



RESEARCH ARTICLE

## Determining the Criteria Affecting Tax Ethics in Türkiye Using the Fuzzy DEMATEL Method

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### ABSTRACT

Tax ethics, which ensure that taxpayers pay taxes voluntarily and with an internal motivation, and enhancing tax ethics is crucially important for increasing tax revenues and preventing informalities. In order to enhance the level of tax ethics among taxpayers, the issues that affect tax ethics must first be determined. In this context, the main purposes of this study are to determine and evaluate the criteria that determine tax ethics in Türkiye and to specify which criteria are more important. In this scope, the study includes 6 main criteria and 32 sub-criteria involving psychological and sociological, economic, social capital, political, institutional and administrative, and demographic criteria for determining tax ethics. The study evaluates these criteria using paired comparisons performed by experts with at least 10 years of professional experience in the field. The study uses the Fuzzy Decision Making Trial and Error Laboratory method in line with the data obtained from the expert assessments to analyze the relationships among the criteria affecting taxpayers' tax ethics. As a result of the application, the study calculates the threshold values for each of the main criteria. According to the obtained results, the study has determined the economic criteria to affect tax ethics the most in Türkiye, with political psychological, and sociological criteria standing out as the second and third most important criteria and social capital being the criteria that affect tax ethics the least.

**Keywords:** Tax ethics, Determinants of tax ethics, Multi-criteria decision making, Fuzzy DEMATEL method

**JEL Classification:** H20, H29, C44



DOI: 10.26650/ISTJECON2023-1266112

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**Submitted:** 16.03.2023

**Accepted:** 19.10.2023

**Citation:** Kuzucu Yapar, B. & Keskin, A. (2023). Determining the criteria affecting tax ethics in Türkiye using the Fuzzy DEMATEL method. *Istanbul İktisat Dergisi - Istanbul Journal of Economics*, 73(2), 745-780.  
<https://doi.org/10.26650/ISTJECON2023-1266112>



## 1. Introduction

Tax ethics concern the voluntary payment of taxes through internal motivation without any external compulsion, coercion, or threat of punishment. The definition of tax ethics uses the concept of ethics not as a philosophical or theological concept but in the sense of revealing common virtuous attitudes. Tax ethics is more than just a theoretical concept, and the level to which taxpayers and society have tax ethics will positively or negatively impact many issues. The largest impact occurs on public revenues remitted to the Treasury, with low tax ethics levels resulting in taxes not being collected fully or on time. Remitting taxes late to the Treasury will create the problem of monetary erosion, especially in inflationary economies. Taxpayers with low tax ethics may be reluctant to pay their taxes voluntarily and resort to avoiding and evading taxes. If evading or avoiding taxes becomes a social norm, it will lead to undesirable consequences for the government budget. Reducing the cost of tax collection is another important aspect of tax ethics. Expenditures from the government budget for tax collection activities, especially audit expenditures, will be high in societies with low tax ethics.

In order to prevent the negative consequences of low tax ethics, the level of tax ethics should be enhanced by starting with taxpayers. Having the full and timely payment of taxes become a social norm among taxpayers will increase the level of tax ethics in society. The fact that tax fraud and informality are not tolerated, and those who resort to these methods are excluded from their social environment will induce individuals to shift their activities to the formal sector. In accordance with the importance of raising tax ethics, the aim of this study is to identify the criteria that affect the tax ethics of individuals and society and to determine which criteria are more important in line with experts' opinions. With this determination, to be carried out by using the fuzzy DEMATEL method, it is aimed to contribute to the enhancement of tax ethics among individuals and society, with a particular focus on these criteria, especially for policy-makers.

The Fuzzy Decision Making Trial and Evaluation Laboratory (DEMATEL) method is one of the multi-criteria decision-making methods and allows to

determine the level of interaction between complex criteria and to determine the degree of importance of the criteria. In different fields of social sciences, the fuzzy DEMATEL method is used in various decision-making studies. However, this method has not been used before in areas related to public finance. It is thought that the study stands out for this feature and will contribute to the literature. To extend the literature, new applied studies can be conducted by determining different criteria in future studies. The fuzzy DEMATEL method can also be applied to select a main criterion and rank its sub-criteria in order of importance. It is also possible to evaluate the criteria and practice selected in this study with experts with professional experience in different areas of tax law.

The study, which aims to determine the level of interaction of the criteria affecting tax ethics in Türkiye and to establish their order of importance, consists of three main parts. The first part of the study provides basic information on the concept of tax ethics. In the second part, the main and sub-criteria of tax ethics are analyzed. The third part of the study consists of methodology and results. In the conclusion, recommendations are made to administrators and policy-makers to increase tax ethics.

## **2. Tax Ethics**

Tax ethics is the voluntary payment of taxes through internal motivation without any external compulsion, coercion, or threat of punishment (Aktan, 2020, p. 147). It is also possible to define tax ethics as the degree of fulfillment of tax obligations. In line with this definition, the complete fulfillment of tax obligations indicates that tax ethics is also complete (Şenyüz, 1995, p. 33-34). The definition of tax ethics uses the concept of ethics not as a philosophical or theological concept but in the sense of revealing common virtuous attitudes (Tuay and Güvenç, 2007, p. 23). The terms tax ethics and tax morality are used almost interchangeably in the literature (Yurdakul, 2013, p. 6). In this study, the concept of tax ethics is preferred.

In societies where tax ethics are not sufficiently developed, some reactions to taxation occur. Due to these reactions, which can be listed as tax avoidance, tax

evasion, tax fraud, tax strike, tax refusal, tax shifting, and tax planning, it is possible to transfer financial activities carried out in the formal sector to the informal sector (Ömercioğlu, 2018, p. 38). Therefore, it is important to increase the level of tax ethics in the society. Moreover, the significant relationship between tax compliance and tax ethics makes tax ethics an important issue for policy-makers (Alexander and Balavac-Orlic, 2022, p. 1). In order to increase the tax ethics of taxpayers and society, the criteria that affect tax ethics need to be determined. After identifying these criteria, it will be possible for policymakers and administrators to develop and implement policies to enhance tax ethics.

### **3. The Criteria Affecting Tax Ethics**

Numerous criteria play a pivotal role in affecting tax ethics. These can be classified into various categories, such as psychological and sociological criteria, economic criteria, social capital criteria, political criteria, institutional and administrative criteria, and demographic criteria (Kitapçı, 2021, p. 141).

#### **3.1. Psychological and Sociological Criteria (K1)**

Psychological and sociological criteria, which are divided into sub-criteria such as the psychological limit of taxation and the reference groups surrounding taxpayers, are accepted as one of the criteria affecting the level of tax ethics of taxpayers.

##### **3.1.1. Psychological Limit of Taxation**

The level of tax rates and the extent to which they are perceived by taxpayers exert influence on their reactions to taxation, thereby influencing tax ethics. An increase in the total tax burden and the heightened perception of its impact lead to heightened reactions to taxation when the tax burden exceeds a certain psychological threshold. The psychological tax threshold is attained when the taxation level induces alterations in taxpayers' behavior, leading to adverse outcomes (Turhan, 1998, p. 198-199).

The first variable to be considered in determining the psychological limit of taxation is the tax burden. The tax burden, defined as the pressure experienced by taxpayers due to their tax payments, represents the ratio between taxes paid during a specific period and the income of the taxpayers making these payments (Aksoy, 2011, p. 270; Akdoğan, 2020, p. 509). In particular, a high perceived tax burden has a negative impact on tax ethics (Torgler, Demir, Macintyre and Schaffner, 2018, p. 335).

### **3.1.2. Reference Groups Surrounding Taxpayers**

Reference groups (family, friends, colleagues, etc.) affect the level of tax ethics among taxpayers. If unethical behavior is considered normal within the taxpayer's reference groups, it is expected that the taxpayer's level of tax ethics will be low. Likewise, the norms within the taxpayers' profession also affect their level of tax ethics. For example, within a professional group, behavior such as tax avoidance and tax evasion may be perceived positively or at least as normal. In such a context, a new member of the group may be inclined to normalize unethical behavior, driven by the desire for acceptance within the group (Serim, 2015, p. 153-154). Therefore, it is assumed that an increase in the level of tax ethics among the reference groups surrounding taxpayers will have a positive impact on the taxpayers' level of tax ethics.

## **3.2. Economic Criteria (K2)**

The sub-criteria within the economic criteria that affect tax ethics are tax rates, tax penalty rates, income levels, macroeconomic determinants, the love of money, and the informal economy.

### **3.2.1. Tax Rates**

Many studies examining the impact of tax rates on tax compliance have shown that higher tax rates tend to encourage tax evasion (Freire-Serén and Panadés, 2013, p. 815). It is also well-established that as tax rates increase, tax compliance and, consequently, tax ethics tend to decrease (Alm, Jackson, and McKee, 1992, p. 112). Moreover, taxpayers may respond differently to an increase in existing tax

rates. Some of these reactions are passive reactions, while others are active reactions. Examples of passive reactions are tax avoidance behaviors. Tax evasion is one of the active reactions to an increase in tax rates (Taşkın, 2010, p. 76-77). Hence, high or increased tax rates exert a negative effect on tax ethics.

### **3.2.2. Tax Penalty Rates**

It is widely acknowledged that high tax penalties have a positive effect on tax ethics when accompanied by rigorous audits. Conversely, high penalties that are not supported by audits have minimal influence on tax ethics (Kitapçı, 2021, p. 156). If tax penalties are to be used to encourage tax ethics, it is essential to carefully strike a balance, as excessively severe penalties can also have unintended and undesirable consequences. High tax penalty rates may motivate taxpayers to react against taxation and seek ways to avoid taxes (Çataloluk, 2008, p. 224). Consequently, when coupled with a rigorous tax audit system, high tax penalty rates can be expected to have a positive impact on tax ethics.

### **3.2.3. Income Levels**

While it is acknowledged that a relationship exists between income level and tax ethics, the exact direction of this relationship cannot be fully estimated. Taxpayers' income level may either positively or negatively affect their tax ethics, contingent on other factors such as their risk preferences and the applied income tax tariff. Nevertheless, it is generally observed that higher income levels tend to be associated with lower levels of tax ethics (Torgler, 2007, p. 35).

### **3.2.4. Macroeconomic Determinants**

Macroeconomic variables, including gross national product (GNP), inflation, unemployment, and income distribution can also affect tax ethics. The variables such as unemployment, inflation, and income distribution inequality tend to have a negative effect on tax ethics. Among these variables, income distribution affects tax ethics the most. It is widely argued that income inequality can lead to tax

evasion and a decline in tax ethics (Kitapçı, 2021, p. 159-160), as taxpayers who perceive themselves as receiving an inadequate share of the income distribution may view this as a justifiable reason for not paying taxes.

### **3.2.5. Love of Money**

It is possible that the desire to be wealthy and a love of money may drive some individuals to engage in unethical behaviors. Beyond general unethical behaviors, taxpayers who possess a strong desire for wealth and a love of money may also engage in specific unethical behaviors, such as tax avoidance and tax evasion. In fact, a study has found that the love of money has a negative effect on tax ethics. In other words, it is observed that as the desire for wealth and the love of money increase, tax avoidance behaviors tend to increase as well (Yayla, Özbek, Topal, and Cengiz, 2009, p. 71-72). Additionally, dissatisfaction with the current economic situation can also lead to similar behaviors. However, these factors are not easily influenced by external interventions aimed at increasing tax ethics.

### **3.2.6. Informal Economy**

It is possible to call all financial transactions and activities that are partially or totally unrecorded and unauditible, even if they are actually realized, as the informal economy (Sarılı, 2002, p. 32). It is accepted that there is a negative relationship between the informal economy and tax ethics. Accordingly, the informal economy is lower in countries with higher levels of tax ethics (Sandalcı and Sandalcı, 2017, p. 90). In addition, the intensity of unrecorded economic activities may lead to reluctance among individuals who pay their taxes regularly and thus to a decrease in tax ethics. The perception that other taxpayers are engaged in unregistered financial activities may cause taxpayers who continue their activities in the recorded area to want to move their activities to the unrecorded area. Therefore, it is possible to say that there is a bidirectional relationship between the informal economy and tax ethics (Ömercioğlu, 2018, p. 40-41). As it is necessary to reduce the informal economy in order to increase tax ethics, the way to reduce informality is through high tax ethics in society.

### **3.3. Social Capital Criteria (K3)**

Social capital criteria including social norms, tax justice, trust, tax culture, religion, and national pride are among the main criteria affecting tax ethics.

#### **3.3.1. Social Norms**

One of the issues that affect taxpayers' perceptions, attitudes and behaviors toward tax is social norms. Social norms are behavior patterns that should be shared by individuals and are sustainable depending on whether they are tolerated or not. The fact that paying or not paying taxes becomes a social norm in a society can direct the behavior of taxpayers living in that society (Kitapçı, 2021, p. 171-172). This is because taxpayers' tax payment behavior is influenced not only by disincentives such as tax penalties and tax audits but also by social norms (Torgler, 2007, p. 232). Therefore, in a society where paying taxes is established as a social norm, individuals' tax ethics will also be positively affected.

#### **3.3.2. Tax Justice**

Taxpayers' perceptions of tax justice play a pivotal role in shaping both tax ethics and tax compliance. Beyond general perceptions of tax justice, the assessment of whether the tax burden they bear is perceived as equitable or not also affects their tax ethics (Kaynar Bilgin, 2011, p. 270). If taxpayers perceive that the tax amount they are required to pay exceeds what they consider fair, they may regard tax evasion as a form of self-defense. Conversely, if they believe that the tax burden is equitably distributed, it becomes possible to reduce tax evasion tendencies (Torgler, 2007, p. 68).

#### **3.3.3. Trust**

Trust in government, especially in the tax administration and other government institutions, as well as in the legal system, enhances taxpayers' willingness to contribute by paying taxes (Torgler, 2007, p. 18). In other words, taxpayers'



positive perceptions of the government as an active agent of taxation and the level of trust in the government positively affect tax ethics (Kitapçı, 2021, p. 195-196). Therefore, in order to eliminate tax evasion tendencies of taxpayers, the trust of citizens in the state should be built among citizens. In order to achieve this, transparency and accountability in the taxation system should be emphasized (Alasfour, Samy, and Bampton, 2016, p. 157-158). In addition, trust in the head of state and other officials and the belief that other citizens also obey the laws positively affect tax ethics (Torgler, 2007, p. 24).

### **3.3.4. Tax Culture**

Tax culture is defined as the set of formal and informal institutions associated with the national tax system and practices which are deeply rooted in the historical fabric of the nation's cultural heritage (Nerre, 2008, p. 155). Tax culture constitutes one of the factors that enable individuals to feel intrinsically motivated to pay taxes. The interaction between tax law, politicians, academics, tax officials, experts, and taxpayers collectively shapes the dynamics of tax culture. Hence, variations in tax cultures among different nations also differentiate the level of tax ethics. For instance, a higher level of tax ethics in Northern European countries compared to Southern European countries and in Nordic countries compared to France, Italy, Spain, and Portugal can be partly attributed, in part, to the distinct tax cultures prevailing in these regions (Yurdakul, 2013, p. 48-50).

### **3.3.5. Religion**

Given that many religions command values such as honesty, truthfulness, and justice, a negative correlation between religiosity and criminal behavior is anticipated. As an extension of this negative relationship, one would expect a positive relationship between religiosity and tax ethics. Indeed, a study involving 500 participants in Malatya, Türkiye, revealed that individuals with lower levels of religiosity were more inclined to rationalize tax evasion for various reasons than their more religious participants (McGee, Benk, Yüzbaşı and Budak, 2020, p. 7). Nonetheless, there exist studies that reach different conclusions. A study

conducted in Lebanon, comprising 156 Christian and 135 Muslim participants, examined whether there is a relationship between individuals' tax evasion attitudes and their level of religiosity. Surprisingly, the findings revealed that religiosity was not a significant variable affecting attitudes toward tax evasion (Khalil and Sidani, 2020, p. 12). Consequently, it is not possible to fully determine the effect of religion on tax ethics. It appears that the relationship between religion and tax ethics varies from person to person and is also affected by other contributing factors.

### **3.3.6. National Pride**

National pride can be defined as the sense of pride that citizens hold for their country, nation, and society. According to one view, there exists a positive correlation between the intensity of individuals' national pride and their level of tax ethics. It is widely acknowledged that citizens' feelings of national pride tend to positively influence their willingness to pay taxes and their level of tax ethics (Kitapçı, 2021, p. 237).

## **3.4. Political Criteria (K4)**

The political boundary of taxes, the level of political trust in society, perceptions of public ethics, the prevailing democratic culture within society, and the extent of taxpayers' involvement in political decision-making processes are political criteria that positively or negatively affect tax ethics.

### **3.4.1. Political Limit of Taxes**

When setting tax policy, governments often consider the dual role of taxpayers as voters. The provision of expanded public services can potentially boost voter turnout, but the imposition of higher taxes to fund these services may conversely diminish it. These concerns of governments regarding potential voter backlash and electoral consequences delineate the political limit of taxes. The nexus between the political limit of taxes and tax ethics becomes evident when

governments, apprehensive about losing voter support, engage in unfair tax practices. For instance, a government that does not want to lose votes is likely to emphasize indirect taxes, which are less felt by individuals, to finance public services. It is difficult to talk about tax ethics in situations where the weight of indirect taxes surpasses that of direct taxes (Kitapçı, 2021, p. 237-238).

### **3.4.2. Political Trust**

Political trust, synonymous with the positive attitude of taxpayers towards the system, administration, and government, increases tax ethics. It is estimated that higher levels of political trust among taxpayers correspond to a greater willingness to fulfill their tax obligations. Conversely, when policymakers and administrators lack the trust of the citizens, tendencies toward behaviors such as tax avoidance and evasion are more likely to surface (Yurdakul, 2013, p. 42). Hence, it is imperative for authorities seeking to improve tax ethics within society to cultivate and maintain political trust.

### **3.4.3. Public Ethics**

Public ethics encompasses the ethical values and principles that govern the conduct of public officials in the formulation and implementation of policies and the delivery of public services. To engage in meaningful discourse on public ethics, it is imperative that public officials exhibit qualities such as impartiality, honesty, fairness, transparency, and accountability in the execution of their duties (Eryılmaz, 2016, p. 403). To elevate the level of tax ethics within a society, public ethics must first be ensured. In a societal context where public officials do not adhere to principles of public ethics, it becomes difficult to expect citizens to comply with tax ethics. Government intervention is necessary to enforce public ethics and, consequently, enhance tax ethics (Kitapçı, 2021, p. 241-242). Considering that public ethics constitutes a set of values that spreads from the upper echelons to the lower tiers of an organization, in order to ensure an ethical atmosphere in the public sector necessitates a top-down transformation. If senior managers set an example of ethical behavior for other public officials, and others

copy these ethical behaviors, these values have the potential to permeate the entire public sector. This situation will also increase public trust (Durmuş, 2017, p. 174). As trust in the public sector grows, taxpayers are more inclined to perceive tax payment as a civic duty rather than a burden.

#### **3.4.4. Democracy Culture**

There exists a significant correlation between the democratic culture and tax ethics. It is anticipated that the presence of a strong system of direct democracy in a country is associated with higher levels of tax ethics. Research indicates that nations with well-established traditions of direct democracy, such as the United States and Switzerland, tend to exhibit superior tax ethics compared to other countries (Torgler, 2007, p. 270). In countries with a well-established democratic culture, citizens have a say in determining the policies to be implemented, and therefore their compliance rates will be higher.

In addition to general policies, the fact that citizens have an active role in determining tax policies is also an influential factor that enhances tax ethics. Citizens will be less likely to react to taxes that they initially approve, and their compliance will be increased and tax ethics will be improved (Tosuner and Demir, 2009, p. 12).

#### **3.4.5. Involvement in Political Decision-Making Processes**

The observation that countries with well-established democratic traditions have relatively high tax ethics offers valuable insights. Enhancing the culture of democracy and the involvement of individuals in the political process may be useful to increase the tax ethics of the society. When individuals actively participate in the political process and perceive their preferences as adequately represented, their identification with the state is strengthened and their willingness to pay taxes heightens (Alm and Torgler, 2006, p. 243). Numerous studies have consistently identified a strong and directly proportional relationship between political participation and tax ethics (Yurdakul, 2013, p.

54). The greater the extent to which taxpayers engage in political processes and perceive that their preferences are taken into account, the higher their levels of tax ethics tend to be.

### **3.5. Institutional and Administrative Criteria (K5)**

Sub-criteria including taxation ethics, governance structures of states, tax bureaucracy, the quality and efficiency of tax administration, tax compliance policies, tax amnesties, the efficiency of tax audit, and perceptions of corruption collectively form institutional and administrative criteria.

#### **3.5.1. Taxation Ethics**

It is imperative that the taxation process is constructive rather than destructive. In consideration of the continuity of the taxation relationships, it is important to establish a proper and mutually respectful relationship with taxpayers. This type of rapport between taxpayers and the tax administration, situated within an institutional framework, is referred to as taxation ethics. Taxation ethics is one of the crucial extrinsic motivators for ensuring tax ethics (Kitapçı, 2021, p. 248-249). It is widely held the establishment of taxation ethics, coupled with fostering proper relations with taxpayers will reduce their tax evasion and tax avoidance decisions.

#### **3.5.2. Governance Structure of State**

It is widely accepted that the governance structure of a state also exerts influence on tax ethics. It is assumed that countries with a centralized governance structure tend to have lower levels of tax ethics compared to countries with a decentralized governance structure (Kitapçı, 2021, p. 249). Where indigenization is high and local government powers are strengthened, the interaction between citizens and administrators increases. This interaction and proximity increase citizens' trust. In other words, decentralization brings the government closer to the people (Torgler, 2007, p. 154) and positively affects tax ethics.

### **3.5.3. Tax Bureaucracy: Complexity of the Tax System**

The concept of taxpayers' capacity to comprehend and adhere to tax legislation is commonly referred to as tax complexity (Üyümez, 2016, p. 77). Tax complexity is a taxation issue that adds intricacies to the tax compliance process and augments tax compliance costs (Zeren, 2019, p. 162). Complexity within the tax system also creates tax revenue losses. Compliance with regulations that are not properly understood creates difficulty. Intense tax bureaucracy, tax complexity, and disjointed and unconnected laws are likely to contribute to tax revenue losses and tax evasion (Karakoç, 2004, p. 104-105). Hence, policymakers should address tax system complexity as a criterion that negatively affects tax ethics.

### **3.5.4. Quality and Efficiency of Tax Administration**

An effective tax system requires an equally effective and high-quality tax administration. The quality and efficiency of tax administration are important external factors in ensuring tax ethics. The effectiveness and quality of tax administration are directly proportional to the success of tax policies (Kitapçı, 2021, p. 255). Effective tax policies and practices, in turn, contribute to enhanced tax compliance and tax ethics.

The effectiveness of the tax administration is also important in terms of discouraging taxpayers who engage in illegal behavior. It is not only necessary but also obligatory to respond effectively to taxpayers involved in such activities in order to ensure tax ethics (Karakoç, 2004, p. 111).

Another gauge of the effectiveness of tax administration is the behavior of its officers toward taxpayers. As per a study, the manner in which taxpayers are treated undeniably influences tax ethics. Failure to treat the taxpayer with respect can create an intrinsic motivation not to pay taxes. For instance, the treatment of a taxpayer who has unintentionally made an error on their tax declarations as if they were guilty can have a negative impact on tax ethics. Contacting the taxpayer, affording them an opportunity to explain, and treating them with respect can encourage them to behave like an honorable taxpayer (Feld and Frey, 2002, p. 24-26).

### **3.5.5. Tax Compliance Policies**

Government-implemented tax policies may have the unintended consequence of reducing tax compliance or tax ethics. To avoid such an outcome, efforts should be made to minimize tax compliance costs (Kitapçı, 2021, p. 257). Diminishing tax compliance costs will facilitate tax compliance of taxpayers and increase their level of tax ethics. Therefore, it is accepted that there is a positive relationship between tax compliance policies and tax ethics.

### **3.5.6. Tax Amnesties**

Tax amnesties exert a negative psychological impact on law-abiding taxpayers and create an expectation of future amnesty opportunities, thereby exerting a negative influence on tax compliance and tax ethics (Savaşan, 2006, p. 49). Furthermore, tax amnesties undermine taxpayers' beliefs in the existence of tax justice (Özgüdenli, 2018, p. 43). The perception of unfair taxation negatively impacts the tax ethics of taxpayers and encourages informality. Therefore, policymakers should also consider the adverse consequences of tax amnesties that are introduced for their various advantages.

### **3.5.7. Effectiveness of Tax Audit**

Taxpayers' tax ethics are affected by the tax audit activities conducted by tax administrations. The effectiveness of tax audits and taxpayers' awareness of the potential for future audits can significantly impact their tax compliance (Koç, 2018, p. 285). The effectiveness of tax audits will also positively affect the level of tax ethics of taxpayers in connection with tax compliance. As a matter of fact, a study has revealed that tax compliance rates rise in tandem with increased audit rates (Alm et al., 1992, p. 112). In another study with similar findings, researchers found that among Minnesota taxpayers who received notifications implying impending tax audits, taxpayers with low and middle incomes, in particular, reported increased incomes and tax liabilities compared to the previous year in response to the heightened risk of tax audits (Slemrod, Blumenthal and Christian,

2001, p. 455). Just as an effective audit exerts a positive effect on tax ethics, an insufficient audit can lead taxpayers to engage in fraudulent behavior. Taxpayers who perceive audits as lax and believe there is a low risk of detection may be more inclined toward tax evasion.

### **3.5.8. Perception of Corruption**

The fiscal purpose of taxation is to finance public services (Akdoğan, 2020, p. 124). Therefore, taxpayers pay these taxes with the legitimate expectation that tax revenues will be reinvested in the form of public services. In a society characterized by a heightened perception of corruption, the expectation that tax revenues will be reinvested in the form of public services is likely to decrease, leading to a potential decline in voluntary tax compliance. Taxpayers who hold the belief that the taxes they pay will be misappropriated for corrupt purposes will have less trust in the state (Şahin and Hatırlı, 2016, p. 266). Therefore, there exists an inverse relationship between the societal perception of corruption and the level of tax ethics.

## **3.6. Demographic Criteria (K6)**

It is known that demographic criteria including age, marital status, gender, occupation, and educational level affect tax ethics. However, it is important to recognize that external intervention is often unfeasible to modify demographic criteria, except for educational level. Therefore, policymakers aiming to enhance tax ethics in society would be better advised to prioritize other changeable criteria.

### **3.6.1. Age**

Age, as one of the demographic criteria, is considered a determinant of tax ethics. There is an assumption that as individuals age, their level of tax ethics tends to increase (Can and Duran, 2015, p. 56). One of the reasons for the difference in tax ethics between older and younger individuals is that younger people may be more reluctant to pay taxes because they need to allocate a higher proportion of



their income to consumption. In contrast, older individuals have typically achieved a certain standard of living, and as a result, they tend to react less negatively than younger individuals to the taxes they must pay (Çataloluk, 2008, p. 221). Another factor contributing to this difference is the difference in risk perceptions between older and younger individuals. The potential consequences of facing penalties for non-payment of taxes affect these two groups differently (Yurdakul, 2013, p. 19). In contrast, a study with differing findings emphasizes that there is no direct correlation between individuals' age and their tax ethics (Karaaslan and Sandalcı, 2015, p. 51). Likewise, Torgler et al. discovered that younger individuals have lower levels of tax ethics, though they were unable to find a significant correlation between age and tax ethics among individuals in older age groups (Torgler et al., 2018, p. 336).

### **3.6.2. Marital Status**

The extent to which individuals are constrained by the social networks around them may affect their propensity to engage in legal and illegal behavior. This constraint may also have an impact on tax ethics. Several studies have reported variations in tax ethics between married and single individuals. For example, studies conducted in Spain and the United States have indicated that married individuals tend to exhibit higher levels of tax ethics compared to single individuals. However, it is worth noting that this difference may be due to different tax practices for married and single individuals (Alm and Torgler, 2004, p. 6). A survey conducted in Türkiye yielded similar results, as married individuals tended to hold a more negative view of tax evasion compared to single individuals (Yurdakul, 2013, p. 30).

### **3.6.3. Gender**

Another criterion affecting tax ethics is gender. Social psychological research indicates that women are more compliant on many issues. Additionally, women are generally observed to exhibit higher levels of risk aversion compared to men. Taking all these factors into account, it is assumed that women demonstrate higher levels of tax compliance and tax ethics than men (Torgler, 2007, p. 30).

### **3.6.4. Profession**

Whether individuals have a job or not has an impact on their level of tax ethics. Unemployed individuals have lower levels of tax ethics than full-time employed individuals. Similarly, part-time employed individuals and self-employed individuals also exhibit lower levels of tax ethics when compared to full-time employed individuals (Torgler, 2007, p. 31). In addition to individuals' employment status, their professions are also recognized to have an impact on their level of tax ethics. Certain professions, such as doctors, lawyers, and accountants, are associated with strong underlying ethical codes. As a result, taxpayers working in these professions are expected to have higher levels of tax ethics (Torgler and Schneider, 2007, p. 452).

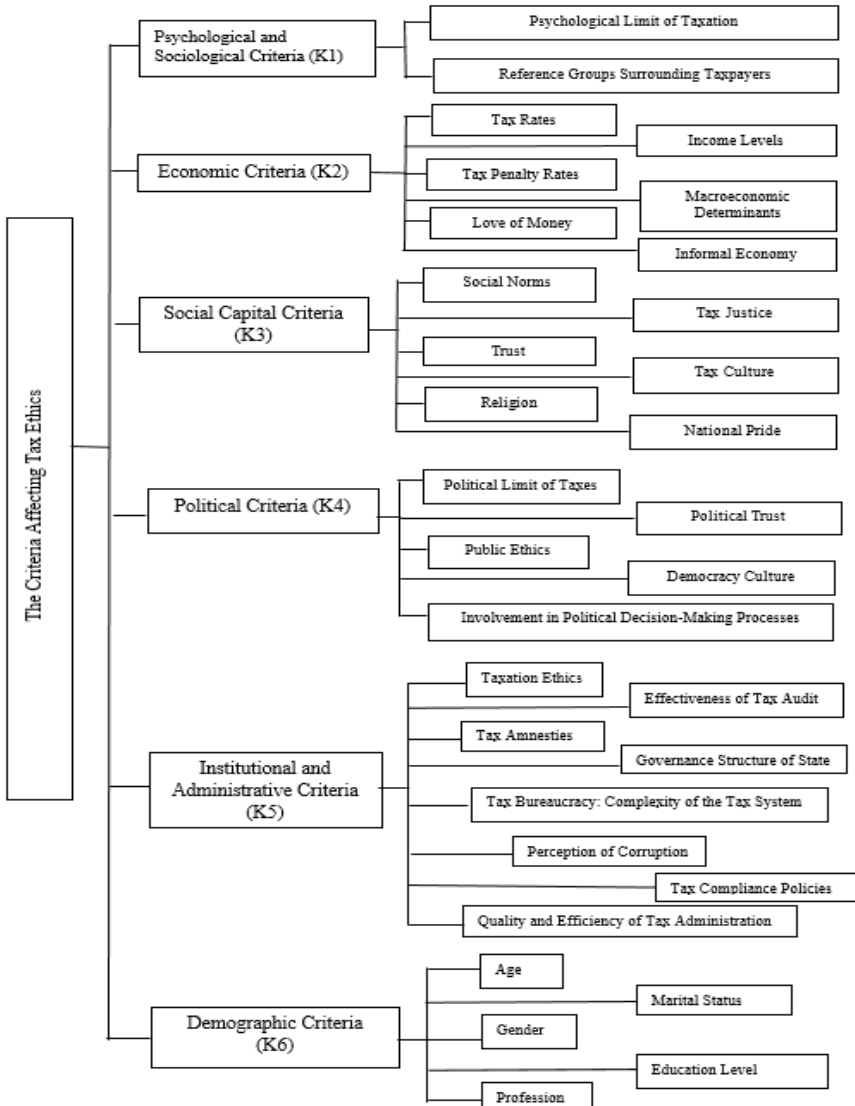
In a study, self-employed workers were found to have lower tax ethics than full-time employees, the unemployed, and pensioners (Gökbunar, Selim, and Yanikkaya, 2007, p. 80). The fact that pensioners receive their salaries from the state, and therefore transparency and control are high, is considered a reason for their higher levels of tax ethics (Torgler and Schneider, 2007, p. 452). Additionally, payment methods used in professions can impact tax ethics. For instance, small business owners often conduct cash transactions make easier to exclude incomes from the declaration (Serim, 2015, p. 154).

### **3.6.5. Education Level**

The relationship between the level of education and tax ethics is intricate. Educated individuals are more knowledgeable about tax law and fiscal interconnections. Furthermore, they have a high awareness regarding the allocation and potential waste of tax revenues (Torgler, 2007, p. 31). Williams and Krasniqi, in their study encompassing 35 Eurasian countries, found that individuals with university-level education have higher levels of tax ethics in comparison to those lacking a university education (Williams and Krasniqi, 2017, p. 825). On the other hand, the tax compliance of educated individuals may be adversely impacted by their high awareness of opportunities for tax evasion and avoidance.

Therefore, the relationship between education level and tax ethics should not be considered in isolation from factors such as government expenditures and the ratio of taxes paid and services received (Torgler, 2007, p. 31).

**Table 1. The Criteria Affecting Tax Ethics**



#### 4. Method

In this study, which examines the factors influencing the tax ethics of society and individuals, the data obtained has been analyzed using the Fuzzy DEMATEL (The Decision-Making Trial and Evaluation Laboratory) method. The main and sub-criteria included in the scope of the study were determined by reviewing studies conducted in both national and international literature. After identifying the criteria affecting tax ethics, these criteria were evaluated by experts with at least 10 years of experience in the field through pairwise comparisons. Ethical approval for the study was obtained from the Istanbul Medeniyet University Social and Human Sciences Scientific Research and Publication Ethics Committee with the reference number E-38510686-000-2300007281.

In this study, a purposive sampling method known as maximum diversity sampling has been employed. The maximum diversity sampling method aims to maximize the diversity of individuals included in the sample in order to achieve the highest possible diversity relevant to the research topic. (Coyne, 1997, p. 628). In this study, attention was paid to selecting individuals with professional experience in taxation and tax ethics as the sample group. The characteristics of the selected expert group are shown in Table 2.

**Table 2: Information on Experts Contributing to the Study**

Experts	Field of Study	Profession	Professional Experience	Education Level
U1	Tax Law	Academician	11 Years	Ph.D.
U2	Tax Law	Academician	12 Years	Ph.D.
U3	Accounting and Taxation	Certified Public Accountant (CPA)	24 Years	Bachelor's Degree
U4	Tax Audit	Tax Inspector	11 Years	Bachelor's Degree
U5	Tax Audit	Tax Inspector	10 Years	Bachelor's Degree
U6	Tax Law and Jurisdiction	Judge	21 Years	Bachelor's Degree

#### 4.1. Fuzzy DEMATEL Method

In problems involving multiple criteria and the need for decision-making, multi-criteria decision-making methods are frequently used, especially with the development of computer science. The decision-making process involves selecting an alternative for a defined problem and listing alternatives under the current data, the decision-makers' perspectives, and the objective of the decision (Zopounidis, 2002, p. 227). Depending on the nature of the problems, various multi-criteria decision-making techniques have been developed. Regarding illustrating relationships between criteria, using the Fuzzy DEMATEL method has been deemed appropriate for this study.

The DEMATEL (Decision Making Trial and Evaluation Laboratory) method was introduced by Gabus and Fontela in 1972 (Fontela and Gabus, 1972, p. 3). This method was first employed in 1973 by the Battelle Memorial Institute through the Geneva Research Center (Chang, Chang, and Wu, 2011). The DEMATEL method is an effective technique for illustrating cause-and-effect relationships between criteria in problems with a large number of criteria through the use of matrices. (Si, You, Liu, and Zhang, 2018, p. 20; Bakir, Khan, Ahsan and Rahman, 2018, p. 326). In the DEMATEL method, as in other multi-criteria decision-making techniques, the evaluation and determination of criteria are carried out based on expert opinions. The DEMATEL method reveals the relationships among complex criteria through a relationship diagram (Leblebicioğlu and Keskin, 2021; Baş and Eti, 2022). Additionally, it allows the researcher to prioritize criteria related to the specific problem, enabling a focus on fewer criteria (Chang et al., 2011; Lin, 2013; Tsai et al., 2015).

The DEMATEL method aims to draw meaningful conclusions by visualizing the complex cause-effect relationships of a problem (Du et al., 2020). However, it is quite difficult to determine and quantitatively express the degree of interaction between factors in these relationships. Therefore, Lin and Wu transferred the DEMATEL method to a fuzzy environment (Lin and Wu, 2008). With the application of fuzzy logic to the DEMATEL method, the decision-making group

makes their evaluations more applicable and compatible with the real world by using linguistic variables to express uncertainty, as is the basis of this logic (Özdemir, 2016, p. 236).

There are seven steps in the Fuzzy DEMATEL model used in the study. Detailed information about these steps is briefly listed below. Triangular fuzzy numbers were used in this study.

**Step 1:** Once the problem has been identified, it should be clearly defined. The criteria should be clear and ensure that all important criteria that will affect the problem are included in the model.

**Step 2:** In this step, the direct relationship matrix, which is the first calculation data of the DEMATEL method, is created. At this stage, the relationships between the criteria are evaluated by the decision-makers.

**Step 3:** At this stage, the relationship between the criteria is measured by evaluating the bilateral relationships between the criteria by the decision-makers. Then, the fuzzy matrix ( $Z$ ) is calculated. Fuzzy linguistic expressions are shown in the table below:

**Table 3: Fuzzy Language Scale**

Linguistic Scales	Triangular Fuzzy Numbers		
No Effect	0	0	0.25
Low Impact	0	0.25	0.5
Medium Impact	0.25	0.5	0.75
High Impact	0.5	0.75	1
Very High Impact	0.75	1	1

Source: (Wu and Lee, 2007, p. 503).

Equations (1) and (2) were used in this process. Six different experts conducted the evaluations in the study. Experts made their assessments using the five-point rating scale mentioned above.

$$(\check{Z}) = \frac{\check{Z} \otimes \check{Z}^2 \otimes \dots \otimes \check{Z}^p}{p} \tag{1}$$

$$\check{Z} = \begin{pmatrix} 0 & \dots & \check{Z}_{1n} \\ \vdots & \ddots & \vdots \\ \check{Z}_{n1} & & 0 \end{pmatrix} \tag{2}$$

As can be seen from Equation 1, in the calculation of the average fuzzy matrix, values are divided by the number of experts. Additionally, in the equations above, the value  $\check{Z}_{ij}$  is composed of three triangular fuzzy numbers as  $\check{Z}_{ij} = (lij, mij, uij)$ .

**Step 4:** The fourth stage of the analysis consists of the normalization process of the decision matrix. In this context, the normalized direct relationship matrix ( $\bar{X}$ ) is obtained. This process is calculated with the help of equations (3) to (5).

As can be understood from the equations above, the largest number in the rows of the average fuzzy matrix is determined, and all values in the matrix are divided by this number.

**Step 5:** In the fifth stage, the total relationship fuzzy matrix ( $\check{T}$ ) is created using equations (6) to (10).

$$X_l = \begin{pmatrix} 0 & \dots & l'_{1n} \\ \vdots & \ddots & \vdots \\ l'_{n1} & & 0 \end{pmatrix} X_m = \begin{pmatrix} 0 & \dots & m'_{1n} \\ \vdots & \ddots & \vdots \\ m'_{n1} & & 0 \end{pmatrix} X_u = \begin{pmatrix} 0 & \dots & u'_{1n} \\ \vdots & \ddots & \vdots \\ u'_{n1} & & 0 \end{pmatrix} \tag{6}$$

$$\check{T} = \begin{pmatrix} \check{t}_1 & \dots & \check{t}_{1n} \\ \vdots & \ddots & \vdots \\ \check{t}_{n1} & & \check{t} \end{pmatrix} \tag{7}$$

$$t''_{ij} = X(1 - X_l)^{-1} \tag{8}$$

$$m''_{ij} = X(1 - X_m)^{-1} \tag{9}$$

$$u_{ij} = X(1 - X_u)^{-1} \tag{10}$$

The steps of the process of converting fuzzy numbers into crisp scores, also known as the CFCs (Converting Fuzzy Data into Crisp Scores) method, developed by Opricovic and Tzeng (2003, p. 643), are shown using the following notations:

$$\check{T} = (l_{ij}, m_{ij}, u_{ij}) \quad R = \max u_{ij} \quad L = \min l_{ij} \quad \text{and} \quad \Delta = R - L \quad (11)$$

$$t_{ij} = (l_{ij} - L) / \Delta, \quad t_{mj} = (m_{ij} - L) \Delta, \quad t_{uj} = (u_{ij} - L) \Delta \quad (12)$$

$$t_{ij}^{ls} = t_{mj} / (1 + t_{mj} - t_{ij}^{ls}), \quad t_{uj}^{rs} = t_{uj} / (1 + t_{uj} - t_{mj}) \quad (13)$$

$$t_j^{crisp} = [t_{ij}^{ls} x (1 - t_{ij}^{ls}) + t_{uj}^{rs} x t_{uj}] / [1 - t_{ij}^{ls} + t_{uj}^{rs}] \quad (14)$$

$$\check{f}_{ij}^{crisp} = L + t_j^{crisp} x \Delta \quad (15)$$

**Step 6:** In the final stage of the analysis,  $(\check{D}_i + \check{R}_i)^{def}$  and  $(\check{D}_i - \check{R}_i)^{def}$  values are calculated. Where  $\check{D}_i$  represents the sum of all vector columns, and  $\check{R}_i$  represents the sum of all vector rows. The degree of influence between criteria is represented by the value  $(\check{D}_i + \check{R}_i)^{def}$ . In other words, a higher value for this indicates that the criteria are much closer to the center point. On the other hand,  $(\check{D}_i - \check{R}_i)^{def}$  values represent the relationships between criteria. A positive value for this indicates that it influences other criteria.

In the last step of the sixth step, the importance weights of the variables are calculated. First, the total value of  $(\check{D}_i + \check{R}_i)^{def}$  is calculated. Then, the importance weights of the criteria are obtained by dividing the value of each criteria by the calculated total value  $(\check{D}_i + \check{R}_i)^{def}$ . The sum of all obtained criteria weights equals 1.

**Step 7:** In this stage, a network structure is created. To create a network structure using the total relationship matrix, it is necessary to first calculate the threshold value. The threshold value can be a value determined by decision-makers. If there is no such value, it can be determined by taking the average of the total relationship matrix.

## 4.2. Findings

In the study, the Fuzzy DEMATEL method was applied to analyze the criteria influencing tax ethics in Türkiye. Six criteria, determined as a result of a



comprehensive literature review and expert opinions, were evaluated by participants who specialize in various fields of tax law. The fundamental criteria affecting tax ethics and sample studies conducted in this field are shown in the table below.

**Table 4: Literature on Criteria Affecting Tax Ethics**

Criteria	Relevant Literature
<b>Psychological and Sociological Criteria (K1)</b>	Torgler et al. (2018), Serim (2015), Kitapçı (2021)
<b>Economic Criteria (K2)</b>	Freire-Serén and Panadés (2013), Alm et al. (1992), Kitapçı (2021), Torgler (2007), Yayla et al. (2009), Ömercioğlu (2018)
<b>Social Capital Criteria (K3)</b>	Kitapçı (2021), Torgler (2017), Kaynar Bilgin (2011), Torgler (2007), Yurdakul (2013), McGee et al. (2020),
<b>Political Criteria (K4)</b>	Kitapçı (2021), Yurdakul (2013), Torgler (2007), Alm and Torgler (2006)
<b>Institutional and Administrative Criteria (K5)</b>	Kitapçı (2021), Torgler (2007), Karakoç (2004), Feld and Frey (2002), Savaşan (2006), Alm et al. (1992), Slemrod et al. (2001), Şahin and Hatırlı (2016)
<b>Demographic Criteria (K6)</b>	Can and Duran (2015), Çataloluk (2008), Torgler et al. (2018), Alm and Torgler (2004), Torgler (2007), Torgler and Schneider (2007), Serim (2015), Williams and Krasniqi (2017)

Triangular fuzzy numbers have transformed the criteria influencing tax ethics into a fuzzy impact matrix. The fuzzy impact matrix for the analysis is shown in Table 5.

The fuzzy impact matrix in Table 5 is normalized to create a fuzzy influence matrix for subsequent calculations. Table 6 displays the normalized fuzzy impact matrix.

In the next step of the analysis, the total fuzzy influence matrix is created by calculating the total values of the normalized fuzzy impact matrix. Table 7 displays the total fuzzy influence matrix of the Fuzzy DEMATEL method.

In the next step, the total fuzzy influence matrix needs to be transformed into an influence matrix. Table 8 converts fuzzy numbers into a non-fuzzy set of numbers, i.e., a total relationship matrix. In other words, it has undergone a crispification process. The crispification process was conducted according to the method proposed by Opricovic and Tzeng (2003, p. 643).

**Table 5: Fuzzy Effect Matrix of Criteria Affecting Tax Ethics**

	K1			K2			K3			K4			K5			K6		
<b>K1</b>	0.000	0.000	0.250	0.167	0.417	0.667	0.125	0.375	0.625	0.083	0.333	0.583	0.125	0.375	0.625	0.208	0.458	0.708
<b>K2</b>	0.583	0.833	1.000	0.000	0.000	0.250	0.500	0.750	0.958	0.542	0.792	1.000	0.417	0.667	0.917	0.500	0.750	0.958
<b>K3</b>	0.250	0.500	0.750	0.042	0.292	0.542	0.000	0.000	0.250	0.042	0.292	0.542	0.042	0.292	0.542	0.292	0.542	0.792
<b>K4</b>	0.500	0.750	1.000	0.125	0.375	0.625	0.375	0.625	0.875	0.000	0.000	0.250	0.333	0.583	0.833	0.417	0.667	0.875
<b>K5</b>	0.208	0.458	0.708	0.208	0.458	0.708	0.375	0.625	0.833	0.208	0.458	0.667	0.000	0.000	0.250	0.417	0.667	0.875
<b>K6</b>	0.208	0.458	0.708	0.000	0.250	0.500	0.167	0.417	0.667	0.042	0.292	0.542	0.083	0.333	0.583	0.000	0.000	0.250

**Table 6: Normalized Fuzzy Influence Matrix**

N	K1			K2			K3			K4			K5			K6		
<b>K1</b>	0.000	0.000	0.049	0.033	0.082	0.131	0.025	0.074	0.123	0.016	0.066	0.115	0.025	0.074	0.123	0.041	0.090	0.139
<b>K2</b>	0.115	0.164	0.197	0.000	0.000	0.049	0.098	0.148	0.189	0.107	0.156	0.197	0.082	0.131	0.180	0.098	0.148	0.189
<b>K3</b>	0.049	0.098	0.148	0.008	0.057	0.107	0.000	0.000	0.049	0.008	0.057	0.107	0.008	0.057	0.107	0.057	0.107	0.156
<b>K4</b>	0.098	0.148	0.197	0.025	0.074	0.123	0.074	0.123	0.172	0.000	0.000	0.049	0.066	0.115	0.164	0.082	0.131	0.172
<b>K5</b>	0.041	0.090	0.139	0.041	0.090	0.139	0.074	0.123	0.164	0.041	0.090	0.131	0.000	0.000	0.049	0.082	0.131	0.172
<b>K6</b>	0.041	0.090	0.139	0.000	0.049	0.098	0.033	0.082	0.131	0.008	0.057	0.107	0.016	0.066	0.115	0.000	0.000	0.049

**Table 7: Total Fuzzy Impact Matrix**

T	C1			C2			C3			C4			C5			C6		
<b>C1</b>	0.011	0.078	0.474	0.035	0.125	0.450	0.034	0.142	0.523	0.022	0.119	0.459	0.030	0.128	0.481	0.051	0.163	0.561
<b>C2</b>	0.143	0.285	0.783	0.013	0.090	0.511	0.123	0.261	0.748	0.116	0.239	0.673	0.097	0.224	0.682	0.130	0.275	0.782
<b>C3</b>	0.055	0.163	0.551	0.011	0.101	0.420	0.006	0.068	0.442	0.011	0.107	0.441	0.012	0.110	0.457	0.063	0.172	0.563
<b>C4</b>	0.115	0.241	0.708	0.032	0.140	0.524	0.089	0.213	0.663	0.010	0.080	0.481	0.074	0.187	0.604	0.102	0.231	0.694
<b>C5</b>	0.060	0.184	0.619	0.045	0.146	0.504	0.087	0.205	0.617	0.049	0.157	0.523	0.011	0.077	0.466	0.099	0.222	0.652
<b>C6</b>	0.045	0.150	0.527	0.003	0.091	0.400	0.037	0.139	0.502	0.010	0.104	0.427	0.019	0.113	0.449	0.007	0.070	0.449

**Table 8: Total Relationship Matrix**

Fij	K1	K2	K3	K4	K5	K6
K1	0.145175	0.176385	0.198967	0.172683	0.183332	0.220312
K2	0.352756	0.162239	0.330497	0.304271	0.293579	0.344848
K3	0.21907	0.152383	0.131881	0.160532	0.165003	0.227462
K4	0.306726	0.201741	0.279297	0.149098	0.251672	0.29682
K5	0.247806	0.203166	0.264376	0.213446	0.143963	0.281395
K6	0.204438	0.140479	0.192324	0.154484	0.165254	0.13412
<b>Threshold Value</b>	0.215888					

In the subsequent stage, total effect values are obtained from the total relationship matrix. Table 9 presents the degrees of effect-relationship and the criteria weights. Based on the criteria values influencing tax ethics for both individuals and society, as shown in Table 9, it is evident that economic criteria (K2) hold the highest importance in determining tax ethics. Political criteria (K4) and psychological and sociological criteria (K1) are the second most critical factors, with equal significance in shaping tax ethics. Conversely, the social capital criteria (K3) has the least impact on tax ethics, as indicated by the analysis results. The average value of the total relationship matrix, also known as the threshold value, is calculated to be 0.215888. The threshold value can be determined by expert opinions or by calculating the average of the total relationship matrix.

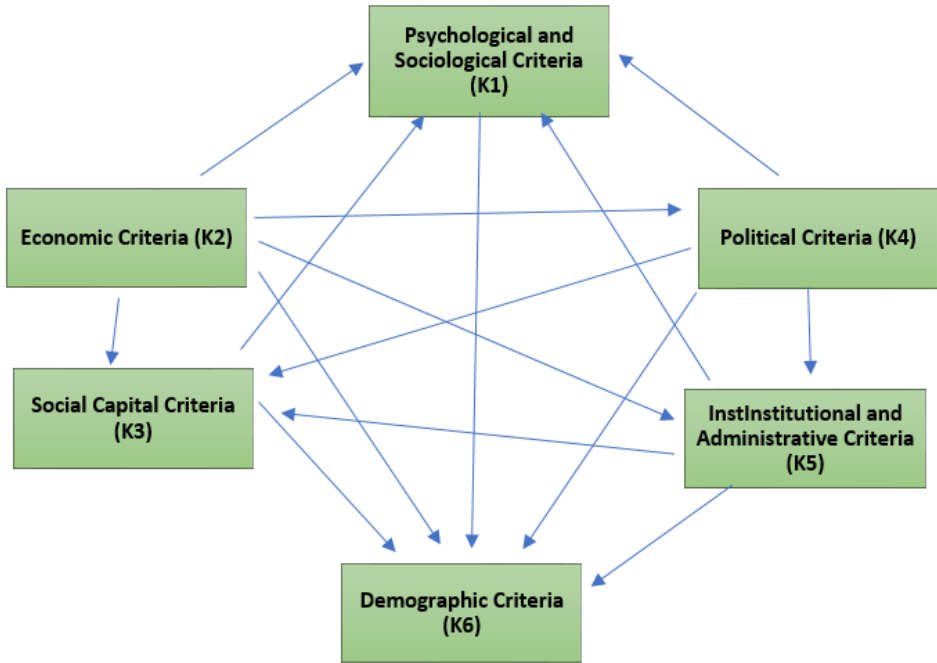
**Table 9: Effect-Relationship Degree and Criteria Weight Results**

Criteria	D	R	D+R	D-R	W
K1	1.096854	1.475972	2.572825	-0.379118	0.165519
K2	1.788191	1.036393	2.824584	0.751798	0.181716
K3	1.05633	1.397342	2.453673	-0.341012	0.157854
K4	1.485354	1.154513	2.639867	0.330841	0.169832
K5	1.354152	1.202804	2.556955	0.151348	0.164498
K6	0.99110	1.504957	2.496058	-0.513857	0.160581

The D+R value in the table represents the degree of relationship between criteria and other criteria. In the final step of the analysis, a "threshold value" has been created by taking the average of the values in the total relationship matrix shown in Table 8 (0.215888). Values above this threshold value are highlighted in dark color in Table 8. These values in Figure 1 represent the influence of criteria

on each other regarding tax ethics. Additionally, with the help of the threshold value, the relationship matrix shown in Figure 1 has been constructed.

**Figure 1. DEMATEL Cause and Effect Diagram**



According to Figure 1, there is a very important relationship between the criteria affecting tax ethics; almost all criteria have a mutual relationship. However, according to the analysis results, it is seen that the demographic criteria (K6) have no effect on the other criteria, while it is affected by all other criteria. The criteria that have the most effect on other criteria are the economic criteria (K2). Although economic criteria (K2) affect all other criteria, other criteria have no effect on economic criteria (K2).

### 5. Conclusion and Recommendations

In order to prevent the negative consequences of low tax ethics, the level of tax ethics should be enhanced by starting with taxpayers. Having the full and

timely payment of taxes become a social norm among taxpayers will increase the level of tax ethics in society. In order to make policies for increasing the tax ethics of taxpayers and society, the criteria that affect tax ethics need to be determined. For this reason, the current study first determines the criteria that affect tax ethics by reviewing the domestic and foreign literature. As a result of the literature review, the study has determined 6 main criteria and 32 sub-criteria. The study includes the psychological and sociological (K1), economic (K2), social capital (K3), political (K4), institutional and administrative (K5), and demographic criteria (K6) as the main criteria affecting tax ethics.

While some of the criteria affecting tax ethics are open to external interventions by administrators and policymakers, sub-criteria such as age, marital status, and religion cannot be interfered with from outside. For this reason, it is important to identify the criteria affecting tax ethics, especially those open to external interventions, and to develop policies towards them. This large number of criteria require them to be ranked in order of importance. In this way, administrators and policymakers can focus on the most important criteria and be able to take measures more quickly to enhance tax ethics. In order to achieve this, the study aims to both rank the criteria that affect tax ethics in order of importance and identify the relationships among the criteria. For this aim, the study uses the Fuzzy Decision Making Trial and Evaluation Laboratory (DEMATEL) method as one of the multi-criteria decision-making methods that consider the interactions among decision criteria. Six experts with at least 10 years of professional experience in different areas of tax law evaluated the identified criteria. Two of these experts are tax inspectors, two are academicians, one is a tax judge, and one is a certified public accountant.

The results of the method are largely consistent with the literature and the study's expectations. As expected, the most important criteria involve the economic criteria (K2). The political (K4) and psychological and sociological criteria (K1), which are believed to have a high impact on tax ethics, also rank highly. The criteria with the least impact on tax ethics involves the criteria of social capital (K3). Meanwhile, the demographic criteria were expected to be found as the lowest-ranking criteria.

When evaluating the relationship between criteria based on the cause and effect diagram for the application study, it is observed that all criteria, except for (K2) and (K6), are mutually related. While (K6) has no impact on other criteria, (K2) differs in that it affects all criteria but is not influenced by other criteria.

Based on the application results, it is possible to make some inferences to enhance tax ethics and provide recommendations to administrators and policymakers. The problems that may arise from the low tax ethics of taxpayers and society and the importance of raising tax ethics have been emphasized in previous sections. In this regard, we recommend addressing the criteria by the importance order determined in the study.

The economic criteria have the highest impact on tax ethics and contain the following sub-criteria: tax rates, tax penalty rates, income level, love of money, macroeconomic determinants, and informal economy. In order to enhance tax ethics, policies should be developed toward the sub-criteria where external intervention is possible. For example, influencing the love of money, which is believed to negatively impact taxpayers' tax ethics, is impossible. However, tax rates as another sub-criterion, can be adjusted in a way that does not negatively affect tax ethics. Similarly, an increase in tax penalty rates combined with a strict tax audit will also serve the purpose of enhancing tax ethics. Economic policies aimed at increasing taxpayers' income levels will also positively impact tax ethics. Macroeconomic determinants such as gross national product, inflation, unemployment, and income distribution also affect tax ethics in various ways. In countries with high unemployment and no fair income distribution, taxpayers will develop reactions against taxes, which will in turn adversely affect tax ethics. When examining the relationship between inflation and tax ethics, high inflation is seen to have a negative impact on tax ethics, and individuals may be more inclined to spend their money on consumption rather than on paying taxes in an economy with high inflation due to their money eroding in value over time. Consequently, this can lead to a decline in tax ethics and compliance. Given the negative relationship between inflation and tax ethics, policymakers should be aware of the potential impacts inflation has on taxpayers' willingness to comply with tax

laws. Inflation should be considered when designing tax policies and strategies for enhancing tax ethics and compliance. Another sub-criterion of the economic criteria (K2) informal economy has an interrelation with tax ethics and can also be interfered with externally. As mentioned earlier, reducing informality can positively affect tax ethics, and high tax ethics levels can also reduce informality. Therefore, ensuring the registration of informal activities and preventing the growth of the informal economy are important for tax ethics.

In addition to economic criteria, the political criteria and the psychological and sociological criteria have major impacts on tax ethics levels, and administrators and policymakers should also consider these two criteria together with their sub-criteria. When evaluating political criteria, it becomes evident that attention should be paid to the political limits of taxes when formulating tax policies. For instance, policies that prioritize indirect taxes, because they are less felt by taxpayers can negatively affect tax ethics. Tax policies alone, however, are not the only factors at play; policymakers and implementers can also influence tax ethics. Distrust in these individuals can increase the propensity for fraudulent behavior. Therefore, ensuring political trust is also crucial. While intervention in the short term may be challenging, fostering a culture of democracy within society in the long term will have a positive impact on tax ethics. When examining country examples, it is observed that a high level of tax ethics often accompanies a developed culture of democracy. Moreover, increasing the participation of individuals in both tax policies and general political decision-making processes will also enhance tax ethics. This is because individuals who participate in the decision-making process, believe they are adequately represented, and feel a sense of identity with the state are more likely to comply with decisions and have a tendency to pay their taxes.

The psychological and sociological criteria, comprising two sub-criteria, namely the psychological limit of taxation, and the individual's reference groups, have been identified as having a high impact on taxpayers' levels of tax ethics. Paying attention to the psychological limit of taxation is essential to avoid diminishing tax ethics. This is because as tax rates and the perceived degree of

taxation increase, tax ethics tend to be negatively affected. When the psychological limit of the tax burden is exceeded and the perceived tax burden is too high, it can lead to increased reactions against taxation. The individual's reference groups also play a significant role in shaping the level of tax ethics. If the level of tax ethics is high among the taxpayer's family, friends, and colleagues, and if fraudulent behavior related to taxes is not condoned, these factors will positively influence the taxpayer's tax ethics. However, if unethical behavior related to taxes is tolerated or encouraged within the taxpayer's social circles, the taxpayer's tax ethics may be negatively affected. Therefore, it would be beneficial to develop policies aimed at cultivating tax awareness, starting from the smallest units of society. For example, efforts can be made within professional organizations to enhance tax ethics among individuals within specific professional groups. While the social capital criteria, demographic criteria, and institutional and administrative criteria may have relatively less weight in influencing tax ethics, policymakers and implementers should still consider evaluating them. Even if these criteria are not their primary focus for enhancing tax ethics, they should at least avoid making decisions that would reduce tax ethics when formulating policies in these areas.

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**Ethics Committee Approval:** Ethical approval for the study was obtained from the Istanbul Medeniyet University Social and Human Sciences Scientific Research and Publication Ethics Committee with the reference number E-38510686-000-2300007281.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Conception/Design of Study- B.K.Y, A.K.; Data Acquisition- B.K.Y, A.K.; Data Analysis/Interpretation- B.K.Y, A.K.; Drafting Manuscript- B.K.Y, A.K.; Critical Revision of Manuscript- B.K.Y, A.K.; Final Approval and Accountability- B.K.Y, A.K.

**Conflict of Interest:** The authors have no conflict of interest to declare.

**Grant Support:** The authors declared that this study has received no financial support.

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