A fair tax system should be established to mitigate the adverse effects of high direct and total tax burdens. Social transfer policies aimed at reducing income inequality should be implemented as a tool to decrease dance.
- To address the negative impact of education on tax behavior, tax literacy and public finance courses should be integrated into educational curricula. Public awareness campaigns should also highlight how taxes contribute to societal welfare, especially in densely populated areas, to strengthen collective responsibility.
- Strong monitoring mechanisms should be developed to combat corruption, as it undermines trust and increases tax evasion tendencies. Independent audit institutions should be empowered to enforce transparency and accountability standards. Digitalization and e-governance in public finance should be expanded to reduce informal practices and opportunities for corruption.
- Employment generation policies should be implemented to mitigate the negative impact of unemployment on tax behavior. Programs targeting youth unemployment could have long-term effects in improving compliance norms.
- Tax policies should be tailored to each country's socio-cultural context, accounting for regional differences. For example, in developing countries, approaches that build trust in the government through culturally embedded and economically inclusive strategies could be applied.

One important limitation of this study is that it does not explicitly test whether the relationship between budget transparency and tax evasion tendencies differs significantly between developed and developing countries. Given the structural differences in governance quality, institutional trust, and economic contexts, this relationship may vary across country groups. Future studies should consider conducting subgroup analyses or interacting transparency measures with development-level indicators to further investigate this dimension. Future research should conduct comparative studies on the relationship between budget transparency and tax evasion across a broader range of countries and over longer

periods. The impact of transparency policies on social cohesion and democratic participation should also be explored in detail. These recommendations not only contribute theoretically but also provide practical guidance for policymakers, filling a significant gap in the literature.

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Appendix 1: Variable Definitions and Sources

Variables	Definition	Sources*
Tax Evasion Tendency	Tax evasion tendency is measured using the survey question: "Would you cheat or evade taxes if you had the chance?" Responses are scored from 1 to 10, where 1 means 'never justifiable' and 10 means 'always justifiable'.	WVS
Transparency	The Open Budget Index (OBI) represents a measure of central government budget transparency. The index is based on survey data evaluating the content, availability, and timeliness of eight key budget documents. Countries are classified into five categories based on their index scores: scores between 0-20 indicate insufficient transparency, 20-40 indicate minimal transparency, 40-60 indicate limited transparency, 60-80 indicate substantial transparency, and 80-100 indicate comprehensive transparency, reflecting the level of information provided to citizens in these countries.	IBP
Religion	Religious belief is measured through the survey question "active/inactive membership: church or religious organization". The values are measured on a scale of 0, 1, and 2, where 0 indicates "not a member," 1 indicates "passive member," and 2 indicates "active member." These values reflect the respondent's agreement with the respective statements.	WVS
Control of Corruption	The index is traditionally defined as the use of public power for personal gain. It is scaled between -2.5 (very low control of corruption) and +2.5 (very high control of corruption). The index measures perceptions of the extent to which corruption is controlled within a country.	WB
Direct Tax Burden	Taxes on income, profits, and capital gains (% of GDP)	IMF
Total Tax Revenue	Total tax revenue (% of GDP)	IMF
Economic Growth	Per capita GDP growth (annual %)	WB
Unemployment Rate	Unemployment, total (% of total labor force)	WB
Income Equality	Measured by the Gini index, the index ranges from 0 (perfect equality) to 1 (perfect inequality).	WB
Education	School enrollment, tertiary (% gross)	WB
Population Density	Number of people per square kilometer	WB

* IMF: International Monetary Fund; IBP: International Budget Partnership; WVS: World Values survey; WB: World Bank.

Appendix 2: Correlation Coefficients and VIF Values Between Variables

Variables**	TED	BT	R	C	DT	T	G	U	I	E	P	VIF
BT	-0.228	1.000										3.98
R	0.196	0.138	1.000									2.37
C	-0.258	0.849	0.247	1.000								4.99
DT	0.077	0.686	0.285	0.749	1.000							3.68
T	0.162	0.350	-0.347	0.331	0.386	1.000						1.84
G	-0.133	-0.104	-0.194	-0.076	-0.144	0.129	1.000					1.23
U	0.174	-0.048	-0.180	-0.111	-0.201	-0.0335	0.003	1.000				1.37
I	0.050	-0.139	0.533	-0.056	-0.157	-0.238	0.110	0.132	1.000			1.58
E	-0.018	0.315	0.018	0.340	0.128	0.002	-0.192	-0.121	-0.170	1.000		1.55
P	-0.075	-0.086	-0.031	-0.142	-0.246	0.159	0.327	-0.125	-0.045	-0.307	1.000	1.60
Mean VIF	2.42											

** TED: Tax Evasion Tendency; BT: Budget Transparency; R: Religion; C: Corruption; DT: Direct Tax; T: Tax; G: Growth; U: Unemployment; I: Inequality; E: Education; P: Population; VIF: Variance Inflation Factor