23. Why do people pay taxes? Explaining tax compliance by individuals

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1. INTRODUCTION

Taxation is one of the defining political acts of nation-states (e.g., Skocpol, 1979; Kiser & Kane, 2001). It is not only a source of revenue, but an enactment of taxpayers' recognition of themselves as members of a polity, giving their consent to be governed (Fjeldstad, 2001). To the extent that taxpayers withhold this consent – that is, if a gap arises between the amount of tax owed and the amount actually collected – states face not only a fiscal deficit, but a problem of legitimacy (Schmidt, 2015). In tax compliance, three topics of shared interest across the social sciences intersect: social norms, law, and the provision of public goods. As a result, social scientists have long been preoccupied with understanding how states secure the cooperation of taxpayers in negotiating voluntary transfers from individuals to collective institutions of governance (Simmel, 1950 [1908]; Weber, 1993 [1927]).

There has been increased interest in this topic, both in academic and policy circles, since the Global Financial Crisis of 2008 and the critical shortfalls of tax revenue that followed (Slemrod, 2019). Still, fundamental questions about the causes and contextual factors shaping voluntary tax compliance remain unanswered. This review will identify key advances in recent scholarship, as well as areas where knowledge gaps persist and new information is needed.

The chapter focuses on studies that examine individuals' actual tax compliance, rather than their attitudes (e.g., tax morale),[1] and that document causal relationships, rather than correlations.[2] Hence, our review primarily compromises experimental studies of tax compliance conducted by economists; in this effort, we pick up where other recent reviews left off (e.g., Mascagni, 2018; Alm, 2019). In the real world, tax compliance cannot be directly observed as it happens, data are difficult to gather, and it is nearly impossible to isolate the impact of causal variables – such as tax or audit rates – among the many factors that might influence individuals' compliance decisions (for a similar discussion, see Torgler, 2002; Mascagni, 2018). Experimental methods allow us to overcome many of those obstacles, though they have their own disadvantages, such as concerns about external validity.[3] To address these shortcomings, recent work increasingly relies on large-scale field tax experiments (e.g., Hallsworth et al., 2017; Bott et al., 2019; for a review, see Mascagni, 2018), or combinations of different methodologies, such as a mix of laboratory and field experiments (Koessler et al., 2019); field and online experiments supplemented with administrative data (López-Luzuriaga & Scartascini, 2019; Antinyan et al., 2020); or a mix of laboratory and online experiments (Chan, 2019; Gangl et al., 2020). The results indicate coherence with the findings of older studies, despite the different data-gathering strategies used.

The remainder of the chapter is structured as follows. First, we review insights from tax compliance experiments, highlighting those published after 2017. Though we briefly review some of the main findings of prior contributions (e.g., reviews by Mascagni, 2018 and Alm,

2019), our focus on the post-2017 studies is among the key original features of this chapter. We then point out the open questions and avenues for future research that this new work suggests. In conclusion, we sum up the state of the art in research on individual tax compliance, then highlight policy implications.

2. DETERMINANTS OF INDIVIDUAL TAX COMPLIANCE

The literature on individuals' tax compliance is vast, spanning many empirical settings and methodologies. However, underlying most of this research over the past decades has been a theoretical framework for understanding taxpayer behaviour established by Allingham and Sandmo (1972) along with Srinivasan (1973); their work, in turn, can be understood as a special application of the analytic models created by Becker (1968), in his economics-of-crime research, and by Mossin (1968), in his economics-of-uncertainty framework. Thus, the shared theoretical framework for analysing tax compliance for nearly 50 years has been based on those economists' assumptions about individuals making cost/benefit analyses under conditions of uncertainty. This approach generally concludes that when individuals weigh the potential gains from tax evasion against the risks of punishment and detection, they usually opt to comply because the costs outweigh the benefits. As this line of research has evolved, scholars have refined the basic model by adding other factors thought to affect compliance decisions, such as norms, prosociality (Ponzano & Ottone, 2019), and moral attitudes (Robbins & Kiser, 2020; see also Erard & Feinstein, 1994; Myles & Naylor, 1996; Traxler, 2010; Bruno, 2019).[4]

The empirical literature on tax compliance has extensively tested models' predictive power. Overall, the findings indicate that tax compliance by individuals depends on multiple factors at each of three levels of analysis. At the micro level, several studies indicate that variation in compliance stems both from personal characteristics (such as demographic traits) and from individual responses to external stimuli, such as incentives and penalties. At the meso level, shared social beliefs about fairness, as well as objective conditions of socio-economic inequity, influence taxpayer behaviour, as does sharing information about compliance – one's own and others'. These effects are sometimes counterintuitive, and point to intriguing new research opportunities. Finally, at the macro level, the policies and practices of public institutions – from enforcement to incentives – play a significant role in tax compliance.

We have summarized the most recent literature on these factors in Tables 23.1 and 23.2. A selection of papers found in a literature search of the main databases containing scholarly publications on taxation (e.g., EconLit, Google Scholar, and Science Direct) can be found in Table 23.1, listed alphabetically. This search was conducted on a rolling basis between January 2018 and October 2020, using keywords such as "randomized controlled trial," "field experiment," "lab experiment," "tax evasion," "tax compliance," "tax non-compliance," and "tax morale." While the list cannot be comprehensive due to the large volume of publications in this area, it provides a sense of the range of research occurring at the cutting edge of this field. The studies involve both students and adult taxpayers, and span a wide range of sample sizes (from 54 to approximately 34,000 participants); they also include a variety of experimental methods, including laboratory studies, fieldwork, online experiments, and a few survey experiments.

Geographically, most of the studies on the list reflect the historical focus in experimental tax compliance research on countries in Europe and the United States (US) (but see Fjeldstad,

Table 23.1 A selective list of experimental contributions on individual tax compliance

Authors	Year	Methodology	Location	Country	Subject pool size
Guerra and Harrington (2018)	2018	Lab experiment	Copenhagen and Bologna	Denmark and Italy	180 subjects, mainly students
Alm et al. (2019)	2019	Lab experiment	Colombia	Colombia	122 subjects
Antinyan et al. (2020)	2020	Administrative data and online survey experiment	National household survey administered in the Republic of Armenia and online survey experiment via Prolific	Armenia and US	1,448 subjects (Armenia); 1,844 US participants from Prolific
Batrancea et al. (2019)	2019	Lab experiment	44 nations from five continents		14,509 subjects
Bernasconi and Bernhofer (2020)	2020	Lab experiment	Venice, north of Italy	Italy	95 subjects, mainly students in economics
Bott et al. (2019)	2019	Field experiment	Norway	Norway	15,000 taxpayers
Buckenmaier et al. (2018)	2018	Lab experiment	Trento	Italy	268 undergraduate students
Casal et al. (2019)	2019	Lab experiment	University of Erlangen-Nuremberg	Germany	348 students
Chan (2019)	2019	Online experiment and lab experiment	Online experiment (Amazon Mechanical Turk and Prolific Academic); US research university	US	98 Americans from Mechanical Turk; 312 Australian students for the lab experiment; 244 British citizens from Prolific Academic
D'Attoma (2020)	2020	Lab experiment	Five universities in the US and four in Italy	US and Italy	694 subjects, mainly students (424 from US, 270 from Italy)
Enachescu et al. (2019)	2019	Online survey experiment	Austria	Austria	523 Austrian taxpayers
Engel et al. (2020)	2020	Lab experiment	University of Trento, Italy	Italy	54 students of various majors, 18 in each treatment
Farrar et al. (2019)	2019	Online experiment	Amazon Mechanical Turk	Online	210 US taxpayers
Fochmann and Wolf (2019)	2019	Lab experiment	Leibniz University of Hannover and University of Cologne	Germany	59 participants in Hannover and 146 participants in Cologne
Gangl et al. (2020)	2020	Online and lab experiment	Online experiment; public university in Austria	Austria	199 Austrian participants recruited online via postings in newspaper comment sections, among family and friends of students, and among Rotary Club members; 263 Austrian university students for the lab experiment
Garcia et al. (2020).	2020	Lab experiment	Public university in Portugal	Portugal	74 undergraduate and master students, of which 16 were assigned to the control group and 58 to the treatment group
Jacquemet et al. (2019)	2019	Lab experiment	Strasbourg University	France	63 participants, mostly students
Jacquemet et al. (2020)	2020	Lab experiment	Strasbourg University	France	129 subjects, mostly students

Authors	Year	Methodology	Location	Country	Subject pool size
Koessler et al. (2019)	2019	Field and lab experiment	For the field experiment: Trimbach; for the lab experiment: Osnabrück	Switzerland and Germany	For the field experiment: 2,010 Trimbach taxpayers; for the lab experiment: 260 participants, most of them students
Koumpias and Martinez-Vazquez (2019)	2019	Survey experiment	Pakistan	Pakistan	1,008 eligible Pakistani income tax filers (38.09 average year old)
LaMothe and Bobek (2020)	2020	Online experiment	Amazon Mechanical Turk and TurkPrime (Litman et al., 2017)	Online	211 US taxpayers
López-Luzuriaga and Scartascini (2019)	2019	Field experiment and administrative data	Argentina	Argentina	700 taxpayers
Masclet et al. (2019)	2019	Lab experiment	Half sessions conducted in Montreal, Canada; half sessions conducted in Rennes, France	Canada and France	432 subjects, mainly students
McKee et al. (2018)	2018	Lab experiment	Tennessee and Appalachian	US	730 participants (463 students and 267 non-students)
Meiselman (2019)	2019	Field experiment	Detroit, US	US	7,142 individuals
Ortega and Scartascini (2020)	2020	Field experiment	Colombia	Colombia	20,818 taxpayers
Ottone et al. (2018)	2018	Lab experiment	Different locations in Italy and Sweden	Italy and Sweden	638 participants: 311 in Italy and 327 in Sweden
Pampel et al. (2019)	2019	Lab experiment	Multiple locations in Italy, UK, US, and Sweden	Italy, UK, US, and Sweden	2,537 lab participants (across different locations)
Perez-Truglia and Troiano (2018)	2018	Field experiment	Kentucky, Kansas, and Wisconsin	US	34,334 tax delinquents
Ponzano and Ottone (2019)	2019	Lab experiment	Different locations in Italy, UK, and Sweden	Italy, UK, and Sweden	998 subjects, of which 311 in Italy, 327 in Sweden, and 360 in UK
Vossler and Gilpatric (2018)	2018	Lab experiment	Tennessee and Virginia	US	715 participants

2001). However, there has been increasing interest in analysing challenges for tax revenue generation in developing countries, particularly by means of field experimentation (Hallsworth, 2014; Castro & Scartascini, 2015; Ortega et al., 2016; Hallsworth et al., 2017; Flores-Macías, 2018; Castaneda et al, 2020; for a review, see Mascagni, 2018). As part of this increase in the range of geographical settings for tax research has come an expansion of empirical questions relevant to those new settings. An example is recent work on the practice of "forbearance," in which politicians in developing countries permit voters to ignore their tax obligations by refusing to sanction non-compliance (Holland, 2016). This strategy gains votes for the politicians and maximizes their rents (Holland, 2015, 2016; Ortega et al., 2016); such phenomena deserve further research attention because they complicate models created in developed countries by changing the assumed relationship between the government and the governed.

To complement Table 23.1, Table 23.2 lists key insights of these recent studies, and indicates whether the main independent variable(s) have either positive, or negative, or null impact on individuals' tax compliance. The insights are categorized in terms of the three levels

Table 23.2 Determinants of individuals' tax compliance

Micro-level factors	
"Stick" approach (negative economic factors)	
Audit rates (+)	Guerra and Harrington (2018); Alm et al. (2019); Bernasconi and Bernhofer (2020)
Post-audit "bomb-crater" effect (-)	Alm et al. (2019); Bernasconi and Bernhofer (2020)
Spillover effects across taxes (+)	Ortega and Scartascini (2020); López-Luzuriaga and Scartascini (2019)
Financial penalties (+)	Guerra and Harrington (2018); Bernasconi and Bernhofer (2020)
Tax rates (-)	Guerra and Harrington (2018); Ponzano and Ottone (2019)
Tax rate increased after an audit (+)	Alm et al. (2019)
Information on tax liabilities and audit process (+)	McKee et al. (2018); Vossler and Gilpatric (2018)
"Carrot" approach (positive economic factors)	
Commitment-based devices (+)	Koessler et al. (2019); Jacquemet et al. (2020)
In-kind rewards (+)	Koessler et al. (2019)
"Personal traits" approach	
Emotions (+/.)	Olsen et al. (2018); Enachescu et al. (2019); Jacquemet et al. (2019)
Pro-sociality (+)	Ponzano and Ottone (2019)
Meso-level factors	
Sharing information on tax behaviour; evoking group identity (+/.)	Bott et al. (2019); Garcia et al. (2020); Meiselman (2019); Perez-Truglia and Troaino (2018)
Equity considerations (.)	Casal et al. (2019)
National identity (+/-)	Chan (2019); Koumpias and Martinez-Vazquez (2019)
Fairness considerations (.)	Engel et al. (2020)
Macro-level factors	
Taxpayer influence over spending (+):	Pampel et al. (2019); D'Attoma (2020)
Whistleblower programmes (+)	Bazart et al. (2020); Masclet et al. (2019); Buckenmaier et al. (2018); Farrar et al. (2019)
Trust in institutions/authorities (+):	Batrancea et al. (2019); Antinyan et al. (2020); Gangl et al. (2020)
Tax return preparation methods: tax software (-); prepopulated tax returns (+/-)	LaMothe and Bobek (2020) (tax software versus human tax professional); van Dijk et al. (2020) (prepopulated tax returns)
Redistribution (+)	Guerra and Harrington (2018); Ponzano and Ottone (2019); Nemore and Morone (2019)
Country effects	Guerra and Harrington (2018); Ottone et al. (2018); Ponzano and Ottone (2019); D'Attoma (2020)

Note: A plus (minus) sign indicates that the relationship between tax compliance and its respective determinant was found to be positive (negative), while a "(.)" sign indicates no significant result about the relationship.

of analysis. Below, we draw on a subset of the studies shown in Table 23.2 to point out key findings and the most promising avenues for future research.

2.1 The Micro Level

Previous research has sketched a fairly consistent picture of compliant taxpayers' individual characteristics, such as age, gender, emotions, and neural activities. There is a particularly clear pattern when it comes to gender: for example, Bruner et al. (2017) and D'Attoma et al. (2017) find that women are significantly more compliant than men in all the countries where

they conducted tax experiments (the US, United Kingdom (UK), Sweden, and Italy). Other recent research suggests there may be a biochemical basis for this gender difference: Arbex et al. (2018) show that higher testosterone levels among Canadian male subjects were (weakly) linked to lower levels of tax evasion; this is consistent with evidence that higher testosterone levels increase males' prosocial behaviour (Dreher et al., 2016).

We also know that individuals are more likely to be compliant if they score high on other-regarding preferences (Gintis et al., 2005; Ponzano & Ottone, 2019), psychological measures of concern for others' well-being (Christian & Alm, 2014), or on measures of patriotism (Konrad & Qari, 2012; Gangl et al., 2020). Those who experience emotional distress at the prospect of violating social norms – as measured by skin conductance responses (Coricelli et al., 2010) or heart rate variability (Dulleck et al., 2016) – are also more likely to pay their taxes on time and in full. This is linked not only to gender, but to age: older people typically hold stronger moral attitudes about social norms and duties, leading them to comply with their tax obligations to a greater degree than younger people (Andrei et al., 2014). In contrast, compliance is lower among individuals who are younger and male (or who score high on psychological measures of male-linked personal attributes[5]), along with those who employ professional tax preparers (Alm & McKee, 2004, 2006; Kastlunger et al., 2010; Alm, 2019).

A central issue concern of present-day micro-level research is to identify factors that can influence individuals in the direction of greater compliance. A robust stream of research has examined the roles of audits and fines on individual taxpayers' decisions (e.g., Kirchler, 2007); however, recent studies have foregrounded the limitations of enforcement tools. For one thing, systematic misperception of enforcement processes by taxpayers results in the mistaken belief among many that even if they are audited, their evasion will not be detected (Bernasconi & Bernhofer, 2020). Second, it appears that the negative emotions associated with tax enforcement may be a double-edged sword. On the one hand, the guilt, shame, and other emotions aroused by enforcement can produce short-term increases in compliance (Jacquemet et al., 2019). Longer term, however, the negative emotions evoked by enforcement can produce a backlash; a recent survey study by Enaschescu et al. (2019) indicates that the anger and fear subjects report feeling about the prospect of tax audits reduces their intent to comply with their real-world tax obligations in the future. Future research should examine this phenomenon more closely in a laboratory setting where compliance can be observed, since self-reported attitudes and intentions can diverge markedly from actual behaviour (Guerra & Harrington, 2018).

Partly in response to these findings on the unintended negative consequences of enforcement on tax compliance, recent research has examined whether incentives might be more effective than punishments. One particularly important result of this work has been the discovery that while all kinds of "carrots" work better than the "sticks" of audits and fines, non-financial incentives work best of all in encouraging tax compliance. Earlier work in this vein showed that cash incentives produced mixed results, sometimes reducing compliance if subjects perceived that rewards were not distributed equitably (Fochmann & Kroll, 2016). More recently, field and laboratory experiments by Koessler et al. (2019) produced a striking contribution: they found that in-kind incentives (such as the chance to win a voucher for a spa weekend) increased compliance significantly, not only compared to a no-incentive treatment, but also compared to a cash payment equivalent to the value of the voucher. As these findings suggest, many unanswered questions remain where the use of compliance incentives are concerned. The Koessler et al. (2019) study was conducted with Swiss taxpayers only, so future research

should examine whether the effect can be generalized to other societies; in addition, future work should seek to pinpoint why in-kind incentives have this enhanced effect compared to cash, as well as what types of in-kind incentives are most effective in motivating different groups of taxpayers.

Among the most interesting new developments at the micro level of research has been in the realm of harnessing cognitive biases to serve the goal of increasing individual tax compliance. Recent studies have made use of commitment bias (Schwenk, 1986), showing that compliance rates increase when individuals make a written commitment to comply prior to the due date of tax obligations. For example, Jacquemet et al. (2020) dramatically increased the number of fully compliant taxpayers in their lab experiment when one group of subjects was asked to sign an oath prior to the start of the study stating that they would "swear upon [their] honour that, during the whole experiment, [they] will tell the truth and provide honest answers." In the group that signed the oath, 63.2 per cent of subjects were fully tax compliant, compared to 49 per cent in the control group, which was not given the oath (p value = 0.047). However, this result must be considered in light of findings by Koessler et al. (2019), which showed that precommitments to comply with tax obligations were only effective when combined with rewards, and only enhanced compliance among subjects with high tax morale. The disparity in results may be due to differences in the form and context of the commitments subjects made in the two studies: whereas subjects in the Jacquemet et al. (2020) laboratory study signed a written oath, those in the Koessler et al. (2019) field experiment mailed a preprinted postcard to the tax authorities. Future research should build on these studies to clarify how different forms and contexts for tax commitments affect subsequent compliance behaviours.

2.2 The Meso Level

In some fields, such as public economics, it has been conventional to model taxpayer behaviour on the assumption that individuals make compliance decisions in isolation; to the extent that such models consider contextual factors, it has generally been through formal mechanisms such as law enforcement and punishment (Acemoglu & Jackson, 2017). Though this is widely acknowledged to be an incomplete analytical framework (Fortin et al., 2007; Alm, 2014), research designs have seldom incorporated contextual influence on tax compliance decisions. As a result, it is not clearly established which elements of taxpayers' social environment have the greatest influence on behaviour. However, recent research indicates that questions of social influence, social identity, and reputation are highly salient.

Human behaviour generally is highly sensitive to the norms set by others: most individuals will conform with the habits and customs of their social group, particularly when there is any uncertainty about the right course of action or a salient penalty for doing the wrong thing (Cialdini & Trost, 1998). In the domain of tax compliance, the phenomenon of social influence has typically been operationalized in cognitive-rational terms, such as knowledge about whether and to what extent others pay their mandated share of taxes. For instance, Alm et al. (2017) showed experimentally that compliance increases to a statistically significant degree when individuals are informed that others in their group are filing (or being audited) more frequently; by the same token, compliance declines when taxpayers are informed that others in their group are cheating (Alm et al., 2016a).

This suggests that group cohesion, including a sense of shared identity and social position, influences tax compliance. This insight has been explored in greater depth by several recent

studies. For example, Garcia et al. (2020) conducted a lab experiment to analyse the effect of two different sources of information on individual compliance rates: "official" information provided by tax authorities, versus "unofficial" information provided by taxpayers' peers. The findings reveal that official information exacerbates behavioural differences between "evaders" and "compliants": that is, "evaders" are more likely to evade after they receive information about compliance rates from official sources, while such information makes "compliants" less likely to evade. In contrast, unofficial information changes everyone's behaviour, regardless of whether they evaded or complied in previous rounds: that is, learning informally that all their peers have evaded makes all subjects evade more, while learning informally that all their peers have complied makes all subjects comply more.

In a similar study of group influence, Bott et al. (2019) conducted a field experiment in Norway in which – shortly before the deadline for finalizing annual tax returns – some individuals received a letter stating that "the great majority" of the country's taxpayers reported all their foreign income and assets. That minimal intervention nearly doubled the average amount of foreign income and assets reported by this group, compared to others who received a letter that did *not* report on the behaviour of other taxpayers. By the same token, the salience of group identity, and conformity to a national norm, seemed to drive tax compliance in an experiment by Chan (2019); the study involved exposing American, Australian, and British subjects to their national flags (or the flag of a nearby and culturally similar nation) prior to engaging those individuals in a tax-reporting game. For all three nationalities, seeing their countries' flags increased their tax compliance significantly compared to seeing the flags of nearby nations; furthermore, Chan (2019) was able to disentangle this causal effect from that of related variables, such as trust in government or the legitimacy of tax-funded expenditures.

However, while the enhanced salience of group identity and cohesion can increase tax compliance, the reverse is also true: information and attitudes that *decrease* the sense of shared identity or cohesion also decrease tax compliance. This has been implied by laboratory studies in the past: for example, Alm et al. (2016b) showed that tax compliance was negatively correlated with racial diversity, and even earlier studies (e.g., Spicer & Becker, 1980) showed that tax compliance declined with growth in inequality. This may be why recent field studies have found that appeals to taxpayers' sense of civic duty – an attempt to motivate compliance through increasing the salience of group identity – have been unsuccessful in countries characterized by high levels of heterogeneity, inequality, or both. For example, a field study in Detroit – America's most racially segregated city, and one of its most economically stratified (Williams & Emamdjomeh, 2018) – found that appeals to group identity constituted the least successful approach to motivating greater tax compliance among city residents (Meiselman, 2019). In this study, a sample of just over 7,000 suspected tax evaders were sent letters with one of four messages (each an experimental treatment) intended to induce the recipients to file accurate tax returns that year; the message appealing to their sense of civic belonging ("Detroit's rising is at hand. The collection of taxes is essential to our success") yielded the lowest proportion of returns filed, an even lower success rate than the message emphasizing ease of filing ("For your convenience, City Income Tax Form D-1040(R) is enclosed with this letter"). By the same token, a field study conducted in Pakistan – a country with among the highest levels of ethnic inequality worldwide (Alesina et al., 2016) – found that appeals to group cohesion and civic duty were ineffective at motivating tax compliance (Koumpias & Martinez-Vasquez, 2019). Similar to the study in Detroit, a variety of different messages were tested in the Pakistan study, and the one emphasizing the ways that taxpayers could

contribute to national development turned out to be less effective than messages that simply explained and eased the process of filing tax returns. These new findings suggest that efforts to harness social influence and group identity in the service of enhancing tax compliance must be sensitive to national context: cohesion-based appeals do not work in societies that are highly fragmented.

However, other recent research has begun to explore social influence in new ways that foreground identity at a more local level. For example, Perez-Truglia and Troiano (2018) conducted a large field experiment showing that the threat of damage to individuals' identity in micro-local contexts was a very effective method of gaining tax compliance. The innovation of this experiment was to make the neighbourhood, rather than the nation-state, the unit of analysis for social influence. The study was conducted with over 34,000 tax delinquents who owed half a billion dollars in three US states: Kansas, Kentucky, and Wisconsin. The individuals had already been informed that the tax authorities had posted their names, addresses, and amount of tax owed online. One treatment group then received a letter stating that their neighbours had been informed about the online list, and were thus aware of the subjects' tax delinquency; the compliance rates of this group increased by 20 per cent, significantly more than that of the other two treatment groups, who received letters specifying either the financial penalties they faced or tax delinquencies by others in their area, respectively. This result is consistent with findings from an earlier experiment by Onu and Oates (2015), using data from online "chat rooms" for taxpayers: their analysis showed that individuals were much more influenced to comply by the risk of reputational damage or loss of social status in the eyes of others than they were by information about audit rates and penalties. This lever of informal social influence has been employed by some tax agencies – notably HMRC in the UK, which publishes a list of the country's top tax evaders.[6]

Building on these findings, future research could explore the application of other reputational penalties, and how these approaches vary in effectiveness cross-culturally. For example, can a technique employed successfully in India – such as the troupes of drummers that the city of Bangalore sends to play outside the offices of tax delinquents (Bowler, 2013) – be transplanted to the Americas or to Europe? The uses of social media in this context also deserve particular attention, due to their low cost and broad reach, but risk incurring backlash due to public perception that such strategies are unnecessarily invasive and therefore illegitimate (Chrisafis, 2019). Future research should investigate the conditions under which tax authorities' use of public media – both to investigate non-compliance and to publicize the names of tax evaders – would be considered legitimate.

2.3 The Macro Level

It has long been known that trust in public institutions plays a significant role in tax compliance; recent experimental research has advanced primarily by specifying the components of that trust, and modelling the mechanisms through which it affects behaviour. Key components of public trust include belief in the legitimate uses of tax revenues, as well as belief in the capacity of state institutions to monitor and sanction taxpayers effectively. In both cases, a sense of control or participation on the part of taxpayers seems to enhance compliance significantly.[7] This insight has been taken in novel directions in a series of recent experimental studies.

In terms of perceived legitimacy, recent cross-national research shows that tax compliance increases when subjects are told that their contributions are being directed toward institutions that enjoy broad public support and legitimacy, such as fire departments (e.g., Pampel et al., 2019; D'Attoma, 2020). This is consistent with neo-institutional theories of tax policy (Steinmo, 1993), which suggest that the uses to which taxes are put will influence compliance rates, and with earlier experimental studies showing that individuals are more compliant to the extent that they can exercise control over the distribution of tax revenues. This holds both in laboratory studies – where compliance increases when subjects are given the opportunity to vote on spending (Wahl et al., 2010; Casal et al., 2016) – and in field experiments showing that taxpayers in direct democracies (where spending is decided by referenda) are more compliant than taxpayers in representative democracies (Pommerehne & Weck-Hannemann, 1996).

However, the same principle works in reverse, in that compliance declines when taxpayers perceive that their contributions and control have been usurped by illegitimate institutional activity. Individuals in many countries appear to be highly sensitive to issues of institutional *redistribution* of tax funds to in-groups versus out-groups; compliance is therefore contingent on *who* receives the benefits of taxpayer contributions. The distribution of public benefits to immigrants is a contentious issue in many countries, particularly following the austerity measures imposed after the 2008 global financial crisis (Bloemraad et al., 2016; Bloemraad et al., 2019). Consistent with these findings, Nemore and Morone (2019) found that individuals express greater willingness to commit tax evasion to the extent that they perceive immigrants as a "threat to society." These results, based on Italian data from the European Values Survey, do not identify why these individuals perceive immigrants as a threat, whether in connection with labour market competition, criminal activity, or some other reason. However, our own work in progress (Guerra & Harrington, forthcoming) investigates this issue further, with original laboratory research conducted in Italy: the same population investigated by Nemore and Morone (2019). Our data, gathered in a survey that followed a tax experiment, revealed a strong nativist bias in attitudes toward compliance. That is, immigrants are broadly considered illegitimate recipients of public goods, even when they contribute as taxpayers themselves (see also Van Oorschot, 2006; Finsenraas, 2008).

The implication is that institutions redistributing tax funds to immigrants will be perceived as acting contrary to the preferences of many taxpayers and therefore as illegitimate. However, broader cross-national comparative research is needed on this issue, because there is some indication that such attitudes may differ significantly between countries organized around liberal market economies versus those organized as welfare state regimes (Eger, 2010; Brady & Finnigan, 2014). These, and other important institutional distinctions – such as a society's existing levels of non-immigrant diversity in race, ethnicity, and religion – deserve sustained attention in future studies of tax compliance. Thus, while Alm et al. (2016b) find a negative correlation between tax compliance and racial diversity, it is unclear whether the problem is racial heterogeneity itself, or if that difference proxies a conflict between natives and immigrants.

Finally, a series of recent experimental studies have offered new insight into the oldest and best-explored dimension of macro-level institutional influences on tax compliance: the monitoring and sanctioning capacity of the state. Unsurprisingly, compliance increases when individuals are made aware that the government knows you are withholding information relevant to your tax obligations, and can impose meaningful penalties in consequence. Recent field experiments have underscored how little it takes to reap significant rewards from merely

reminding taxpayers of these monitoring and sanctioning tools. For example, in Bott et al.'s (2019) study of Norwegian taxpayers, the most effective of several interventions was a letter simply stating "The tax administration has received information that you have had income and/or assets abroad in previous years." Without accusing recipients of anything, much less conducting an audit, simply informing them of state monitoring increased the share of individuals who reported foreign income or assets by 65 per cent – and had an enduring impact on foreign reporting a year later, far outstripping the impact of any other treatment. Similarly, in Meiselman's (2019) study of taxpayers in Detroit, the most effective treatment in terms of response rate and tax remitted was the letter underscoring the penalties for non-compliance. Moreover, López-Luzuriaga and Scartascini (2019) found that these informational campaigns create positive "spillover effects" for compliance; for example, taxpayers informed about increased penalties for property tax evasion are more likely to comply with all their tax obligations, such as payment of sales and income taxes.[8]

But perhaps the most impressive studies, in terms of demonstrating cost-effective institutional strategies for monitoring and sanctioning, have been those focused on whistleblower programmes. These programmes leverage social forces, like the sense that rules should be applied fairly, to reduce the distance between taxpayers and taxation institutions in an unusual way. Rather than giving taxpayers control over the ways their contributions will be spent – which is procedurally complex and time-consuming – the whistleblower programmes innovated by national tax agencies give taxpayers control over the *collections* process. This participation not only lends legitimacy to the process of tax collection, thereby increasing tax morale and the intent to comply, but it is extremely cost-effective, making it politically popular.

Recent laboratory experiments have shown consistently that offering subjects the opportunity to report peers for tax evasion increases compliance significantly (e.g., Buckenmaier et al., 2018; Masclet et al., 2019). This is reflected in real-world settings, where whistleblower programmes in the US, Italy, and Greece have reaped tens of millions in taxes and penalties from evaders within very short periods – ranging from two to five years – and at low cost, in the form of bounties paid to whistleblowers (Chohan, 2020). The main contribution of the recent experimental studies has been to uncover the social processes underlying these results. Among the most interesting and unexpected findings has been how willingly individuals participate in peer-reporting programmes, even in the absence of financial rewards—or, more strikingly, when reporting incurs *costs* to the whistleblowers themselves. For example, Masclet et al. (2019) found that tax collections were 30 per cent higher when subjects were given the opportunity to report evasion by their peers; even more remarkably, the study found that the majority of subjects (nearly 62 per cent) blew the whistle even though they reaped no financial benefit from doing so. In fact, whistleblowers were charged 0.80 Canadian dollars for each report they made, deducted from their earnings in the study. This finding, in which subjects choose to punish evaders despite incurring costs to themselves, suggests links to the group cohesion and social influence dynamics discussed above. These motivations deserve more attention in future research, in part to understand the ways that institutions can work with meso-level social processes to encourage tax compliance. Better understanding of these dynamics can also protect institutions from the costs and legitimacy risks of false whistleblower reports.

3. CONCLUSIONS

Taxation, and one's role as a taxpayer, are linked to variables spanning the range of social scientific inquiry. These include the individual psychology of emotions and responses to stimuli such as reward and punishment, to the sociology of group norms and cohesion, to the impact of politics and institutional history on patriotism and trust in government. Because the phenomenon of individual tax compliance is so broad in its roots and implications, a general conclusion we can draw from this review is that further advances will require multi-method, interdisciplinary, and cross-national approaches. Indeed, recent contributions have combined experiments (both in the laboratory and in the field) with survey and/or observational data, and incorporated cross-national or cross-regional comparisons.

The key findings of research published post-2017 can be summarized as follows. At the micro level, it appears that "carrots" are more effective than "sticks" in motivating tax compliance. That is, rewards increase desired taxpayer behaviours compared to punishments, particularly when the rewards come in non-financial forms, such as vouchers for "treats" like a spa day (Koessler et al., 2019). This does not mean that punishments are completely ineffective; rather, recent research has highlighted the *limitations* of motivating compliance through audits and fines. These include the cognitive biases that lead individuals to misperceive their chances to escape detection and fines when audited (Bernasconi & Bernhofer, 2020), along with the emotional backlash effects that may ensue in the long term after taxpayers are threatened with audits (Enaschescu et al., 2019).

Further research is needed on "carrot" and "stick" strategies, both to advance scholarly knowledge of the phenomenon of tax compliance and so that policymakers can use these tools more effectively. As an example, we need to understand better why individuals misperceive the connection between audits and punishment, and whether it is possible to reframe emotions about tax enforcement so that anger does not undermine compliance in future. On the "carrot" side, open issues include the effectiveness of non-financial rewards for compliance: vouchers for spa days may be compelling for Swiss taxpayers, but what about individuals in different cultures or less-developed economies? For policymakers, a salient question will be: how little investment can the state make in such rewards while maintaining effectiveness? If adding one sentence to a letter (as in Bott et al., 2019) can significantly change compliance outcomes at the national level, is there a way to make similarly minor, inexpensive changes to evoke the response to non-financial rewards discovered by Koessler et al. (2019)?

At the meso level, informing taxpayers about the behaviour of their peers evokes social influence and group dynamics in ways that can potentially motivate higher compliance rates – but only if used in context-sensitive ways. For example, recent evidence suggests that individuals in developed countries like Norway become more tax compliant when informed that their neighbours are complying (Bott et al., 2019); by the same token, invoking patriotic feeling among individuals from countries like Australia, the US, and the UK can enhance compliance (Chan, 2019). However, such appeals to group identity appear to break down when applied to individuals in communities that are highly fragmented, whether by ethno-racial or economic divisions. Thus, appeals to group identity have been ineffective in communities where diversity is a source of high conflict, from countries like Pakistan (Koumpias & Martinez-Vazquez, 2019) to troubled cities such as Detroit (Meiselman, 2019).

However, a more narrowly targeted approach, focused on public shaming of tax delinquents in their immediate neighbourhoods, has shown promise. The technique, already used in prac-

tice by tax authorities from London to Bangalore (Bowler, 2013), proved effective in a field experiment across three US states (Perez-Truglia & Troiano, 2018), suggesting that further research should concentrate on developing this area of knowledge. Research should focus on identifying relevant communities for specific groups of taxpayers: the sociological theory of "reference groups" (Merton & Rossi, 1968), which analyses individuals' responsiveness to evaluation by others, would offer especially useful insight. Social media shows particular promise for exploring these avenues, but backlash from public perceptions of illegitimacy constitute a significant risk, as the experience of several European countries has shown (Chrisafis, 2019). For policymakers, breakthroughs in these areas could bring more effective and cost-efficient compliance campaigns, to the extent that tax authorities can make legitimate use of media (both legacy and social forms) in targeting influence campaigns to specific subtypes of taxpayers (for example, the self-employed) and their reference groups.

Finally, at the institutional level, recent studies have built on long-standing evidence that compliance increases when taxpayers view the uses to which tax revenues are put as legitimate. While the most direct way to ensure such perceptions of legitimacy is by allowing taxpayers to choose how their contributions are spent (as in the Swiss referenda examined in Pommerehne & Weck-Hannemann, 1996), institutions of direct democracy can be cumbersome and impractical in large nation-states. Some recent studies have identified targets of public expenditure that are widely accepted as legitimate, and therefore conducive to tax compliance, such as fire departments (e.g., Pampel et al., 2019; D'Attoma, 2020). Other research, such as Masclet et al. (2019), has taken this insight about the compliance benefits of control in an innovative direction by aligning taxpayers with *enforcement* institutions, rather than distributive ones; as they found, many individuals are willing to act as whistleblowers, even at cost to themselves, if it means enforcing rules viewed as legitimate.

However, all these studies of macro-level institutional influence on tax compliance have thus far been limited to Europe and North America. Future research should investigate whether notions of legitimacy – both in terms of public expenditures and tax enforcement – prevalent in those regions apply elsewhere. While some recent studies suggest that national culture plays a negligible role in tax compliance (e.g., Guerra & Harrington, 2018), others suggest that cultural differences within and between countries may be more significant in the real world than within the laboratory (e.g., D'Attoma, 2020). By the same token, it will be particularly important for scholars and policymakers to understand the sources of perceived *illegitimacy*, such as that surrounding the distribution of tax-funded benefits to immigrants. This issue – including its emotional components, like fear (Nemore and Morrone, 2019), and its significance to the contemporary political economy (Piketty, 2015) – illustrates the pressing need for broader cross-disciplinary approaches to tax compliance. This chapter is intended to inspire more of such research going forward.

NOTES

1. Drawing conclusions on the basis of survey data can be misleading, since actual behaviour may deviate from the attitudes as measured by survey responses (Ajzen & Fishbein, 1977; Guerra & Harrington, 2018).
2. For a review of survey-based studies on tax morale and its correlation with personal characteristics, social and institutional factors, see, among others, Torgler (2002).

3. For specific evidence on the external validity of tax compliance experiments, see Alm et al. (2010); cf. Choo et al. (2016) for an alternative view. For a general critique of laboratory experiments, see Levitt and List (2007). For robust evidence in response to that critique, see Falk and Heckman (2009), Camerer (2015), Frechette (2015), Harrison et al. (2015), Kagel (2015), and Kessler and Vesterlund (2015).
4. For an extensive discussion of models of tax compliance, see Hashimzade et al. (2013).
5. Kastlunger et al. (2010) analyse gender role orientation of subjects using a questionnaire based on three psychometric measures: the femininity and masculinity scales of the Italian version of the Personal Attributes Questionnaire (Bonnes-Dobrowolny & Vicarelli, 1982), a 50-item preference rating scale of female-typical and male-typical occupations (Lippa, 2002), and six items from the Sex Role Identity Scale (Storms, 1979).
6. www.gov.uk/government/publications/publishing-details-of-deliberate-tax-defaulters-pddd (accessed October 2020).
7. See also Antinyan et al. (2020), who used administrative data from Armenia, and collected additional data via an online survey experiment with American participants. The results show that a more trustworthy government has a positive effect on citizens' attitude toward whistleblowing.
8. See also Ortega and Scartascini (2020), showing that the method a government uses to communicate to taxpayers affects their tax behaviour. They conducted a field experiment with the National Tax Agency in Colombia with more than 20,000 taxpayers. They sent the same message to taxpayers with tax delinquencies (i.e., those who presented a tax declaration, had a tax to pay, but had not deposited the payment), but using different communication methods: letter, email, and personal visit. Their findings reveal that a personal visit is more effective than an email, and both are more effective than a letter, which is currently the most traditional method used by tax administrations.

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