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Attila Bartha & Zsolt Boda

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Tax Compliance Motivations During Corruption Scandals in a Fragile Democracy: A Before-and-After Study

ATTILA BARTHA & ZSOLT BODA

Abstract

Fostering tax morale and reducing tax evasion is particularly challenging for the fragile democracies of Eastern Europe and post-Soviet Eurasia. This study investigates enforced and voluntary tax compliance motivations in Hungary, where democratic decline and a taxation policy shift towards deterrence measures occurred simultaneously. We compare the tax compliance motivations of citizens before and after a series of corruption scandals related to the tax authority. Our findings demonstrate that these scandals undermined trust in the tax authority and voluntary tax compliance. An important policy implication is that the tax regimes of fragile democracies should include measures to build trust in national tax authorities.

ENSURING TAX COMPLIANCE IS A POLICY CHALLENGE FOR any government. While the ability to collect taxes is the ultimate test of state capacity and statehood, even established democracies struggle with the problem of tax avoidance. Governments may use two basic approaches to spur tax compliance: one is based on constraints and sanctions, while the other consists of cultivating tax morale and promoting voluntary compliance (Gangl *et al*. 2019). Research in institutional economics and economic psychology proves that tax behaviour is a function of both enforced and voluntary sources of motivation (Alm *et al*. 1992b; Andreoni *et al*. 1998). Although the former type seems to be dependent on 'hard' policy measures rooted in controlling and sanctions, both kinds of motivation are social constructs resulting from the interactions between people and institutions. The efficacy of the enforcement of tax

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rules through monitoring and sanctions depends not only on the administrative capacity of the state but also on citizens' perceptions of that capacity (Hofmann *et al*. 2014).

The roots and conditions of voluntary compliance are less obvious. They certainly stem from certain individual-level characteristics such as honesty and altruistic attitudes (Braithwaite 2002) but are also a function of social values and perceptions about the behaviour of other people and state institutions. If people trust institutions and believe that they operate fairly and legitimately, they are more willing to pay taxes, while perceptions of corruption or bad governance undermine voluntary motivations (Kahan 2001; Murphy 2005; Wenzel 2005; Timmons & Garfias 2015). Moreover, enforced and voluntary motivations are not independent: enforcement measures can crowd out voluntary motivation and create suboptimal outcomes. On the other hand, the perception of effective enforcement is also a boundary condition of voluntary compliance as fairness implies constraints on reluctant taxpayers (Feld & Frey 2002; Frey & Torgler 2007; Hofmann *et al*. 2014).

Fostering tax morale and reducing tax evasion is a major challenge for the fragile democracies of Eastern Europe and post-Soviet Eurasia. The relatively low level of trust in public institutions (Boda & Medve-Bálint 2014) is typically coupled with a generally negative attitude concerning taxation (Torgler 2012) and strong expectations that the government will provide public services (Medve-Bálint & Boda 2014). The combination of low trust in public institutions and high expectations of public service delivery makes new democracies particularly vulnerable economically and politically, as the moderate willingness of citizens and companies to pay taxes limits the capacity of the state to provide public goods. Given the mutual distrust between taxpayers and authorities, tax compliance is enforced rather than voluntary. In other words, trust and normative considerations have only a weak effect, if any, on compliance (Torgler 2003, 2012).

Here, we assume that moral scandals, such as the 2014 corruption case involving the Hungarian tax authority, have a priming effect on attitudes, strengthening normative concerns about institutions. Although corruption is relatively widespread in the postsocialist countries of Eastern Europe and Eurasia, people are still sensitive to it, and it deeply affects trust in institutions (Boda & Medve-Bálint 2017).

This study investigates tax compliance motivations in a new democracy. We use two surveys in a before-and-after study design, an opportunity created by corruption scandals related to the Hungarian tax authority (*Nemzeti Adó- és Vámhivatal*, National Tax and Customs Administration—NTCA). The aim of the study is to examine the role of trust in, normative expectations of, and the perceived effectiveness of the tax authority in informing tax compliance motivations in the context of a corruption scandal. Weak tax compliance motivations may imply either illegal tax evasion or tax avoidance (that is, legal methods by which the tax burden can be reduced) (Alm 1988). Although these are conceptually and empirically distinct phenomena, this study investigates the general attitudes of citizens towards tax behaviour, measuring to what extent respondents uphold the view that taxes should be paid. Thus, our dependent variable is tax compliance motivation, an attitude distinguished from tax compliance behaviour.

Our inquiry is based on a single case study, namely that of Hungary. The reason for the case selection is that we consider Hungary a crucial case in relation to the potential effects of trust and normative considerations on compliance motivations. Since 2010, the situation in Hungary has been described as a prime example of democratic backsliding and populist governance, characterised by the ideology of a 'strong state' (a state with strong coercive power), centralisation of decision-making and harsh 'law and order' measures (Boda *et al*. 2015; Kornai 2015). In terms of taxation policy, the government has accorded clear priority to control and sanction measures—that is, enforced compliance—as opposed to encouraging voluntary motivation. Thus, Hungary represents a crucial case among the new democracies: if trust and voluntary motivation play an important role in taxation-related attitudes under these circumstances, then we can meaningfully assume that these factors are more, or at least as important, in other post-Soviet states.

In 2014 an opportunity arose to apply a before-and-after study design to the role of institutional unfairness and its effects on both trust and compliance attitudes in Hungary, allowing the longitudinal analysis of data. In November 2014 media sources reported that several Hungarian government officials, amongst them Ildikó Vida, the head of the NTCA, had been banned from the United States because of corruption charges and alleged abuse of power.[1] The *chargé d'affaires* of the US embassy in Hungary indirectly confirmed the information to the authors. This scandal provoked an outcry: mass demonstrations were organised against political corruption, calling for Vida's dismissal. The scandal was covered intensively by the media and, according to our own survey in 2015, four months later, almost 90% of citizens had heard about it. This event could have undermined the normative legitimacy of the tax authority and diminished people's trust in it.

Comparing the data from two surveys before (October 2013) and after (March 2015) the scandal offered a genuine opportunity to study the dynamics of trust and compliance-related attitudes related to a corruption scandal. This is referred to as a before-and-after study design (Sedgwick 2014). Although it lacks the strength of a laboratory experiment in terms of controlling for conditions that may affect tax compliance and the ability to compare the results against a control group, it does involve a real-life case as well as a longitudinal comparison of data. It is a novel approach to studying tax compliance, complementing the cross-sectional survey methods and experimental laboratory design usually applied. In our empirical research, we also conducted a mediation analysis between independent variables to disentangle the complexity of factors behind voluntary tax compliance motivations.

The structure of the article is as follows. The next section reviews the literature on the roots of both enforced and voluntary tax compliance, with emphasis on the role of trust and perceptions of institutional fairness. This is followed by a summary of previous studies on tax compliance in Eastern Europe and post-Soviet Eurasia, then an outline of the research questions, hypotheses, data and methods used in the study. The subsequent section presents the empirical findings, while the final section offers a detailed discussion of the results embedded in the broader socio-political context of the region.

The roots of enforced and voluntary tax compliance

Economic reasoning suggests that people pay taxes if they cannot avoid doing so or if the risk of being caught and sanctioned for non-compliance is higher than its expected benefit

[1] 'Hungary's Tax Chief Says she is on US Travel Ban List: Paper', *Reuters*, 5 November 2014, available at: https://www.reuters.com/article/us-hungary-usa-corruption-idUSKBN0IP10J20141105, accessed 30 April 2023.

(Allingham & Sandmo 1972; Fischer *et al*. 1992). Shortfalls in the neoclassical tax compliance model for approximating observed taxpayer behaviour were demonstrated by Alm, Jackson and McKee using laboratory experiments (Alm *et al*. 1992a). Empirical studies have confirmed that both the opportunity to avoid paying tax and the perceived risks of being caught do affect observed tax compliance (Andreoni *et al*. 1998). However, research also proves that a rational cost–benefit analysis of paying taxes would imply more cheating and tax evasion than actually occur (Andreoni *et al*. 1998; Slemrod & Yitzhaki 2002). Moreover, the effect of deterrence is somewhat uncertain and sometimes even paradoxical: more sanctions may even reduce tax compliance (Kahan 2001; Gangl *et al*. 2019). Thus, deterrence certainly does play a role in ensuring tax compliance, but it does not tell the whole story about why people pay taxes. Tax compliance should be interpreted as a social behaviour affected by a number of rational, emotional and moral factors.

Braithwaite (2002) differentiates between enforced and voluntary motivations for tax compliance. Enforced motivation is rooted in the state's power to levy taxes and threaten sanctions, while voluntary compliance stems from the moral commitment of citizens to contribute to the common good.[2] In the literature of economic psychology, the concept of tax morale is also widely used, defined as the internal motivation for voluntary compliance (Feld & Frey 2007). Although the behavioural effects (that is, the practical relevance) of tax morale have been debated, the empirical findings of Halla (2012) demonstrate the positive relationship between tax morale and compliance behaviour. In addition, Cyan *et al*. (2017) found a strong relationship between tax morale and compliance behaviour in the case of Pakistan, thus also in the context of a fragile democracy.

Motivation driven by enforced compliance is a function of the perceived power and coercive capacity of authorities (Muehlbacher *et al*. 2011; Hofmann *et al*. 2014). To put it simply, people motivated by enforced compliance will pay taxes if they believe that the tax authority is able and willing to detect and ultimately punish unlawful tax avoidance. Voluntary motivation seems to be a more complex phenomenon: it is affected by both the personal characteristics of individuals and evaluations of people's interactions with institutions. There is a delicate balance between the drivers of enforced and voluntary compliance: sanctions and effective enforcement may reinforce voluntary motivation as they guarantee that unfair free-riding will be punished. At the same time, according to the crowding-out thesis of Frey (1997), applying exaggerated sanctions as a means of external motivation may destroy internal motivation, leading to diminished compliance. The factor of time may also play a role: deterrence seems to work better in the short term, while in the long run, voluntary motivation rooted in trust has a more significant effect on tax compliance (Kaplanoglou *et al*. 2016).

Some of the roots of voluntary compliance are found in socio-demographic characteristics and personal traits. Women, people with higher levels of education, the elderly and those who enjoy income security are generally more willing to pay taxes (Torgler & Schneider 2007; Lago-Peñas & Lago-Peñas 2010). In addition, honesty as a personal value, altruism and community orientation increase tax compliance (Braithwaite 2002). Group identity shapes tax morale attitudes and behaviour through various channels: religion, national pride and the perception of belonging to a polity where people

[2]See also Torgler and Schneider (2007).

are fairly treated are the most important group-related factors in compliance. Religious people and those characterised by strong national pride express stronger compliance attitudes (Torgler & Schneider 2007; Konrad & Qari 2012). Religious beliefs lead to the development of an internalised value system that sanctions the violation of norms, while national pride is an expression of identification with a polity. Identifying with or belonging to a social group is a particularly strong source of motivation for supporting cooperative behaviour with other people and authorities (Tyler 2010), and this also applies to tax compliance: people with a strong national identity express a greater willingness to contribute to public goods (Gobena & Van Dijke 2017).

Most studies on tax compliance conceptualise the phenomenon as involving a dynamic relationship between people and public institutions, including tax authorities. This approach suggests that tax compliance motivations depend on beliefs about the behaviour of others, the actions of the government and the tax authority, and the perceived fairness of the latter. But tax compliance is also dependent on the democratic legitimacy of the government: more democratic and responsive states with lower levels of corruption tend to collect more taxes (Bird *et al*. 2008), and a higher level of direct democracy usually leads to an increase in the willingness to pay taxes (Torgler 2005). Perceptions about corruption negatively affect compliance motivations and observed tax payment (Timmons & Garfias 2015).

Several studies have pointed to the relevance of perceptions about tax rules and authorities as important factors that shape tax morale and compliance. For example, trust in a tax authority has a significant positive impact on tax compliance (Murphy 2004; Wahl *et al*. 2010), as trust implies the expectation that the given institution will produce positive outcomes through competent and effective functioning (Levi & Stoker 2000). Conversely, a perception of unfair treatment decreases the willingness to pay taxes (Kahan 2001; Murphy 2005) as it may provide an argument for rationalising tax evasion (Hofmann *et al*. 2008).

Interactions between institutional trust, perceived procedural fairness and the effectiveness of deterrence shape tax compliance attitudes in a complex manner. The 'slippery slope' framework portrays a differentiated relationship between the former factors, ranging from substitution to trade-offs (Kirchler 2007; Kirchler *et al*. 2008; Muehlbacher *et al*. 2011; Batrancea *et al*. 2019). This framework suggests that the two key variables involved in tax compliance are power (coercive capacity) and institutional trust. The original version of the framework considers trust and power to be independent factors: while increasing trust in authorities implies voluntary compliance, enhancing the power of authorities supports enforced compliance. In the case of a powerful and trustworthy tax authority, the factors may reinforce each other but they become substitutes in an environment of low institutional trust and high power or high institutional trust and low power. Thus, if a tax authority is perceived to have weakened power and ability to collect taxes, institutional trust and voluntary compliance are undermined, as people do not wish to belong to the minority ('the losers') who pay taxes. Conversely, if unfair actions by the authority destroy trust, people may react negatively to deterrence measures by increasing illegal tax evasion and legal methods of tax avoidance. It is noteworthy that the extended slippery slope framework portrays a more differentiated picture of the trust–power interaction, stressing the role of cultural contexts (Gangl *et al*.

TABLE 1
KEY FACTORS SHAPING TAX COMPLIANCE MOTIVATIONS

Enforced compliance motivations	Costs of non-compliance (Allingham & Sandmo 1972; Fischer *et al*. 1992) Socio-demographic characteristics and personal traits (Braithwaite 2002; Batrancea *et al*. 2019) Perceived power/effectiveness of the tax authority (Kirchler *et al*. 2008; Muehlbacher *et al*. 2011; Hofmann *et al*. 2014; Batrancea *et al*. 2019)
Voluntary compliance motivations	Socio-demographic characteristics and personal traits (Braithwaite 2002; Torgler & Schneider 2007; Lago-Peñas & Lago-Peñas 2010; Batrancea *et al*. 2019) National pride (Konrad & Qari 2012; Gobena & Van Dijke 2017) Perceived power/effectiveness of the tax authority (Muehlbacher *et al*. 2011; Hofmann *et al*. 2014; Batrancea *et al*. 2019) Trust in the tax authority (Murphy 2004; Kirchler *et al*. 2008; Tyler 2010; Wahl *et al*. 2010; Batrancea *et al*. 2019) Perceived procedural fairness of the tax authority (Kahan 2001; Murphy 2005; Tyler 2010; Gobena & Van Dijke 2017) Perceptions of norm-breaking (Murphy 2005; Hofmann *et al*. 2008) Control of corruption (Bird *et al*. 2008; Timmons & Garfias 2015) Government legitimacy (Hofmann *et al*. 2008; Tyler 2010)

2019). For instance, Van Dijke and Verboon (2010) argue that fairness counts less in high-trust situations when people expect fairness; procedural fairness, however, may significantly improve tax morale in low-trust situations when it is somewhat unexpected. Table 1 summarises the different factors that may influence tax compliance motivations based on the literature.

Empirical findings on tax morale and compliance attitudes in post-Soviet countries and Hungary

The studies presented in the previous section depict complex relationships between citizens' tax compliance attitudes, the specific political context, and general societal values and norms. Hence, tax policy choices in Eastern Europe and post-Soviet Eurasia ought to be analysed using such a multidisciplinary approach. Unfortunately, few studies have employed such an approach, although exceptions exist. For instance, Appel (2018) explored how symbolic and pragmatic considerations, as well as factors linked to emulation and policy learning, influenced the diffusion of flat tax across the region. In addition, Vatansever (2020) analysed the challenge of building a comprehensive tax regime for the oil sector in Russia, while Habibov *et al*. (2019) highlighted how corruption implies another specific policy dilemma: that fragile and established democracies have different tax policies.

Concerning tax compliance in the post-Soviet space, studies have found that tax morale in these countries is lower and the share of the shadow economy larger than in Western Europe (Torgler 2003). A historical explanation is that, before 1990, people in centrally planned economies did not have to pay taxes; both value-added tax and income tax were introduced as part of a painful transition process. Hungary and Poland—where tax reforms started in the 1980s, hence before regime change—have a tax morale comparable to other countries in the region (Torgler 2003). Moreover, socio-economic tensions, coupled with problems related to the political legitimacy of the new regimes and their frequently complicated and unfair tax regimes (Martinez-Vazquez & McNab 2000), made tax morale fragile (Torgler 2012). Unsurprisingly, most post-Soviet governments considered that deterrence was the proper approach to enhancing tax compliance (Hanousek & Palda 2004).

However, empirical findings have demonstrated that voluntary compliance motivations also play a role in the post-Soviet region. Torgler found that trust in the legal system as well as national pride, democratic orientation and satisfaction with the economic situation have had a positive effect on tax morale throughout the region (Torgler 2003, 2012). Other studies on the region revealed that satisfaction with the quality of government services and the perception of corruption particularly affect tax morale (Hanousek & Palda 2004). Although some socio-demographic variables, such as age and gender, seem to significantly affect tax morale (Torgler 2012), self-reported measures of personal morality were not found to significantly impact compliance attitudes (Hanousek & Palda 2004).

Torgler (2012) argued that tax morale generally decreased in Eastern Europe and post-Soviet Eurasia throughout the 2000s, with the exception of Hungary. His findings, based on World Values Surveys (WVS) data, suggest that in 2008 tax morale was the highest in Hungary, followed by Bulgaria. However, Torgler himself raises doubts about these results, which we support because of the dubious quality of WVS data (Donnelly & Pop-Eleches 2012). However, an experimental study by Kogler and co-authors found that the tax morale attitudes of Hungarian students were similar to those of their Romanian and Russian counterparts and differed significantly from those of Austrian students. This means that the tax morale of Hungarians back in the 2000s was somewhat shaped by low trust, implying 'significantly [less] voluntary compliance' (Kogler *et al*. 2013, p. 176). A more recent study has found that the tax morale of Hungarians tends to be typical in a global comparison: while both higher trust in tax administration and higher enforcement power have a positive effect on a voluntary compliance, there is a small negative interaction between trust and perceived power effects. Accordingly, in the Hungarian context, 'too strict enforcement under the form of high audit rates and severe fines may in fact result in reactance and resistance provoking noncompliance' (Batrancea *et al*. 2019, p. 13). Although recent comparative studies of the post-Soviet region have not refuted prior findings, they revealed some additional mechanisms when it comes to investigating tax morale. In this geographical and cultural context 'subjective norms—that is, norms of one's closest reference group—seem to be a particularly strong predictor' (Górecki & Letki 2021, p. 740) of tax compliance. This suggests that citizens in Hungary, and other post-communist countries, are willing to pay taxes as long as they believe that the majority of others are doing the same.

Comparative studies that contrast Western European attitudes to those of the post-communist countries undoubtedly have their merits; however, they fail to dig deeper concerning the drivers and conditions of taxation-related motivations, an advantage of single case studies, such as that conducted by Hanousek and Palda (2004) on the Czech Republic. International survey data, especially those of the World Values Survey, which have been subject to criticism, might be particularly misleading in terms of such a sensitive issue as tax compliance. In this context, our case study, which makes use of the opportunity created by corruption scandals associated with the Hungarian tax authority to apply a before-and-after study design, can contribute substantially to understanding taxation motivation in fragile democracies. In Eastern Europe and post-Soviet Eurasia, Hungary represents a crucial case: since 2010, due partly to the illiberal shift (Rupnik 2012; Buzogány & Varga 2018), the Hungarian government has downplayed collaborative governance instruments and adopted a clear preference for command-and-control mechanisms in policy implementation (Hajnal & Boda 2021). These features, especially in the period characterised by the corruption scandals involving the national tax authority, represent the least likely case for the emergence of voluntary motivations for tax compliance. Accordingly, if we can demonstrate that voluntary motivation plays a significant role in tax compliance attitudes under Hungarian conditions, we may expect that this holds true in most other post-Soviet countries.

Research questions, hypotheses, data and methods

This article investigates the enforced and voluntary tax compliance motivations of Hungarian citizens. It seeks to answer the following research questions. First, what are the primary explanatory factors for the enforced tax compliance motivations of Hungarian citizens? Second, how important are the factors of institutional trust and procedural fairness in shaping their voluntary tax compliance motivations? Finally, what impact did the 2014 NCTA corruption scandal have on citizens' attitudes to taxation?

The latter research question is the most relevant from a policy perspective. If evidence indicates that corruption scandals weaken tax morale, we can plausibly claim that normative considerations play a role in shaping tax compliance motivations. This has policy implications. The function of the first two questions is, first, to map the factors behind different sources of motivation for compliance and, second, to help establish the causal mechanism(s) between the perception of corruption and the erosion of tax morale. In applying a before-and-after research design, our study suffers from one limitation: the 'before' survey did not include variables on compliance motivations while the 'after' survey did, although all the remaining explanatory variables are identical. Answering the first two research questions helps to reconstruct the temporal dynamics of motivation for tax compliance.

We tested the following hypotheses:

> H1: the perceived effectiveness of the national tax authority significantly affects motivations associated with enforced tax compliance. We expect that, in addition to the socio-demographic variables, the perceived effectiveness and the coercive power of the national tax authority matter. In contrast, we expect that the effects of institutional trust and procedural fairness on enforced tax compliance are not significant.

> H2: trust in the national tax authority and perceived procedural fairness significantly affect voluntary tax compliance motivations. We expect that trust and normative (procedural fairness) expectations about the operation of the authority significantly affect voluntary compliance. This should also apply when we include usual socio-demographic variables and national pride (identification of national belonging) as controls in our explanatory models.

H3: the recent corruption scandal concerning the NTCA had a significantly negative impact on the trust of Hungarian citizens in the national tax authority and on institutional trust. Accordingly, time (that is, the post-scandal period compared to the period prior to it) is significantly associated with a decline in trust in the national tax authority independently of socio-demographic factors, procedural fairness considerations, and the perceived effectiveness of the NTCA. If H2 is also corroborated, this implies that the corruption scandals eroded voluntary tax compliance motivations.

The empirical analysis is based on two questionnaire surveys, carried out in October 2013 and March 2015. Data for both surveys were collected through personal inquiry and consisted of 1,200 observations representative of the Hungarian adult population by gender, age and level of education.[3] The questionnaires were mostly identical, but the 2015 survey contained some items related to the NTCA corruption scandal and explicitly investigated whether the tax compliance motivations of Hungarian citizens were voluntary or enforced. The logic behind our design is that those respondents who were surveyed before the corruption scandal served as the control group and were compared with the treatment group; that is, respondents interviewed after the scandal.

Our study uses self-reported attitudes on tax compliance, a well-established method in empirical research on tax compliance. The dependent variables of our empirical analysis were the proxies of voluntary and enforced tax compliance motivations of Hungarian citizens based on the specific questionnaire items in the 2015 survey. In addition, when testing the effect of the corruption scandal related to the NTCA, the dependent variable is trust in the national tax authority. For this part of the analysis, a pooled database that included merged data from the 2013 and 2015 surveys was used. The survey question concerning enforced compliance motivation (‘tax_enforced’) was the level of agreement (on a scale of 1–5) with the statement ‘Although I do not like paying taxes, I fear the sanctions of the tax authority’, and the survey question measuring voluntary compliance motivation (‘tax_voluntary’) was the level of agreement with the statement ‘I accept that I have to pay taxes because public services are financed out of tax revenue’. Trust in the Hungarian tax authority (‘trust_NTCA’) was measured using an 11-point Likert scale (coded from 0 to 10).[4]

The independent variables were operationalised as follows. Among the socio-demographic characteristics, ‘gender’ is a dummy variable that equalled ‘1’ for women and ‘0’ for men; ‘age’ is the age of the respondent in years, and ‘agecat’ was used for grouping people into four age categories (18–34, 35–49, 50–64, 65+); ‘education’ is a dummy variable that equalled ‘1’ if the respondent had completed at least secondary

[3]The respondents were randomly selected from 120 territorial sampling units whose boundaries were drawn proportionally to the size of the population. Within each unit, the interviewers visited ten randomly selected households, and within each household, an adult respondent (above 18 years of age) was selected according to the Leslie Kish formula. In the case of non-response, the household was replaced by another one randomly selected from the sampling unit. This process continued until the quota for the sampling unit was filled. Both surveys were prepared by the Medián Public Opinion and Market Research Institute.

[4]At first glance, the wording of the question measuring ‘enforced motivation’ has negative connotations that may inadvertently deter respondents, while the wording of the question measuring ‘voluntary motivation’ has positive and appealing connotations. In the Hungarian context, however, people generally have rather negative attitudes towards public services, so making a contribution to their financing does not necessarily sound attractive. Thus, in this context, the wording of the variables for compliance attitudes is not considered biased.

education, and ‘0’ otherwise; and ‘urban’ is a dummy variable that equalled ‘1’ if the respondent was living in an urban settlement and ‘0’ otherwise. ‘Employ’ is a dummy variable used to capture the labour market status of respondents: it equalled ‘1’ if the respondent was active in the labour market and ‘0’ otherwise. We used a proxy for the subjective perception of change of income position: the ‘income_change_1y’ variable measured the change in the household income position over the last 12 months on a five-point Likert scale. The value of this variable equalled ‘1’ if the respondent specified the ‘significantly deteriorated’ option and ‘5’ for ‘improved significantly’.

The coercive power of the Hungarian tax authority was operationalised by the proxy of perceived NTCA effectiveness (‘NTCA_effectiveness’) with the statement, ‘NTCA is usually capable of catching those who cheat on their taxes’. Responses were coded by level of agreement, from ‘1’ (‘completely disagree’) to ‘5’ (‘completely agree’). Operationalising the procedural fairness of NTCA was motivated by the studies of Leventhal and Tyler. Leventhal (1980) argues that impartiality and equal treatment are the fundamental dimensions of procedural fairness, while Tyler (2010) considers consistency of rule application and, in general, compliance with the relevant norms as components of procedural fairness. Accordingly, the proper operationalisation of unfairness should embrace those dimensions that violate the norms of equal treatment, consistency and impartiality. Therefore, three proxies were used to measure procedural (un)fairness in shaping tax compliance attitudes: the perception of discrimination (‘discrimination’ through an assessment of equal treatment by NTCA officials), the perception of political influence on the NTCA (‘politicisation’) and the perception of corruption (‘corruption’, using an assessment of the willingness of NTCA officials to accept bribes). Each of the three variables was coded on an 11-point Likert scale (from 0 to 10).

Testing the impact of the corruption scandals on taxation attitudes required additional operationalisation. To embrace the effects of the NTCA scandal, we introduced a ‘time’ dummy variable coded ‘1’ if the survey was conducted after the NTCA scandal (that is, in 2015) and ‘0’ if it was conducted before the scandal (that is, in 2013). In addition, we introduced a ‘time_corruption’ interaction variable (‘time’ multiplied by the standardised variable of ‘corruption’). The test of corroboration was whether the ‘time’ and ‘time_corruption’ variables remained significant when controlling for other potential explanatory variables in the regression of explaining trust in the tax authority.

Following previous theoretical and empirical studies, we also used additional control variables. To capture the relevance of a person’s identification with their community, we introduced a variable measuring national pride (‘I am proud to be Hungarian’, ‘national pride’, coded on a five-point Likert scale, where ‘1’ represents very weak and ‘5’ very strong national pride). As a proxy of the normative legitimacy of the Hungarian government, we asked respondents for their agreement with the statement that the ‘Hungarian government acts to promote the public interest’ (‘gov_public_int’). Responses to this variable were also coded by the level of agreement from ‘1’ (‘completely disagree’) to ‘5’ (‘completely agree’). Finally, we also controlled the norm-breaking attitudes of Hungarian citizens, by asking them about their agreement with the statement that ‘Breaking laws is acceptable sometimes’ (‘breaking laws’, coded by level of agreement from 1 to 5). Descriptive statistics and the correlation matrix of the independent variables are provided in the Appendix.

Given that the dependent variables were ordered categorical variables, the ordinary least squares (OLS) method would not produce the best linear unbiased estimate (Park 2009). Thus, binomial logistic regressions were conducted to test the hypotheses presented above, following the methodology of Kaplanoglou *et al*. (2016). This method allows for a dichotomous variable to be regressed on several independent variables. Accordingly, we transformed the original five-point Likert scale variables to binary variables where '0' means weak or moderate compliance while '1' means strong compliance.

We ran three regression models to test the first hypothesis: the first model only contains the usual socio-demographic variables as independent variables, while the second also includes the proxy variables of trust, effectiveness and procedural fairness related to the Hungarian tax authority. Finally, the third model comprises the additional control variables of national pride, the perceived normative legitimacy of the government and attitudes towards individual honesty that may be relevant according to previous studies. We followed a similar logic in the case of the second hypothesis but, in this case, the proxy of voluntary compliance was the dependent variable of the regressions.

To test the third hypothesis, we initially prepared a path analysis to explore the possible causal paths and check the potential role of trust as an intermediary variable between several independent variables and voluntary tax compliance motivations. Then we ran three regressions from the pooled database of the two surveys to test the impact of the time dimension possibly associated with the effects caused by the NTCA scandal. In each of these regression models, the dependent variable was trust in the Hungarian tax authority, and the independent variables comprised the socio-demographic variables, the proxy variables of effectiveness and procedural fairness, and the additional control variables mentioned above. The difference between the three models was that the first model did not include the 'time' variable, the second model included the 'time' variable, and the third model also included the 'time_corruption' variable. Accordingly, the impact of the NTCA scandal on trust in the tax authority was tested by the partial effect of the time dimension and the interaction between time and perceived corruption. Finally, we ran a placebo test to corroborate our findings on the role of time and the NTCA corruption scandal on trusting attitudes. We compared the trust in several public institutions before and after the scandal using an analysis-of-variance F-test.

Findings

Regression models that test our first hypothesis (see Table 2) show that women ($B = 0.368$ and $p < 0.01$ in Model 3) and people living in smaller settlements ($B = -0.378$ and $p < 0.05$ in Model 2), those who were employed ($B = 0.428$ and $p < 0.01$ in Model 2) and younger ($B = -0.012$ and $p < 0.01$ in Model 1), as well as those who perceived an improvement in their subjective well-being ($B = 0.194$ and $p < 0.01$ in Model 1) exhibited stronger enforced compliance motivations. Besides these socio-demographic variables, the only significant variable was the perception of the NTCA's effectiveness ($B = 0.249$ and $p < 0.01$ in Model 2), while national pride, institutional trust, perceived corruption and the different forms of procedural fairness considerations did not have a meaningful impact on shaping the enforced compliance motivations of Hungarian citizens. Thus, the first hypothesis is corroborated. Furthermore, in addition to the perception of NTCA

TABLE 2
ENFORCED TAX COMPLIANCE MOTIVATIONS OF HUNGARIAN CITIZENS IN 2015
(REGRESSION COEFFICIENTS AND STANDARD ERRORS)

	Model 1		*Model 2*		*Model 3*	
	B	*SE*	*B*	*SE*	*B*	*SE*
Constant	−0.518	0.331	−1.789**	0.483	−2.332**	0.556
'Gender'†	0.247	0.127	0.299*	0.136	0.368**	0.139
'Age'	−0.012**	0.004	−0.010*	0.005	−0.011*	0.005
'Education'‡	−0.003	0.131	0.027	0.141	0.014	0.144
'Urban'§	−0.284*	0.137	−0.378*	0.147	−0.349*	0.151
'Employ'¶	0.383*	0.150	0.428**	0.165	0.361*	0.170
'Income_change_1y'	0.194**	0.074	0.186*	0.082	0.153*	0.075
'Trust_NTCA'			0.013	0.030	0.009	0.032
'NTCA_effectiveness'			0.249**	0.069	0.194*	0.076
'Discrimination'			0.018	0.030	0.018	0.031
'Politicisation'			0.008	0.036	0.026	0.037
'Corruption'			0.058	0.033	0.029	0.034
'National pride'					−0.019	0.071
'Gov_public_int'					0.118	0.080
'Breaking laws'					0.226**	0.065
N	1,135		1,021		995	
−2LL	1,492.4		1,327.1		1,277.7	
Nagelkerke R^2	0.045		0.079		0.098	

Notes: † Reference group: male; ‡ reference group: people with a lower level of education; § reference group: people living in rural areas; ¶ reference group: people with inactive employment status $*p < 0.05$; $**p < 0.01$.

effectiveness, in Model 3, the variable that expresses a more permissive attitude towards norm-breaking ($B = 0.226$ and $p < 0.01$) also had a positive effect on enforced tax compliance attitude, which is consistent with the pattern.

Table 3 indicates that socio-demographic factors play a moderate role in the voluntary tax compliance motivations of Hungarian citizens: assessing subjective income change more favourably is the only factor that predicts stronger voluntary compliance attitudes ($B = 0.255$ and $p < 0.01$ in Model 1). Furthermore, when we added the factors of institutional trust and procedural fairness (Model 2), our expectations were corroborated: perceived corruption had a significant negative effect ($B = -0.080$ and $p < 0.05$), while trust in the NTCA had a significant positive effect ($B = 0.199$ and $p < 0.01$) on voluntary compliance. Finally, Model 3, which includes additional control variables, underlines the strong positive impact of national pride ($B = 0.283$ and $p < 0.01$): a stronger emotional attachment to the Hungarian polity significantly improves voluntary tax compliance motivations.

In sum, these findings underline that trust in the national tax authority and the perception of NTCA corruption play a crucial role in shaping the voluntary tax compliance motivations of Hungarian citizens. Thus, we do not reject our second hypothesis. The strong effect of national pride, however, indicates that the emotional factors of group belonging may be as important as trust and procedural fairness considerations.

The path model confirms that trust in the national tax authority plays a crucial role in shaping voluntary tax compliance motivations. In addition to the direct effects, institutional trust partly encompasses the factor of effectiveness. Moreover, national pride also operates through the intermediary channel of institutional trust, although the direct

TABLE 3
VOLUNTARY TAX COMPLIANCE MOTIVATIONS OF HUNGARIAN CITIZENS IN 2015 (REGRESSION COEFFICIENTS AND STANDARD ERRORS)

	Model 1		*Model 2*		*Model 3*	
	B	*SE*	*B*	*SE*	*B*	*SE*
Constant	−0.316	0.333	−0.973	0.506	−1.528**	0.588
'Gender'†	0.155	0.130	0.115	0.144	0.150	0.148
'Age'	0.002	0.004	0.002	0.005	−0.001	0.005
'Education'‡	0.117	0.134	0.052	0.149	−0.005	0.153
'Urban'§	0.216	0.140	0.201	0.154	0.221	0.160
'Employ'¶	0.049	0.152	0.168	0.173	0.133	0.180
'Income_change_1y'	0.255**	0.075	0.135	0.086	0.139	0.091
'Trust_NTCA'			0.199**	0.032	0.194**	0.034
'NTCA_effectiveness'			0.039	0.071	0.053	0.081
'Discrimination'			−0.003	0.032	−0.013	0.034
'Politicisation'			0.038	0.039	0.040	0.041
'Corruption'			−0.080*	0.035	−0.090*	0.036
'National pride'					0.283**	0.074
'Gov_public_int'					−0.100	0.086
'Breaking laws'					0.013	0.069
N	1,157		1,031		1,004	
−2LL	1,452.4		1,214.0		1,154.9	
Nagelkerke R^2	0.021		0.116		0.141	

Notes: † Reference group: male; ‡ reference group: people with a lower level of education; § reference group: people living in rural areas; ¶ reference group: people with inactive employment status; *$p < 0.05$; **$p < 0.01$.

effect of emotional community belonging is stronger. At the same time, the effects of perceived corruption operate (indirectly) more strongly through trust in the national tax authority. As for the socio-demographic variables, the picture is similar: both gender and income change have only an indirect effect—through trust, which appears to be a crucial mediating variable (see Figure 1).

To test the impact of corruption scandals (H3), we ran a regression analysis on the pooled data of the 2013 and 2015 surveys where the dependent variable was trust in the tax authority. The explanatory variables were almost the same as in the case of voluntary tax compliance, but in Model 2, we additionally included the 'time' variable, and in Model 3, the 'time_corruption' interaction variable as well. Table 4 shows the main findings.

There is no doubt that a significant adverse change can be attributed to the 'time' variable: in Model 2, the effect of 'time' is significant with all other control variables. Moreover, the significant and negative effect of the interaction variable is also apparent (see results of Model 3). Accordingly, trust in the national tax authority deteriorated significantly between October 2013 and March 2015, independently of other factors, thus probably as a consequence of the NTCA corruption scandal. At the same time, our placebo test demonstrated that the trust of Hungarian citizens in other public institutions (such as the police and judiciary) did not change significantly in that period: only trust in the NTCA and the government plummeted. This suggests that, while specific factors affecting the tax authority were at play in this period, there was not a general decline in institutional trust in Hungary. We argue that these factors were linked to the corruption scandal, which, as we presented above, was public knowledge. Thus, regarding the third hypothesis tested in this article, our findings indicate that the NTCA corruption scandal had a significant

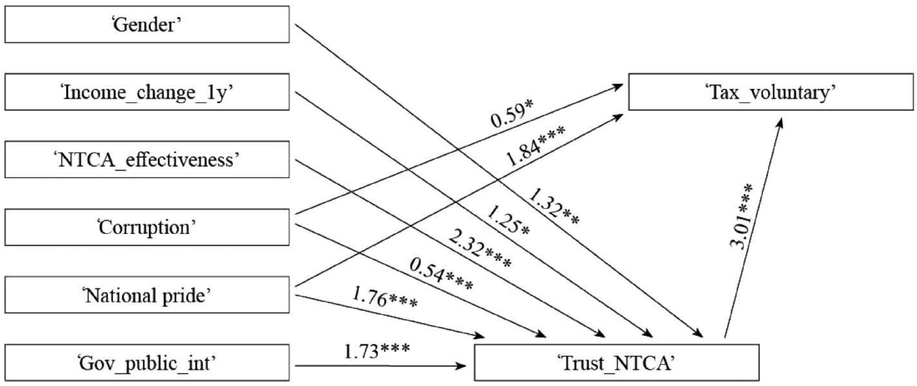

FIGURE 1. EXPLANATORY FACTORS OF VOLUNTARY TAX COMPLIANCE MOTIVATIONS OF HUNGARIAN CITIZENS AND TRUST IN THE TAX AUTHORITY IN 2015 (AFTER THE SCANDAL)

Notes: Only significant paths (*p<0.05; **p<0.01; ***p<0.001) and values of fully standardised logistic regression coefficients are shown. Fully standardised odds: exp(regression coefficients*standard deviation of independent variable/standard deviation of dependent variable).

TABLE 4
TRUST OF HUNGARIAN CITIZENS IN THE TAX AUTHORITY IN 2013–2015 (REGRESSION COEFFICIENTS AND STANDARD ERRORS)

	Model 1		*Model 2*		*Model 3*	
	B	*SE*	*B*	*SE*	*B*	*SE*
Constant	3.075**	0.369	3.137**	0.369	2.543**	0.374
'Gender'[†]	0.310**	0.099	0.313**	0.099	0.313**	0.098
'Age'	−0.002	0.003	−0.002	0.003	−0.003	0.003
'Education'[‡]	0.009	0.104	0.002	0.104	0.011	0.103
'Urban'[§]	−0.118	0.108	−0.110	0.108	−0.147	0.107
'Employ'[¶]	0.011	0.117	0.035	0.117	0.017	0.115
'Income_change_1y'	0.073	0.060	0.095	0.060	0.096	0.059
'NTCA_effectiveness'	0.462**	0.052	0.460**	0.052	0.466**	0.052
'Discrimination'	0.010	0.022	0.011	0.022	0.008	0.021
'Politicisation'	−0.081**	0.025	−0.081**	0.025	−0.070**	0.025
'Corruption'[‖]	−0.160**	0.024	−0.155**	0.024	−0.107	0.079
'National pride'	0.305**	0.050	0.298**	0.050	0.300**	0.049
'Gov_public_int'	0.351**	0.054	0.350**	0.054	0.359**	0.053
'Breaking laws'	−0.103*	0.045	−0.103*	0.045	−0.098*	0.045
'Time'			−0.317**	0.098	−0.396**	0.097
'Time_corruption_st'					−0.618**	0.096
N	2,037		2,037		2,037	
F value	57.18**		54.09**		54.08**	
R^2	0.269		0.272		0.286	
Adjusted R^2	0.264		0.267		0.281	

Notes: [†] Reference group: male; [‡] reference group: people with a lower level of education; [§] reference group: people living in rural areas; [¶] reference group: people with inactive employment status; [‖] standardised variable of corruption in Model 3; *$p < 0.05$; **$p < 0.01$.

negative impact on trust in the national tax authority (and, indirectly, the voluntary tax compliance) of Hungarians.

Discussion

It is beyond dispute that the capacity to collect taxes is of paramount importance for states because tax revenues provide the resources needed to finance public services and maintain the functioning of the state. However, it is also evident that tax collection capacity is not only a function of institutional efficiency but also of the willingness of both individuals and corporate entities to comply with tax regulations. Our article focused on people's attitudes concerning tax compliance and the two fundamental mechanisms that governments may rely on to ensure tax compliance. The first is rooted in the use of power and sanctions to deter people from tax avoidance and cheating. We call this mechanism 'enforced compliance'. The second mobilises feelings of trust in the government and moral considerations concerning the public good and civic duties, a mechanism we term 'voluntary compliance'. In the theoretical part of the article, we demonstrated that the two mechanisms are not completely independent. In fact, they can interact in varied ways. For instance, voluntary tax compliance motivations rooted in trust in government and tax morale might be reinforced by knowing that the tax authority is powerful and effective enough to prevent others from cheating. However, if sanctions and the authority are seen as being too severe, a perception of unfairness may arise, which undermines tax morale and voluntary tax compliance motivations.

Governments around the world rely on both mechanisms to spur tax compliance, but their exact mix and whether this proves effective depends on local socio-economic circumstances. Most studies of tax compliance focus on established democracies. Our study aims at contributing to the discussion about the drivers of tax compliance in the countries of Eastern Europe and post-Soviet Eurasia, which are relatively new, even fragile, democracies associated with lower levels of trust in government than Western European countries. Corruption is relatively widespread, and tax morale is generally perceived as relatively low. These factors predict weak voluntary tax compliance motivations. Indeed, governments in the region seem to rely predominantly on enforced compliance. However, assuming that people are not willing to pay taxes, prioritising deterrence and sanctions over policies that strengthen trust and tax morale may act as a self-fulfilling prophecy as this may crowd out voluntary motivation. We assume that voluntary motivation does have a role in tax compliance in post-Soviet countries, and we study its roots and patterns using a crucial case: that of Hungary during a tax authority-related corruption scandal. If voluntary tax compliance motivations have not been completely crowded out under the conditions of illiberal governance, democratic backsliding and excessive power politics, combined with the moral outrage caused by the corruption case, then we can safely argue that voluntary motivations are probably present in other countries as well.

Our results indeed show that Hungarian people are sensitive to normative considerations: our before-and-after study demonstrated that the 2014 corruption scandal significantly affected citizens' assessment of the Hungarian tax authority as well as their trust in it. Moreover, the corruption scandal also negatively affected trust in the government: our institutional trust indicators showed a statistically significant decline in trust in the tax authority and the government after the scandal, while the institutional trust of citizens remained stable for all other institutions, including courts and the police. Given the strong association between trust in the tax authority and voluntary tax compliance motivations, the corruption scandal appears to have weakened tax morale. This finding is surprising, given the specific features of the Hungarian context, and suggests that normative considerations have not been crowded out by illiberal governance practices.

According to the literature, poor democratic quality combined with a high level of corruption undermines trust in public institutions and weakens tax morale. The slippery slope framework implies that under such conditions, voluntary tax compliance rooted in trust declines in strength, and people pay taxes—if at all—mainly out of fear of the power of the tax authority. However, our results suggest that voluntary tax compliance still plays a role, as do the factors behind it: trust in the tax authority, a belief in the effectiveness of the tax authority, and a belief in the integrity of the government. Again, it appears that illiberal governance and the decline of democracy in Hungary have not utterly eroded tax morale and the normative considerations associated with it. If we take Hungary as a key case in the post-communist region, we may infer that, under more democratic conditions, tax morale and voluntary motivations should play an even more prominent role. Therefore, governments should build on these sources of tax compliance instead of relying exclusively on deterrence, which only generates enforced motivation.

At the same time, we should underscore that our results do not preclude sources of voluntary motivation from being weak in international comparison. We do not know which of the two forms of compliance motivation plays a more influential role in shaping actual tax compliance behaviour. Although the mean value of the voluntary tax compliance motivation proxy in our survey is higher (3.85) than the mean of the enforced motivation proxy (3.12), and the difference is significant (according to the paired sample *t*-test at $p < 0.001$), we refrain from concluding that voluntary compliance motivation is stronger than enforced motivation among Hungarians, especially when it comes to effectively influencing tax-paying behaviour. Self-assessment has its limits, and the link between attitudes and actions is not straightforward. Accordingly, we are not in a position to exclude the possibility that the NTCA corruption scandal had a priming effect on public opinion and activated some attitudes more than others,[5] while having no tangible effect on compliance behaviour. In other words, our data on the tax compliance attitudes of Hungarians may paint a 'nicer' picture than reality: it may be that illiberal governance, the decline of democracy, the rise in corruption, and the reliance of the government on power and deterrence in policy implementation have indeed led to a weakening of tax morale and its role in informing tax behaviour. But the corruption scandal could have activated normative concerns in people, and our findings may reflect this—perhaps only temporary—development. To obtain a clearer picture, we would need more longitudinal data on tax compliance attitudes. Nevertheless, our findings imply that research into tax compliance motivations and behaviour should not neglect the potential role of voluntary compliance motivations rooted in trust and procedural fairness, even under conditions of democratic decline and rising corruption.

[5]See Zaller (1992).

Another interesting finding of our research is that while previous studies revealed multiple interacting mechanisms between perceived power, procedural fairness and trust in tax authorities, the Hungarian case suggests a clear separation of the different mechanisms. Enforced motivation does not seem to be affected by trust and normative factors, while voluntary motivation is not directly associated with the perceived power (effectiveness) of the tax authority. This finding, yet again, does not exclude interaction between these factors when it comes to influencing actual behaviour.

Our findings on the potential role of voluntary compliance motivations increase understanding of the limited success of the Hungarian government in enhancing tax compliance by relying predominantly on coercive measures, as confirmed by the implementation of relatively stringent VAT-gap measures, including the introduction of online cash registers in the hotel and restaurant sector and the rolling of a new electronic road freight control system (Boda *et al*. 2018). We may interpret the government's dismissal of Ildikó Vida, the head of the tax authority, in 2016 as a policy adjustment after a year of denial concerning the NTCA-related corruption scandal. This dismissal took place in the context of a trust-building campaign by the government: the minister of economic policy decreed that the restoration of trust in the tax authority was a crucial policy goal.[6] Indeed, the policy implications are straightforward: effective tax enforcement requires not only the coercive capacities of the tax authority but also societal approval founded in normative legitimacy and trust. The fragile democracies of Eastern Europe and post-Soviet Eurasia are no exception to the rule.

ATTILA BARTHA, Senior Research Fellow, HUN-REN Centre for Social Sciences, Budapest H-1097, Tóth K. u. 4, Hungary; Associate Professor, Corvinus University of Budapest, Hungary. *Email*: bartha.attila@tk.hun-ren.hu http://orcid.org/0000-0002-4590-2142

ZSOLT BODA, Research Professor, HUN-REN Centre for Social Sciences, Budapest H-1097, Tóth K. u. 4, Hungary; Professor, Law Faculty of ELTE Eötvös Loránd University, Budapest, Hungary. *Email*: boda.zsolt@tk.hun-ren.hu http://orcid.org/0000-0001-6579-9069

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Appendix 1

TABLE A1
DESCRIPTIVE STATISTICS OF VARIABLES

Variables	*Minimum*	*Maximum*	*Means*	*SD*	*Observations* (*n* =)
Database 2015					
'Tax_enforced'	1	5	3.12	1.16	1,143
'Tax_enforced_binominal'	0	1	0.40	0.49	1,143
'Tax_voluntary'	1	5	3.85	0.97	1,167
'Tax_voluntary_binominal'	0	1	0.67	0.47	1,167
'Trust_NTCA'	0	10	5.23	2.68	1,185
'Trust_NTCA_binominal'	0	1	0.44	0.50	1,185
'Gender'	0	1	0.54	0.50	1,200
'Age'	18	91	48.23	17.23	1,198
'Agecat'	1	4	2.43	1.08	1,198
'Education'	0	1	0.49	0.50	1,199
'Urban'	0	1	0.70	0.46	1,200
'Employ'	0	1	0.59	0.49	1,198
'Income_change_1y'	1	5	2.53	0.86	1,198
'NTCA_effectiveness'	1	5	2.99	1.10	1,174
'Discrimination'	0	10	5.30	2.81	1,147
'Politicisation'	0	10	5.84	2.72	1,148
'Corruption'	0	10	4.39	2.73	1,105
'National pride'	1	5	3.79	1.01	1,194
'Gov_public_int'	1	5	2.77	1.12	1,187
'Breaking laws'	1	5	2.66	1.13	1,173
Pooled database (Database 2013 and Database 2015 merged)					
'Trust_NTCA'	0	10	5.46	2.59	2,359
'Trust_NTCA_binominal'	0	1	0.48	0.50	2,359
'Gender'	0	1	0.54	0.50	2,400
'Age'	18	109	48.24	17.23	2,398
'Agecat'	1	4	2.43	1.08	2,398
'Education'	0	1	0.49	0.50	2,398
'Urban'	0	1	0.70	0.46	2,400
'Employ'	0	1	0.56	0.50	2,397
'Income_change_1y'	1	5	2.46	0.89	2,393
'NTCA_effectiveness'	1	5	3.05	1.11	2,357
'Discrimination'	0	10	5.10	2.81	2,265
'Politicisation'	0	10	5.68	2.72	2,282
'Corruption'	0	10	4.10	2.71	2,179
'National pride'	1	5	3.83	1.04	2,381
'Gov_public_int'	1	5	2.78	1.17	2,376
'Breaking laws'	1	5	2.64	1.14	2,351
'Time'	0	1	0.50	0.50	2,400

TABLE A2

CORRELATION BETWEEN THE INDEPENDENT VARIABLES OF REGRESSIONS (POOLED DATABASE OF THE 2013 AND 2015 SURVEYS)

	'Gender'	*'Age'*	*'Education'*	*'Urban'*	*'Employ'*	*'Income_change_1y'*	*'NTCA_effectiveness'*	*'Discrimination'*	*'Politicisation'*	*'Corruption'*	*'National pride'*	*'Gov_public_int'*	*'Breaking laws'*
'Gender'	1.00	0.10	0.08	0.02	−0.17	−0.02	0.08	−0.05	−0.05	−0.08	0.02	0.07	−0.08
'Age'		1.00	−0.20	−0.02	−0.47	0.06	0.03	−0.02	−0.08	−0.10	0.08	0.06	−0.11
'Education'			1.00	0.21	0.24	0.07	−0.04	0.04	0.05	0.03	0.00	−0.02	−0.02
'Urban'				1.00	0.07	−0.03	.012	−0.00	0.00	0.05	−0.01	−0.05	−0.01
'Employ'					1.00	0.01	−0.05	0.09	0.09	0.13	−0.07	−0.05	0.14
'Income_change_1y'						1.00	0.23	−0.06	−0.17	−0.10	0.20	0.38	−0.06
'NTCA_effectiveness'							1.00	−0.18	−0.28	−0.21	0.21	0.49	−0.02
'Discrimination'								1.00	0.52	0.53	−0.07	−0.21	0.15
'Politicisation'									1.00	0.59	−0.14	−0.39	0.18
'Corruption'										1.00	−0.13	−0.23	0.24
'National pride'											1.00	0.28	−0.13
'Gov_public_int'												1.00	−0.02
'Breaking laws'													1.00

Appendix 2. Survey Questions

1. Year of survey: 1: 2013; 2: 2015*

I. Socio-demographic status questions

2. Settlement of the respondent: 1: rural; 2: urban, small town; 3: urban, regional centre; 4: capital.
3. Gender identification of the respondent: 1: female; 2: male.
4. Year of birth of the respondent:
5. Highest level of education of the respondent: 1: primary school or less; 2: vocational secondary school; 3: upper secondary school; 4: tertiary level of education.
6. Employment status of the respondent: 1: pupil; 2: student; 3: self-employed, entrepreneur; 4: active, in full-time employment; 5: active, in part-time employment; 6: unemployed; 7: retired; 8: other.
7. In your opinion, how has the income position of your household changed over the last 12 months? Please evaluate it at a scale from 1 to 5 where '1' means 'has significantly deteriorated' and '5' means 'has significantly improved'.

II. Attitude questions: grading from 1 to 5

Do you agree with the following statements? Please indicate your level of agreement at a scale from 1 to 5 where '1' means that 'completely disagree' and '5' means that 'fully agree'.

8. I am proud to be Hungarian.
9. The Hungarian government acts to promote the public interest.
10. Breaking laws is acceptable sometimes.
11. The Hungarian tax authority (the National Tax and Customs Administration) is usually capable of catching those who cheat on their taxes.
12. Although I do not like paying taxes, I fear the sanctions of the tax authority. *Note: this question was only part of the 2015 survey.*
13. I accept that I have to pay taxes because public services are financed out of tax revenue. *Note: this question was only part of the 2015 survey.*

III. Opinion about the operation of the Hungarian tax authority: grading from 0 to 10

14. How much do you trust the Hungarian tax authority? Please indicate your level of trust at a scale from 0 to10 where '0' means 'complete distrust' and '10' means 'complete trust'.
15. In your opinion, how often 'does the Hungarian tax authority treat citizens or businesses unequally, giving some preferential treatment'? Please choose a value between 0 and 10 where '0' means 'never' and '10' means 'always'.
16. In your opinion how often do NTCA officials accept bribes? Please choose a value between 0 and 10 where '0' means 'never' and '10' means 'always'.
17. In your opinion how often do political parties or politicians exert pressure on the Hungarian tax authority? Please choose a value between 0 and 10 where '0' means 'never' and '10' means 'always'.

IV. Trust in public institutions

18. How much do you trust the following institutions? Please indicate your level of trust at a scale from 1 to 4 where '1' means 'complete distrust' and '4' means 'complete trust'.

18.1. the government
18.2. the courts
18.3. Parliament
18.4. the churches
18.5. political parties
18.6. the Constitutional Court
18.7. the Public Prosecutor's Office
18.8. trade unions
18.9. the President of the Republic
18.10. the European Commission
18.11. the police
18.12. the local government
18.13 Hungarian Public Television (Magyar Televízió—MTV)
18.14. Hungarian Public Radio (Magyar Rádió—MR)
18.15. daily newspapers
18.16. Central Bank of Hungary (Magyar Nemzeti Bank—MNB)
18.17. commercial banks
18.18. the Hungarian tax authority (the National Tax and Customs Administration)
18.19. foreign-owned businesses
18.20. Hungarian-owned businesses
18.21. healthcare institutions
18.22. civil society organisations
18.23. public education system

Note: * The original coding of the survey and the codes used in the empirical analysis may be different, as analytical purposes justified the recoding of the variables.