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ABOUT THE JOURNAL

The Journal of Tax Administration (JOTA) is a peer-reviewed, open access journal concerned with all aspects of tax administration. Initiated in 2014, it is a joint venture between the University of Exeter and the Chartered Institute of Taxation (CIOT).

JOTA provides an interdisciplinary forum for research on all aspects of tax administration. Research in this area is currently widely dispersed across a range of outlets, making it difficult to keep abreast of. Tax administration can also be approached from a variety of perspectives including, but not limited to, accounting, economics, psychology, sociology and law. JOTA seeks to bring together these disparate perspectives within a single source to engender more nuanced debate about this significant aspect of socio-economic relations. Submissions are welcome from both researchers and practitioners on tax compliance, tax authority organisation and functioning, comparative tax administration and global developments.

The editorial team welcomes a wide variety of methodological approaches, including analytical modelling, archival, experimental, survey, qualitative and descriptive approaches. Submitted papers are subjected to a rigorous blind peer review process.

SUBMISSION OF PAPERS

In preparing papers for submission to the journal, authors are requested to bear in mind the diverse readership, which includes academics from a wide range of disciplinary backgrounds, tax policy makers and administrators, and tax practitioners. Technical and methodological discussion should be tailored accordingly and lengthy mathematical derivations, if any, should be located in appendices.

MESSAGE FROM THE CHARTERED INSITUTE OF TAXATION

The Chartered Institute of Taxation is an education charity with a remit to advance public education in, and the promotion of, the study of the administration and practice of taxation. Although we are best known for the professional examinations for our members, we have also supported the academic study of taxation for many years and are pleased to widen that support with our involvement with this journal.

WEBSITE

The Journal of Tax Administration website can be found here: www.jota.website

SOCIAL MEDIA

We also have a Twitter account: https://twitter.com/jotajournal

EDITORIAL NOTE

We are pleased to present the second 2017 issue of the Journal of Tax Administration which once again contains a geographically dispersed and methodologically diverse set of papers. We are grateful to all contributors to this issue, both authors and reviewers.

Three papers in this issue emanate from a workshop held in London in May 2016 on the theme of tax avoidance. Allison Christians presented her ongoing work on the vexed distinction between tax avoidance and evasion, and has kindly updated her previously published work for this journal. David Quentin presented his research on the relationship between tax avoidance and risk. The paper he subsequently submitted to this journal provides an insightful analysis of the nature of tax risk and the important distinction between tax risk arising as a result of tax planning, and that arising independently of tax planning. Matthew Rablen presented a paper at the workshop in which tax avoidance is theoretically modelled. He and his co-author, Duccio Gamannossi degl'Innocenti, have updated their paper for this journal from the previously published version.

Two further papers are also included in this issue. Colin Williams and Ioana Horodnic present their findings on the informal sector based on a Eurobarometer survey of 11 East Central European countries. They find that deterrence measures reduce participation in the informal sector only when tax morale is low. Jerome Olsen and colleagues from the University of Vienna and Tilburg University use a novel methodology to investigate social representations of income tax and VAT, concluding that findings from income tax research cannot be directly translated to the context of VAT.

In this issue, we also present three review papers. Mohammed Umar and Festo Tusubira provide a discussion of the challenges of tax administration in developing countries with reference to papers presented at the 5th Annual Tax Administration Research Centre Workshop, which was held in Exeter in April 2017. Chris Evans and colleagues provide a review of two recent conferences on the topic of corruption; the first in Australia in April 2017 and the second in South Africa in October 2017. Epifantseva and Hashimzade review a 2012 book edited by Karen Brown, *A Comparative Look at Regulation of Corporate Tax Avoidance*. In addition, a review of recent literature provides an overview of some recently published papers.

Finally, we are pleased to announce two additions to the editorial team. Firstly we welcome John D'Attoma to the role of assistant editor. Secondly, we welcome Adrian Sawyer as an editorial board member. We also thank Chris Heady for his contributions as managing editor to the first five issues of JOTA and, in particular, for his editorship of the special issue on the shadow economy in 2016. Chris has stepped down as managing editor but will continue to contribute to the journal as an editorial board member.

Lynne Oats and Nigar Hashimzade
(on behalf of the Managing Editors)

DISTINGUISHING TAX AVOIDANCE AND EVASION: WHY AND HOW

Allison Christians[1]

INTRODUCTION

Much public discourse about tax policy conflates tax avoidance and tax evasion as if they were effectively the same phenomenon. Going further, some tax justice activists and even some lawmakers have expressed a base frustration with the distinction between avoidance and evasion, concluding that both involve a violation of moral standards. The conflation and turn to morality might seem unobjectionable or even useful, given that both tax avoidance and tax evasion reduce state revenue which might otherwise be used to fund government functions and social programs. However, they are distinct phenomena. Tax evasion is wholly objectionable (with the exception of taxpayer responses to a wholly unjust tax regime). Tax avoidance describes a range of taxpayer behaviors, not all of which are wholly unobjectionable in the context of an otherwise coherent tax system. Tax avoidance and evasion can and should be distinguished, because they derive from different roots and require distinct regulatory responses.

This does not mean the public must be uninvolved in tax policy discourse surrounding appropriate responses to tax avoidance or evasion, as the case may be; the opposite is clearly true. The public seems uniquely suited to the task of demanding transparency in governance as a mechanism for monitoring lawmaking and addressing tax policy problems, including tax evasion and certain forms of tax avoidance. Transparency is, of course, an imperfect mechanism, but it seems to be the best hope for addressing a wide variety of governance-related failures, including failures in respect of tax (Christians, 2013a). Transparency forms the central core of all contemporary treatments of the problem of governance, and there is no reason why it should not also define the contours of thinking about what behaviors should be acceptable when it comes to taxation. For this reason, this essay concludes that the problem of distinguishing tax avoidance from tax evasion presents a base case for demanding transparency in both tax information and tax lawmaking in the service of pursuing tax justice.

HOW DID WE GET HERE?

The conflation of tax avoidance and tax evasion, and their rhetorical unification in the concept of morality, are by no means new phenomena. Academics, policymakers, lawmakers, and judges have more or less constantly grappled with these ideas over the entire history of taxation[2]. However, to understand the recent resurgence of these ideas and explore why and how they should lead us invariably toward the rule of law, a brief review of the contemporary tax policy landscape is required. Two media-based exposés of international taxation combine to produce the source material for this exploration. The first, involving the "offshore leaks"

[1] H. Heward Stikeman Chair in Taxation, McGill University Faculty of Law. This article is revised and updated from Christians (2014). An updated version was also published in the Routledge Companion to Tax Avoidance Research (Abingdon: Routledge, 2017). See Christians (2017a).
[2] The literature is vast. For a few representative examples, see, e.g., Angell (1938); Harvey (1970); Shenfield (1968).

databases obtained and reported on by the International Consortium of Investigative Journalists (ICIJ)[3], taught the public about an epidemic of tax evasion spreading across the globe. The second, the ongoing media coverage of single-digit effective tax rates paid on a global basis by household brand companies like Google, Apple, Starbucks, and Amazon, taught the public about an epidemic of tax avoidance, often characterized as "aggressive" to move it conceptually closer to the concept of evasion[4].

THE EVASION STORY

The evasion story is a simple one, involving a clear question of governance failure for which the moral case seems virtually unambiguous[5]. Reporters who have analyzed the ICIJ offshore leaks databases have found that "alongside perfectly legal transactions, the secrecy and lax oversight offered by the offshore world allows fraud, tax dodging and political corruption to thrive" (Ohlieser, 2013). Related stories abound, including the ongoing saga between the United States and Switzerland with respect to marketing efforts by UBS to secrecy-seeking American customers,[6] a similar dispute between Germany and Lichtenstein,[7] and the "Lagarde list" furnished to Giorgios Papakonstantinou - then the Greek Finance Minister - with the names of some 2,000 Greek residents, many with top government credentials, who were holding cash in secret Swiss bank accounts.[8] The information contained in this steady stream of leaks produced a flood of media coverage that has moved activists to take issue with how governments manage the financial affairs of high-net-worth individuals.

The question this story clearly raises is why governments cannot or will not prevent this patently illegal and obviously objectionable behavior. One possibility is that governments fundamentally lack the ability to prevent this behavior; the other is that they can do so but choose not to for political reasons or for reasons having to do with corruption. The media coverage itself, and the response of activists in using such coverage to rally for a very specific set of tax policy reforms, suggests that the clear answer to tax evasion is greater public oversight to oversee the efforts (or lack thereof) of governments to fairly enforce their own laws, and to pressure governments to remedy past practices of lax enforcement, if better enforcement is possible.[9] See Table 1.

[3] International Consortium of Investigative Journalists (2013). The release of more than 11.5 million financial and legal records from the database of the Panama-based firm Mossack Fonseca in 2016, dubbed the "Panama Papers," is among the ICIJ's most recent revelations of international tax avoidance and evasion schemes. See International Consortium of Investigative Journalists (2016).
[4] An early standout among such stories is Kocieniewski (2011); see also Duhigg & Kocieniewski (2012); Warman (2012); Patterson (2012); Barford & Holt (2013); BBC News (2012b).
[5] Leaving aside those for whom all taxation is simplistically viewed as either theft or slavery or both.
[6] See, e.g., Mathiason (2008).
[7] See Deutsche Welle (2008). This scandal became so widespread that it became popularly known as the "Liechtenstein tax affair." See 2008 Liechtenstein Tax Affair (n.d.).
[8] The story of the Lagarde list was broken by investigative journalist Kostas Vaxevanis, who published the list after learning that the Greek government had altered it to remove key names and was otherwise disinclined to pursue prosecutions based on its contents. See The New York Times (2012b). Vaxevanis was arrested for violating the privacy rights of those named in the list and is currently facing a second trial on the same issue after being acquitted in November 2012. BBC News (2012a); Smith (2012); Smith (2013).
[9] See, e.g., McIntyre, Gardner & Wilkins (2011); FactCoalition (2011); FactCoalition (n.d.).

TABLE 1: REGULATORY CAUSES OF AND RESPONSES TO TAX EVASION

Cause	Appropriate Response
Administrative failure (corruption/lack of competence)	Build up transparency & accountability mechanisms
Information Asymmetry	Build up disclosure & third party reporting
Insufficient investigative ability	Assign more resources to administration

One place where activists have sought avenues for such oversight is within the architecture of the Organisation for Economic Cooperation and Development (OECD). Formed as part of the reconstruction effort in the post-war era, the OECD is not primarily a source of international law but rather a forum for consensus-building among its member nations, which include the United States, Canada, and EU countries, but not Brazil, China, or India. The OECD is thus a transnational network, and its tax division is a tightly knit epistemic community whose main purpose is to create spaces for government officials to collaborate with business and industry leaders to frame issues of international tax policy, formulate norms, and syndicate these norms globally through domestic lawmaking procedures (Christians, 2010b). This institutional structure has had tremendous consequences for the formation of global tax policy, and serves as a warning about the role of norms, non-state actors, and institutions in tax policy matters more generally.[10]

The OECD began addressing the problem of offshore tax evasion in 1996, when it developed an appreciation of how tax havens - many of which are controlled possessions and territories of OECD member countries - were eroding the revenue-raising ability of many of the member countries.[11] Two years later, the OECD published a report that developed criteria to identify harmful tax competition and recommended, as a counteractive solution, a proposed blacklist of countries that were to be targeted with various sanctions unless they started sharing tax information with leading OECD countries pursuant to OECD standards.

After extensive lobbying against the project by the United States, Switzerland, and Luxembourg, the OECD ultimately reduced its work to an easily attainable compliance threshold. A country would be removed from tax haven blacklists by having in place at least twelve tax information exchange agreements (TIEAs) pursuant to OECD-drafted model language.[12] These TIEAs arranged actual information exchange among countries in such a way as to continue the status quo unabated; indeed, evasion may have even increased in countries that had not been subjected to OECD scrutiny, such as the United States, the United Kingdom, and Switzerland.[13]

[10] The OECD is capable of exercising centralized coercive authority even if it does not dispense international "law," and many commentators have gone so far as to accept OECD declarations in tax matters as largely equivalent to law in practice. See Christians (2007).
[11] For a more thorough review of the OECD's work on tax evasion, see Kerzner & Chodikoff, (2016); Christians (2009).
[12] Sheppard (2009) ("The standard OECD information exchange agreement is nearly worthless."); McIntyre (2009) (outlining why OECD exchange agreements are ineffective and the OECD list of tax havens a "joke").
[13] See, e.g., Jacobsen (2011); see also Tax Justice Network (2010).

Consequently, despite aspirational declarations by world leaders that the OECD had ended the era of bank secrecy in 2009, in fact, the opposite was true.[14] Yet, because the institution had set the parameters of its own success, little recourse was available. The Tax Justice Network - a nongovernmental organization formed from a coalition of researchers and activists focused on harmful tax practices - together with other NGOs and activists, took on the issue in various ways.

Their constant public criticism, combined with reports on the growing amount of cash believed to be hidden offshore (Henry, 2012), arguably led to major initiatives at the national and international level. Nationally, the United States adopted punishing new rules for tax evaders and the institutions that enable them.[15] Other countries quickly adopted similar legislation (Shaheen, 2012), and the OECD ultimately adopted a "Common Reporting Standard" to replicate the U.S. regime on a global scale, albeit consistent with global tax jurisdiction standards and without the sanctions that characterize the U.S. regime.[16]

Activists may view these developments as reasons for optimism, but some glaring deficiencies remain in these regimes. Leading nations, including the United States and the United Kingdom, continue to appear unwilling to curb their own appeal as tax havens to the rest of the world.[17] More recent political developments in these countries appear to threaten some of the gains achieved in the past five years.

One may well wonder if the same governments that produced the circumstances for global tax evasion, and then pronounced its death four years ago after a highly contested global battle that lasted over a decade, can be believed when they say that this time things are different.[18] But perhaps the even more troubling inquiry is what this process says about the possibilities for tax justice or fairness, however it may be articulated. If the rich countries of the world, marshaling their full and ample resources, and with apparently clear will and determination, have so much trouble just confronting - never mind solving - the problem of tax evasion, how much less should be expected when the behavior in question is not so unambiguously objectionable, while potentially being even more valuable to its architects? The rhetoric on tax avoidance demonstrates there are no straightforward answers to this question.

THE AVOIDANCE STORY

The avoidance story is more difficult, and it is here that the problem of ambiguity in the use of morality as a non-legal behavioral control arises. The issue is that the world's biggest

[14] G20 London Summit (2009) ("We stand ready to deploy sanctions to protect our public finances and financial systems. The era of banking secrecy is over."); McIntyre (2009) at 255 ("Well, it's not over yet.").
[15] Foreign Account Tax Compliance Act, Pub. L. No. 111–147, 124 STAT 71 (2010) (codified in scattered sections of 26 U.S.C.) (hereinafter, FATCA).
[16] See OECD (2014). The United States has declined to join the Common Reporting Standard and claims that its administration of FATCA through a worldwide network of intergovernmental agreements should allow countries party to the common reporting standard to deem it to be a participating country. To date, that position appears to have been accepted by other countries despite persistent differences in the two regimes.
[17] See, e.g., Christians (2013b); Edgerton (2012); Islam (2012); Scannell & Houlder (2016) ("After years of threatening Swiss and other foreign banks that helped Americans hide their money, the US stands accused of providing similar services for the rest of the world…. Bruce Zagaris, a Washington-based lawyer at Berliner, Corcoran & Rowe, says the US offshore industry is even bigger than people realise. 'I think the US is already the world's largest offshore centre. It has done a real good job disabling competition from Swiss banks.'").
[18] See, e.g., Sheppard (2013).

multinational conglomerates manage to earn trillions of dollars around the world, yet many seem to pay virtually no tax anywhere. This is framed as a justice issue because it shifts the burden of taxpaying to those who cannot similarly avail themselves of sophisticated tax planning strategies, and it thereby delivers undue advantage to sprawling conglomerates over all other taxpaying members of society. In response to this injustice, tax justice advocates use the concept of morality to move some kinds of tax avoidance into the unambiguously immoral category of evasion, despite the failure of the law to do so.

This attempt confronts a long tradition of tolerance, and even celebration, of tax avoidance behavior by taxpayers that is at once political, cultural, and legal in nature. In the United States, the doctrine is famously stated by Learned Hand in *Helvering v. Gregory*, as follows:

> Anyone may so arrange his affairs that his taxes shall be as low as possible; he is not bound to choose that pattern which will best pay the Treasury. There is not even a patriotic duty to increase one's taxes.[19]

The same sentiment is found in English common law, and has accordingly been adopted in the jurisprudence of other commonwealth countries, including Canada and Australia. Thus, in *IRC v. Duke of Westminster*, Baron Thomas Tomlin wrote:

> Every man is entitled if he can to order his affairs so as that the tax attaching under the appropriate Acts is less than it otherwise would be. If he succeeds in ordering them so as to secure this result, then, however unappreciative the Commissioners of Inland Revenue or his fellow taxpayers may be of his ingenuity, he cannot be compelled to pay an increased tax.[20]

Accordingly, when GE faced a public outcry over a media exposé of its global tax planning successes (Kocieniewski, 2011), a company representative replied that the company is "committed to complying with tax rules and paying all legally obliged taxes. At the same time, we have a responsibility to our shareholders to legally minimize our costs" (Kocieniewski, 2011). Similarly, when Apple was criticized in the media for going to great lengths to avoid paying millions in taxes (Duhigg & Kocieniewski, 2012), the company responded that, in addition to being a job creator and a contributor to charitable causes, it "has conducted all of its business with the highest of ethical standards, complying with applicable laws and accounting rules" (The New York Times, 2012a). Generating public objection to tax avoidance in the face of a tradition of supportive legal jurisprudence and cultural understandings, including about the nature and the role of the corporation in society, is thus a potentially monumental task.

Making tax avoidance a question of morality is a difficult terrain for activists. It automatically invokes actual tax compliance as a ready defense. However, it also involves the interplay of various legal rules enacted by sovereign (and often democratic) governments, as well as the kind of political malfunction that allows special interest groups to influence and directly author

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[19] Helvering v. Gregory, 69 F.2d 809, 810 (2d Cir. 1934).

[20] See Duke of Westminster v. IRC, [1936] 19 D.T.C. 490, 520 (Can.); see also Ayrshire Pullman Motor Services and Ritchie v. IRC, [1929] 14 D.T.C. 754, 763 (Can.) ("No man in this country is under the smallest obligation, moral or other, so to arrange his legal relations to his business or to his property as to enable the Inland Revenue to put the largest possible shovel into his stores.").

the laws that regulate themselves and their clients - at a high cost to broader society.[21] As a result, linking tax avoidance to morality requires telling a more complicated story about why an activity that is technically legal should nevertheless be publicly excoriated and ultimately punished.

Some have tried to overcome this challenge by categorizing avoidance into “acceptable” and “aggressive” or, alternatively, “intended” and “abusive” forms. It follows that some kinds of avoidance - such as putting money in a tax-deferred retirement savings account - are morally cleared because they are intended by government; but other kinds of tax avoidance - such as assigning low value to intangibles sold to corporate subsidiaries in order to assign profits to low-tax jurisdictions - must be immoral because the behavior was not intended by legislators.[22]

This attempt to subcategorize an area of legal but objectionable tax avoidance is precarious. It involves drawing a line that governments themselves have failed to draw adequately, and places blame squarely on the taxpayer for behavior that is later deemed to have fallen on the wrong side of the line based on what the politicians who wrote the law “intended”. This ignores the complex problem of political malfunction (or capture); namely, the outsized influence on tax lawmaking that is wielded by taxpayers who can take advantage of global financial markets and decentralized regulatory schemes to render themselves difficult or impossible to tax.[23]

Thus, when Starbucks, GE, Apple, and countless other companies pledge their fidelity to all applicable laws, they fail to mention the many ways in which they influence the direction of tax law reform on a global basis.[24] This influence not only includes direct lobbying efforts in national lawmaking processes, but also involves the much more obscure, yet equally important, role that multinational companies play in influencing tax policy through a panoply of other mechanisms (Christians, 2017b). These range from direct and indirect political spending to so-called “native advertising,” pursuant to which promotional marketing is presented as journalism or even academic research. Such influence additionally extends to participation in various international networks - most notably the OECD - where access to lawmakers can be had in informal, mostly unobservable, ways. While direct lobbying and some forms of political spending are increasingly well-documented and subject to public scrutiny as well as systemic

[21] The outsized influence wielded by business lobbyists is outlined in Alexander, Scholz, & Mazza (2009), which estimates the return on investment in political influence over tax policy matters to be as high as 22,000 percent. Concerning the ability to author laws, professional firms are not always shy about their ability to shape the law when it comes to creating promotional materials. Corporations also partner with lobbyist–think-tank hybrids like the American Legislative Exchange Council (ALEC) to advance their interest through legislative proposals. See, e.g., American Association for Justice (2010); The Center for Media and Democracy (n.d.). For a discussion of political malfunction and its various forms, see Komesar (1981); Luigs (1995).

[22] See Murphy (2012). Some commentators argue that the transfer pricing issue is the crux of the problems surrounding the erosion of the corporate tax base. A unitary system of taxation, which would carve up multinational corporation’s profits in a more substantively accurate manner, is often cited as the ideal solution to this problem. See, e.g., Picciotto (2012).

[23] See Komesar (1981) (explaining the concept of political malfunction and exploring regulatory responses); Christians (2013a, 72–77) (explaining that under pressures from a globally integrated market economy, sovereign states have engaged in a de facto tranching of taxpayers into distinct pools: the relatively “easy-to-tax,” the relatively “hard-to-tax,” and the virtually “impossible-to-tax.”).

[24] More recently, the UK government reprimanded the Big Four accounting firms for initially playing “gatekeeper” by lending assistance to draft anti-avoidance legislation, and then subsequently for being “poachers” by systemically abusing their position by finding ways to do the very things that said legislative provisions were supposed to stop. See Martin (2013).

academic analysis,[25] the other forms of political influence are just as pervasive, yet most are rarely acknowledged in scholarship on tax policymaking.[26]

Because of this expansive influence on the legislative process, framing tax avoidance as a question of morality based on what legislators intend is therefore not only incapable of solving the problem of controlling taxpayer behavior, it is inviting a whole new host of interpretive barriers to designing such a solution. Determining lawmaker intent with respect to tax policy requires a holistic approach that is both pluralistic and globalized in nature. This adds tremendous difficulties to the already extensively documented problem of determining legislative intent in general.

The OECD's own role in articulating tax norms provides one example of the difficulty here. Lee Sheppard has argued that the OECD is principally responsible for at least three of the biggest tax base-eroding regimes in existence globally: the "treaty treatment of remote commerce; tax treatment of related-party financial transactions; [and] transfer pricing, especially separation of income from relevant activity" (Sheppard, 2013). If the lawmaker's intent marks the line between what is objectionable tax avoidance and what is not, these three regimes are problematic to say the least.[27]

Articulating exactly what a lawmaking body intended in enacting any one of these regimes would be difficult. Taken together, one could rationally conclude that lawmakers in many of the OECD member countries intend not to tax very much of anything that touches international markets at all. If that is true, then much of the tax avoidance sought to be moderated with a moral requirement to abide by an assumed spirit of the law could be perfectly in line with that spirit. Troublingly, this is the case even if the spirit is implied from legislative intentions that go unstated for reasons having to do with the politics of self-preservation. Like native advertising, special interest group protection through favorable legislation is best accomplished when it is not done so overtly.[28] Adjudicating taxpayer behavior on this basis provides no answer to the possibility that much tax legislation is, in fact, sponsored content.

The problem of interpreting legislative intent is further thwarted by the crowding-out of alternative policy influences caused by an entrenched policy monopoly. This happens, for example, to the extent that the OECD, self-described as the world's "market leader in tax policy"[29], quashes policymaking attempts by rival institutions (Murphy, 2011). Crowding out alternative viewpoints ensures institutional rigidity and adherence to status quo interests. It also ensures ongoing isolation of the issues facing poor countries in the global tax order.[30] As Michael Durst, a former IRS official, puts it:

> I have frequently observed [lobbying at the OECD] at close hand, and I believe it has been influential. The effectiveness of lobbying efforts has been enhanced, I believe, by the absence of any financially interested constituency that might serve

[25] See, e.g., The Center for Responsive Politics (n.d.); Alexander, Mazza, & Scholz (2009).
[26] For a discussion of native advertising, see, e.g., Wemple (2013). There appears to be no scholarship to date measuring the extent to which native advertising has been used to influence tax policy, so this is a topic that is ripe for further study. For an overview of the OECD's lobbying activities, in particular with relation to the G20, see Christians (2010c).
[27] See, e.g., Spencer (2012); Durst (2011).
[28] See, e.g., Warzel (2013).
[29] See, e.g., OECD (2012).
[30] See, e.g., Horner (2001).

> as an effective counterweight and therefore as a political force for changes to current laws (Durst, 2011).

Some activists have begun to point out the crisis for the rule of law on both a national and international level that is presented by this kind of political malfunction. For example, the Tax Justice Network has recently questioned the outsize influence on tax policy exercised by the OECD (Fowler, 2013). As activists tie legal tax avoidance by multinational actors to the connection between the impenetrable forum of international tax lawmaking and the inability of the public to monitor the outcomes of such lawmaking in practice,[31] they will accordingly seek public accountability in the form of more disclosure of tax governance mechanisms, and more participation in international tax organizations and processes. See Table 2.

TABLE 2: REGULATORY CAUSES OF AND RESPONSES TO TAX AVOIDANCE

Cause	Appropriate Response
Domestic pressure & lobbying	Build up lobbying disclosure & support independent policy research
Tax competition	Build global awareness, pressure global institutions to respond

PLURALISM AND THE SOFT LAW PATH

Because the message of legal tax avoidance is both complex and nuanced, and features behavior that is not obviously objectionable when compared to tax evasion, activists typically combine tax evasion and tax avoidance into a single category when presenting the problem to the public. For example, James Henry - an American tax justice activist who was formerly Director of Economic Research (chief economist) for McKinsey - states:

> Both evasion and avoidance have the same impact on the rest of us, which is, our tax burdens are greater because the truly rich are not paying their fair share: they are able to put their money abroad, and are basically able to take advantage of a system that allows double non-taxation. And that's a real problem (Carroll Trust, 2012).

Henry thus combines tax avoidance, which is the product of either intentional or inept (or both) rulemaking and tax administration, with tax evasion, which is the product of taxpayers flouting the rules and governments not stopping them. This allows a single message to permeate the public consciousness; namely, that whether it is avoidance or evasion, taxpayers are misbehaving and they must be stopped.

The intentionally pluralistic character of the last century of tax policy development serves as the basis for arguing that the rule of law must be central in the formulation of any solution to this problem. This pluralistic character is most clearly evidenced in the use by rich countries of non-legal methods to create and maintain the system in existence today, including facilitating the central role played by tax havens in the global financial system (Boise & Morriss, 2009; Christians, 2010b, Eccleston, 2012, Freyer & Morriss, 2013). Because the institutional and regulatory status quo constrains the capacity of governments to respond unilaterally to

[31] For an anecdotal account of the difficulties related to observing OECD deliberations, see Christians (2013c).

problems involving international taxation, the OECD - as its chief architect - has been criticized for perpetuating a democratic deficit in tax lawmaking, for skewing tax policy to favor its members and their constituencies, and for advancing an agenda that is inconsistent with other global social goals within the safely ensconced parameters of black box policymaking.[32]

Since the OECD is not a lawmaking body, but instead deals in "norms" and "standards," there exist in law no remedies for any of its perceived misdeeds, no matter how far-reaching or damaging. Anyone who disagrees with the OECD's global grip over tax policy has little choice but to mount a challenge through another institution or mechanism that will inevitably be outmatched in financial and institutional support. Some may even be overtly thwarted in such an effort by those who seek to sustain the primacy of the OECD in preserving its own brand of tax policy against any would-be competitors. The OECD's continued tax policy domination suggests that its member countries have, to date, been well-served by using these non-legal methods to shape tax practices on the ground around the world.

Given the massive resource difference between tax justice advocates and the OECD member governments, it seems clear the latter will employ their well-resourced and highly motivated supporting constituencies to clear the way for OECD-based policy views to continue to prevail. This power difference must be acknowledged as real, even while it is vigorously protested as a fundamentally unjust way to decide how states can and should exercise taxation, and continuously countered with comprehensively justice-oriented policy alternatives. Starting from the premise that the status quo is a product of decades of soft law, a convincing case can be made that governments can and should contain the mechanisms for controlling inappropriate behavior within the structure of law instead.

USING LAW TO CONSTRAIN TAXPAYER BEHAVIOR

When a government determines how to commandeer resources from the private sector for the public good, it seems important that the rule of law be involved in drawing the line between evasion, which is illegal, and avoidance, which is not. The line between avoidance and evasion, like many line-drawing exercises in tax or otherwise, is fraught with difficulties.[33] However, this is an argument for drawing this line not with soft law, but rather with legal principles, continuously monitored and enforced through compliance with agreed upon rules and standards, backed up by judicial review, to put the taxpayers on notice as to the behavioral expectations applicable to all.

This is not to say that governments are or should be helpless against formalistic or "sophisticated" tax planning.[34] Governments are clearly not helpless in this regard: this is the point and purpose of anti-abuse rules. These may be bright-line rules, such as thin capitalization and beneficial ownership, or more flexible regimes that rely on weighing and balancing with judicial oversight as a backstop, such as general and specific anti-avoidance rules, sham and step transaction doctrines, and economic purpose tests.[35] All of these are admittedly

[32] For a discussion of international constraints on national tax policy, see Christians (2010a).
[33] See, e.g., Weisbach (1998).
[34] It is also not to suggest that tax advisors are themselves amoral actors, mere technicians, or automatons of any kind. They clearly are not, and professional standards are regularly set and enforced with respect to their behavior in statutory and administrative rulemaking, as well as private membership association regimes. See Hatfield (2011); Canellos (2001).
[35] The literature is vast on this topic. See, e.g., Lederman (2010); Pietruszkiewicz (2009).

cumbersome ways in which to solve complex problems, but they are at least capable of collectively moving the tax system toward more coherence and consistency of application.

In contrast, suggesting that the difference between illegal and legal cannot be established in law posits that, while societies are incapable of articulating the parameters of acceptable conduct within the law, legal sanction will nevertheless be imposed for noncompliance. This implies that punishment can and will be meted out randomly, because judgments about taxpayer behavior will be made outside of the sphere of deliberative lawmaking and, instead, in the court of public opinion.

Bypassing the legislative sphere as the proper place for making and enforcing decisions about civic responsibility shifts the duty of oversight away from governments and toward civil society writ large, which includes not just NGOs, activists, and others who may be interested in promoting tax justice or fairness, but also all of the lobbyists, consultants, paid marketers and promoters, and other political actors who have their own agendas, and many resources and mechanisms by which to advance them.

Assigning the problem of categorizing taxpayer behavior to the public in this manner has pernicious effects. The most troubling of these is that it releases legislators from responsibility too easily, allowing them to continue to benefit from sponsoring legislation that favors their constituencies while purporting to act in the interest of the public. However, it also runs the serious risk of pushing against the path to good governance more systemically, by turning too quickly to soft law without considering how to deal with the political influence problems that will inevitably persist and may even worsen in this scenario. Instead of turning to morality as a soft law backstop to an ongoing tax governance crisis, the better path seems to be the one most tax justice advocates recommend; namely, achieving expansive transparency in lawmaking processes so as to enable public monitoring of what the legal regime produces in terms of actual outcomes for taxpayers.

BASE CASE FOR TRANSPARENCY OF TAX LAWMAKING

Transparency has become a buzzword in international governance in general, so it is perhaps no surprise to see it mobilized by tax justice advocates. Given the technical complexity of the regimes in question, and how those regimes interact across borders to create the related yet distinct issues of evasion and avoidance, seeking transparency in international tax is no small feat. First, it will involve a clear statement of the ills to be remedied - an elusive task, given the tradition of opacity and the prevalence of soft law, as well as non-legal processes and institutions. It must then overcome the institutional hurdles presented by a global tax policy regime that restricts influence from outside the business community.

However, this is precisely where the intractable problem of drawing a line between tax avoidance and tax evasion may be viewed as an opportunity to achieve systemic reform. At least two systemic tax governance traditions could be challenged on the grounds that each leads to the public's inability to distinguish between tax evasion and tax avoidance, and therefore each breaks down the legitimacy of tax law in the court of public opinion, thus furthering a cycle of incoherent and uneven application of tax laws within and across societies.[36]

[36] See Allevi & Celesti (2016); Kirchler, Maciejovsky, & Schneider (2003).

The first of these systemic tax governance traditions is the outsize influence of well-resourced special interest groups over tax lawmaking processes in both domestic and international settings. There is little doubt that tax policy suffers because too much policy influence is wielded by one particular sector; namely, the business community in the influential OECD member countries and their worldwide network of lawyers, accountants, and other advisers who are well paid and therefore highly motivated to serving in this effort.[37] Far too much of this influence is being exerted in institutions and processes that are inaccessible to public view. This suggests, at minimum, that governments have accepted, contrary to social policy goals, an inappropriate amount of obscurity around the many ways in which well-resourced actors control the design and maintenance of tax systems across the globe.

Many of the problems for tax policy posed by opacity in political influence are solvable as governance problems through the mechanism of transparency. In this case, the transparency contemplated includes the complete documentation with respect to all government officials - at all levels (national and international included) - of every meeting had with any person not in government, disclosing time spent, issues discussed, and every dollar received in the form of campaign support, issue support, or otherwise.[38]

This is more or less the working principle of various countries' lobbying registries, as well as open meetings and access to information laws, but it envisions a more thorough public surveillance of interactions between government officials and the public at all levels and in all capacities. This kind of transparency would enable public observation of the connection between political influence and fully compliant yet significantly low-taxed members of society, and therefore provide necessary data points for explaining why full compliance with existing laws is not a benchmark for appropriate taxpayer behavior, but rather a starting point for critical inquiry regarding the accountability of lawmakers to the broader public.

A second systemic tax governance tradition that impedes the ability of the public to distinguish between tax evasion and tax avoidance is the confidentiality accorded to taxpayers' tax information. Taxpayer confidentiality serves important functions in protecting individual rights but, unfortunately, it prevents the public from observing how the law on the books plays out on the ground, and therefore sows the seeds for outrage when the media exposes the tax affairs of yet another high profile member of society.

Transparency may again be a solution, this time in the form of public disclosure of certain kinds of tax information. While there is a case to be made for favoring confidentiality over publicity in the case of individuals (Blank, 2011), the same case has not been made for corporations and other business entities. The tax evasion/avoidance problem could serve as the reason to embrace some reforms with respect to the use of taxpayer information, but caution must be exercised to ensure that fundamental human rights are not sacrificed in ill-considered efforts to expose faults in the tax system to the public.[39] A targeted approach, like that developed by the Extractive Industries Transparency Initiative, may serve as a model for future transparency efforts.[40]

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[37] This issue is analyzed more fully in Christians (2017b).
[38] An example of what this type of documentation might entail may be found in the Sunlight Foundation's study of lobbying efforts surrounding transparency regulations that were to be enacted in the United States in connection with legislation enacted in response to the 2008 financial crisis. See Drutman & Chartoff (2013).
[39] See, e.g., Cockfield (2010).
[40] See Extractive Industries Transparency Initiative (2017).

Further bolstering the case for transparency, the uneven reputational risk of naming and shaming based on celebrity status or name brand visibility ought to motivate members of society whose tax affairs tell a different story to bring their governments to account for failing to delineate between tax avoidance and tax evasion in a comprehensive manner. To the extent that the targets of naming and shaming object to the charges of immorality and point to full compliance with all regulatory regimes, they should have no objection to a transparent system of governance that would allow the public to monitor tax policy outcomes on the ground.

CONCLUSION

The failure to coherently delineate between tax evasion and tax avoidance is not the product of legal impossibility but rather of governance failure. The answer to this governance failure is not to turn away from law by articulating a non-legal standard of behavior based in the language of morality and then using this standard as a means to inflict legal sanctions. Instead, the answer is to demand more from the law, which means expecting more accountability in governance. This is not a revelation, but a reminder of governance lessons already learned.

Transparency has always created pressure on governments to solve line-drawing problems; in tax policy, it is the same story. Tax transparency forces lawmakers to expand their engagement with society beyond their immediate sources of sponsorship by improving the feedback loop between lawmaking and policy monitoring. Mechanisms like public disclosure of tax-related data and broad public participation in tax law policymaking - at all levels and in all forms of governance - have the potential to dislodge rhetoric based on conjecture and deliver to the public the data needed for independent study of the tax system as it plays out in practice, rather than as it is suggested by the words placed in statutes by legislators whose intentions are ambiguous at best.

It is precisely within the act of drawing a line between tax avoidance and evasion that the dire need for transparency most reveals itself. The idea that taxpayer behavior must be managed by law, rather than social sanction, rests fundamentally on the premise that tax policy can move toward greater coherence over time if the public persistently demands a means of monitoring law-making. Transparency, therefore, becomes a tool for forcing governments to distinguish between legal and illegal behavior within a regime that is capable of sustained public observation as well as participation that is itself observable - namely, the rule of law. The need for an articulation of the difference between tax avoidance and tax evasion accordingly illustrates why transparency in governance is consistently viewed as an essential requirement for the pursuit of tax justice.

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RISK-MINING THE PUBLIC EXCHEQUER

David Quentin[1]

Abstract

Tax avoidance is commonly theorised on the hypothesis that, in any specific instance of it, its effectiveness or ineffectiveness is determinate, whereas in the vast majority of instances it succeeds by default without being subject to forensic scrutiny. This article offers a new theory of tax avoidance which treats indeterminacy of outcome, as at implementation, as being of its essence. It proceeds from existing tax industry discourse regarding tax risk management, and shows (using the case study of Amazon's former UK/Luxembourg tax structuring) how tax avoidance is a discrete category of tax risk management with a determinate institutional genealogy. It proceeds to consider how (on a systemic level) such behaviour yields unwarranted financial transfers out of the public exchequer, and does so notwithstanding the adequacy of tax risk mitigation in any given instance. It concludes with comments on the utility of the theory.

INTRODUCTION

There is little controversy regarding the existence of a determinate category of human behaviour known as (in the broadest sense of the expression, so as to include tax avoidance at all levels of aggression) 'tax planning'. It is a category of behaviour which is defined at one boundary by legality, insofar as it does not extend to tax behaviours which are in some way fraudulent, and, at another boundary, by its *deliberate* tax content, insofar as it does not include tax savings that arise by accident. It is, in the immortal words of Lord Tomlin in the *Duke of Westminster's Case*, where the taxpayer 'arrange[s] his affairs so that the tax attaching under the appropriate Acts is less than it otherwise would be.'[2]

As most readers of this article will know, Lord Tomlin goes on to say that if the taxpayer 'succeeds in ordering [his affairs] so as to secure this result, then however unappreciative the Commissioners of Inland Revenue or his fellow taxpayers may be of his ingenuity, he cannot be compelled to pay an increased tax.' This legendary dictum is still regularly advanced in support of the proposition that there is nothing abusive about tax planning, however aggressive (McTernan, 2016).

Less often, is it noted that the dictum assumes success on the part of the taxpayer, referring to tax planning that 'secures' the intended tax saving as a matter of law. But the question of whether tax planning succeeds or fails is one to which 'only the highest court can give a definitive answer' (Devereux, Freedman, & Vella, 2012). The starting point in order to deploy Lord Tomlin's dictum as dismissive of any suggestion that tax planning may be abusive is therefore to view tax planning as having been already considered by a court of the highest authority. That viewpoint is, of course, very far from being a starting point, chronologically. On the contrary, it takes place towards the end of the process, and (crucially) only in a vanishingly small number of cases. The vast majority of tax planning is never even considered by a tax authority, let alone forensically tested, and still less forensically tested in a court of supreme authority.

[1] School of Business and Management, Queen Mary University of London.
[2]*Duke of Westminster v Commissioners of Inland Revenue* 19 TC 490 at 520.

The dangers of viewing the process of tax planning backwards chronologically from the perspective of a hypothetical authoritative determination as to its legal effectiveness, in as bold an act of defiance towards the second law of thermodynamics as any performed by Dr Who, are evident in a paper prepared by the Oxford University Centre for Business Taxation ('OUCBT') and published under the title 'Tax Avoidance' on 3 December 2012 (Devereux et al., 2012). The paper presents a taxonomy of tax avoidance, the first category of which ('category A') is 'ineffective avoidance'. In other words, the paper's *starting point* for defining tax avoidance is the category of tax planning which has gone all the way through the process of being devised, implemented, attacked by HM Revenue and Customs, and found to fail. The paper's next category, 'effective avoidance' (or 'category B'), is likewise defined by reference to a determinate forensic outcome, insofar as an explanation is given as to why tax planning might constitute avoidance by some putative wider definition but still be found to succeed by the courts.

As a behaviour, however, and prior to any hypothesised definite determination of success or failure by a court of supreme authority, it is not possible to distinguish between behaviour in category A and behaviour in category B, and the authors effectively acknowledge this when they talk about a taxpayer 'deciding whether to enter into a transaction that falls within category A or B' or refer to 'types of activity which fall under categories A and B'. However, they do not offer a theory of what such behaviour, undistinguished by outcome as between categories A and B, actually is. This is a grave omission since, as already noted, most 'types of activity which fall under categories A and B' stay that way, never being resolved into one category or the other. Reversing the chronology of the OUCBT taxonomy so that it accords with the familiar one whereby time moves forwards, we can only infer that 'tax avoidance' is a category of tax planning (i.e. their categories A and B) which is defined by the fact that it may or may not turn out upon a putative authoritative forensic analysis to fall within an ineffective subcategory of itself.

The purpose of this article is to confront the possibility that the OUCBT authors, in encouraging this inference, have (perhaps in spite of themselves[3]) alighted on that holy grail of tax theory: the objective definition of tax avoidance. The article's approach is to foreground the category of tax planning which is potentially ineffective (i.e. it might fall into the OUCBT authors' category A), but which is never subject to a determination as to its effectiveness, and so succeeds by default. In so doing, it develops a theory of tax avoidance, or abusive tax behaviour, as an objectively determinate category of tax behaviour which may be characterised as 'risk-mining' the public exchequer.[4]

It is worth emphasising again that the vast majority of tax planning, whether or not it merits the label 'tax avoidance' or the opprobrium associated with that label, and whether it would succeed or fail upon challenge, succeeds by default rather than being forensically tested. This category cannot be dismissed as a mere wrinkle in a theory which treats all tax avoidance as subject to forensic determination as to its effectiveness, or simply swept under the carpet of the 'effective' category of tax avoidance on the basis that it succeeds by default. This category of tax avoidance, which is ignored by those who theorise about the subject, is the reality of tax avoidance in practice.

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[3]The OUCBT authors take care to distance themselves from any such inference, warning that category B is not clearly distinguishable from their 'category C' – behaviour which is tax planning but to which the label 'tax avoidance' is not seemingly applicable at all.

[4]The theory discussed in this article has previously been presented in Quentin (2014).

CASE STUDY: AMAZON.CO.UK

As a case study for the purposes of exploring this category of behaviour, Amazon's former UK/Luxembourg tax structuring shall be considered. This planning was investigated by the UK Parliamentary Accounts Committee in 2012[5] and widely publicised, in particular by investigative journalist Tom Bergin of Reuters.[6] It was also considered in the UK High Court in a case only tangentially related to tax, *Cosmetic Warriors Ltd & Anor v amazon.co.uk Ltd & Anor* [2014] EWHC 181 (Ch). As the judge in that case explained:

> The facts here are that the second Defendant, a Luxembourg company, operates the website at amazon.co.uk whereas the first Defendant, a UK company, operates fulfilment centres in various parts of the UK, through which goods sold by the website are dispatched to customers, and provides logistic services to the second Defendant. The first Defendant also leases offices in Berkshire and provides marketing, legal, accounting and other services which support the operation of the second Defendant's web business.

In other words, the Luxembourg entity ('LuxCo') conducted the business of selling goods to UK customers, and the UK entity ('UKCo') was a service provider to the Luxembourg entity. It may confidently be inferred[7] that this arrangement was in the nature of deliberate tax planning. Its purpose was to (a) have the profits of the UK business arise in LuxCo rather than UKCo by virtue of the LuxCo's role in concluding contracts with customers, and (b) bring the operations performed by UKCo within paragraph 3 of Article V of the UK-Luxembourg double tax treaty.

Where a UK operation of a Luxembourg company only conducts activities within certain exemptions in that paragraph for preparatory or auxiliary activities, the UK operation will not constitute a 'permanent establishment' of the Luxembourg company, and by reference to the treaty (as implemented for the purposes of UK domestic law), the UK abjures taxing rights over the profits of that operation. Meanwhile, Luxembourg has been in the habit of granting to Luxembourg resident members of transnational corporate groups favourable rulings to assist their group tax structuring.[8] In Amazon's case, a favourable ruling was obtained in relation to the pricing of a deductible royalty payable by LuxCo to a Luxembourg limited liability partnership also within the Amazon group structure ('LuxLLP'). Since LuxLLP is 'transparent' for Luxembourg tax purposes (meaning that the royalty is treated as arising to its members, which are resident outside the jurisdiction and are therefore not taxable in Luxembourg in respect of that income), the overall effect of the ruling was that only a small residual profit after deduction of the royalty was taxable in Luxembourg (European Commission, 2014).

Some might assert that this planning falls squarely within the OUCBT authors' category B, on the basis that if it had been challenged by HM Revenue and Customs it would have been found by the courts to have been effective. However, this analysis would overlook the need for the facts on the ground to reflect the formalities of the tax planning, and it is quite clear from the *Cosmetic Warriors* case that they did not. The claimants in the *Cosmetic Warriors* case pleaded that Amazon's UK operations, which included the tortious acts in question in the case, were

[5] UK Parliament Public Accounts Committee (2012).
[6] See, for example, Bergin (2013).
[7] As to which, see further discussion below.
[8] Marian (2017).

jointly entered into by UKCo and LuxCo. Amazon vigorously asserted the separation of the two entities' functions, but the High Court was far from persuaded:

> Having heard the evidence I have no doubt that the first and second Defendants have joined together and agreed to work together in the furtherance of a common plan which includes doing the acts which are complained of by the Claimants in these proceedings. I regard the protestations that the first Defendant is not involved at all or is merely facilitating the doing of the infringing acts as distinct from sufficiently participating in them as being wholly unreal and divorced from the commercial reality of the situation. In my judgment the allegation of joint tortfeasance succeeds.

In other words, the two purportedly discrete operations were in practice indistinguishable, such that the two entities have been found to have been conducting them jointly, and therefore as agents for each other.[9] This is an extremely unusual finding in relation to corporate group affiliates. For one member of a corporate group to be held liable for a tort nominally committed by another is to run directly counter to the general resolve of the UK courts to respect the separate legal personality of companies. As Langley J said in *Peterson Farms Inc v C&M Farming Ltd* [2004] 1 Lloyd's rep 603 at 62:

> In commercial terms the creation of a corporate structure is by definition designed to create separate legal entities for entirely legitimate purposes which would often if not usually be defeated by any general agency relationship between them.

By their conduct as found to have been carried on in *Cosmetic Warriors*, Amazon's UK and Luxembourg entities created such a relationship.

It is worth noting that this finding was prompted by the mere pleaded case that the two defendants were joint tortfeasors, and (extraordinarily, given how high the legal hurdle is in the context of affiliated companies) was solely made out by Amazon's own evidence seeking to argue to the contrary. The claimants whose case it was do not appear to have had to do any work to secure this finding, notwithstanding that the legal hurdle is so high in the context of affiliated companies. Amazon appear therefore to have positively thrown themselves over that hurdle on the facts: the structural relationship on which it relied in seeking to negative joint tortfeasance was not merely divergent from the commercial reality in the way that contractual form can sometimes be divergent from commercial reality in an ordinary business context but was, to repeat the salient words of the judgment, 'wholly unreal and divorced from the commercial reality of the situation'.

This finding, if it had been made in relation to a tax appeal, would have opened up a number of specific lines of attack for HM Revenue & Customs that would not otherwise be available. There would be lines of attack referable to the disconnect between the formalities intended to give rise to the tax advantage and the actual conduct of the parties, which is a risky place for tax planning to find itself in both as a general rule[10] and specifically in the context of reliance upon a tax treaty.[11] There would also be lines of attack referable to the specific relation of mutual agency between the parties which they clearly did not intend and which significantly weakens Amazon's treaty position. Their treaty position clearly assumed that that the activities

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[9]*Brooke v Bool* [1928] 2 KB 578.
[10]See *WT Ramsay Ltd v IRC* [1979] STC 582 and related cases.
[11]See paragraph 9 of the OECD commentary on the OECD model double tax treaty.

nominally carried out by UKCo are the only activities relevant to the question of whether UKCo constitutes a permanent establishment of LuxCo for treaty purposes, and that each party contracts solely on its own behalf, whereas, in fact, the entire operation was being jointly carried out by both entities, each as agent for the other.

It is not the purpose of this article to evaluate the strength of those lines of attack. All that is required for our purposes is recognition that, in the light of the finding in *Cosmetic Warriors*, Amazon's UK/Luxembourg tax planning cannot confidently be placed in the OUCBT authors' category B. It might have been ineffective; we don't know. All we can say for sure is that it was one of the 'types of activity which fall under categories A and B'.

GENEALOGIES OF TAX RISK

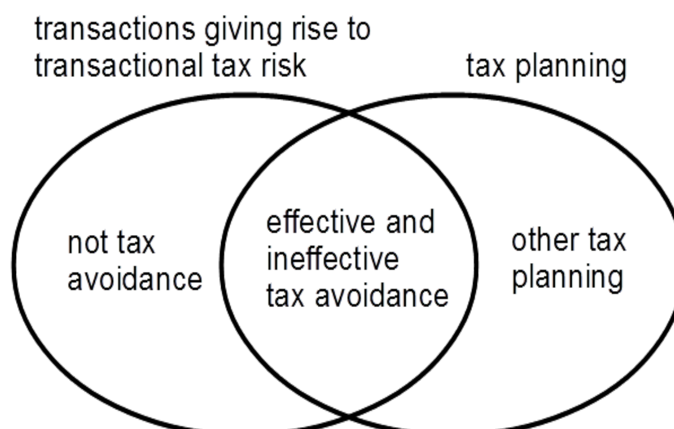
A circumstance where tax planning may or may not be effective is one where there exists what is known as 'tax risk'. Specifically, there exists the risk that the taxpayer's filing position (adopted in consequence of the tax planning) may fail upon tax authority challenge with the consequence that additional tax in excess of the amount self-assessed by the taxpayer is payable. This category of tax risk is recognised as the subject of a number of management techniques; for example, it is treated as capable of being valued. 'When looking at a tax position, there will normally be uncertainty in the possible outcome of such a position' it is explained, for example, in Bas de Mik's 'Introduction to tax risk management', forming Chapter 1 of *Tax Risk Management: from Risk to Opportunity* (de Mik, 2010). 'In order to value the position, each of the possible scenarios needs to be taken into account and an assessment should be made on the chance that each scenario would materialize. The cash flow for each of the scenarios should then be weighted to come to a valuation of a position.'

Confusingly, however, technical discussion of tax risk as managed by an organisation's tax function elides this kind of risk into a broader, composite conception of tax risk which includes, for example, the risk of paying additional tax by omitting to implement tax planning. In discussion of the 'tax control framework' advocated by Hoyng, Kloosterhof and Macpherson in the next chapter of *Tax Risk Management: from Risk to Opportunity*, 'where we refer to risks, a missed opportunity is also seen as a risk' (Hoyng, Klooosterhof, & Macpherson, 2010). These opportunities, it is later explained, include 'the ability of the organization and the tax function to create value from [...] future tax planning proposals' (Hoyng et al., 2010).

It is worth teasing these categories apart so that we can be clearer about precisely what kind of tax risk is being discussed in a particular context. First, let us consider the circumstance where a tax position is taken and there is uncertainty as to the outcome in the event of a tax authority challenge. For clarity, in order to distinguish this circumstance from other forms of tax risk, let us label it 'transactional tax risk'. It must be emphasised that the existence of transactional tax risk, albeit that it arises from transactions deliberately entered into by the company or group, does not necessarily indicate that we are in the OUCBT authors' A & B category. The transactions in question may not fall within the meaning of 'tax planning'; they may be deliberate behaviours but they are not necessarily deliberate *tax* behaviours. This would be the case where the features of the transaction are entirely driven by non-tax-related considerations, and the transactional tax risk is simply an unfortunate side-effect of pursuing the transaction in question.

Second, let us consider the risk of missing a tax planning opportunity. This risk is mitigated by looking for tax planning opportunities and implementing them. This is a category of tax risk management which is therefore essentially synonymous with 'tax planning'. All three of the

OUCBT authors' categories, i.e. the composite category of A & B which contains tax planning that may be ineffective, and category C which contains tax planning which may be expected to succeed, constitute this form of tax risk management. What distinguishes categories A & B from category C is the way in which this category of tax risk management intersects with transactional tax risk. Categories A & B (i.e. ineffective and effective tax avoidance) are where the tax planning gives rise to transactional tax risk, in contrast to category C, where it does not. The following diagram sets out this relationship (with the caveat that the complexities of the relationship are further developed as this article proceeds).



We can now proceed to examine this relationship by means of our case study. Had Amazon simply operated its UK business through a UK branch or subsidiary in the ordinary way, it would have had to pay UK corporation tax on the profits of its UK business. Its tax function appears to have identified this course of action as a missed tax opportunity, and recommended the tax planning strategy of bifurcating the functions of the UK business into the execution of contracts and certain other functions to be performed by a Luxembourg entity coupled with the performance of merely preparatory or auxiliary functions by a UK entity.[12] Managing this 'missed opportunity' tax risk by implementing the proposed planning, however, introduced the transactional tax risk of UKCo being treated as a permanent establishment in respect of LuxCo's UK profits. The formal disaggregation of functions between the two entities introduced a tax risk factor (i.e. permanent establishment risk) that would not have arisen had all of the functions of the UK business been performed by a UK-resident company.

It seems, therefore, that any elision between different forms of tax risk management obscures the possibility of transactional tax risk factors having a determinate genealogy, either arising (a) from the mitigation of 'missed opportunity' tax risk (i.e. from tax planning), or (b) otherwise. Further, given that in the former case the feature of the transaction to which the transactional tax risk is referable will have been introduced by the company or group's tax function or external tax advisers, whereas in the latter case it will not, that genealogy is *institutionally* determinate.

The possibility that transactional tax risk factors can have a determinate institutional genealogy is something that tax industry discourse is extremely coy about. As a quick bit of Googling

[12]We cannot say for sure that this is what happened because we do not have the relevant internal communications, but it is a very safe inference given that the structuring was highly advantageous from a tax perspective and, as already discussed, found to be 'wholly unreal and divorced from the commercial reality of the situation'.

will illustrate, the internet is awash with puff from professional services firms promoting their tax risk management expertise; it is rarely acknowledged, however, that part of that expertise involves deliberately creating tax risk. An exception may be found in a blog post on the PwC website, which asks:

> So where does tax risk originate? Tax risk isn't typically created within the tax function; it happens earlier in the value chain, with data, and with people making decisions at the front end of the organisation without sufficient understanding of the tax consequences. (Bracco & Gooding, 2016).

This at least constitutes an acknowledgement that tax risk *might* originate within the tax function. Hoyng, Kloosterhof and Macpherson go further, identifying two types of tax risk:

> First, there is the risk without any upside, e.g. failure to comply with administrative requirements. Generally, an organization should try to mitigate these kinds of risks to an efficient extent. The second risk is the risk that comes with pursuing an opportunity, there is always a risk that the opportunity will not be achieved, or that additional costs are incurred to achieve that opportunity. An organization should not try to avoid these kinds of risks but make sure that when an opportunity is pursued, the opportunity (measured against the strategic objectives) outweighs the risk. In addition, appropriate measures should be taken to mitigate the negative impact of this risk. The same applies to tax risks. When it comes to the first category of risks, the organization should mitigate these risks to the extent that it is efficient. A well designed and functioning [tax control framework] will have this effect. However, a more important role for a [tax control framework] is in relation to the combination of opportunity/risk. (Hoyng et al., 2010, p.23).

The first of these two generalised categories of risk as applied to tax appears to include the risk of a taxpayer understating its tax liability in its self-assessment (i.e. what we have labelled transactional tax risk), and the second appears to include 'missed opportunity' tax risk (i.e. tax planning), and it is clearly acknowledged that the latter category of risk can lead to the former category of risk, insofar as 'there is always a risk that the opportunity will not be achieved'.

What this means is that, for our purposes, there are indeed two distinct categories of tax risk as at self-assessment with (in a business organisation, at least) distinct genealogies. A tax risk factor can arise independently of tax planning or as a result of it. This distinction is important, because it enables transactional tax risk which has been deliberately put in place by the taxpayer to be distinguished from tax risk which arises, say, by reference to an error, or by simple dint of the uncertain application of tax law to the things which the taxpayer is doing commercially.

Given the institutional discreteness of an organisation's tax function, this is a distinction which can be drawn with something approaching objectivity, in contrast to notoriously awkward questions of whether a feature of a transaction has a tax 'motive' or 'purpose'. The objective question is whether the feature of the taxpayer's circumstances which gives rise to (or increases the level of) tax risk as at the self-assessment stage was a feature which the taxpayer itself introduced upon the prior recommendation of its own tax function or of external tax advisers.

If so, then deciding whether to implement that recommendation was the OUCBT authors' 'deciding whether to enter into a transaction that falls within category A or B' and entering into it was engaging in their 'types of activity which fall under categories A and B'. This is because, if the planning introduces a tax risk factor, then as at implementation it could either be effective

or ineffective. The transactional tax risk created or increased by this behaviour is described hereafter as 'deliberately created tax risk'.

It should be emphasised that this does not include transactional tax risk which arises otherwise than from tax planning. We are, as already explained, at the *intersection* of transactional tax risk and tax planning: transactional tax risk arising otherwise than by reference to tax planning is outside the intersection, as is tax planning that does not introduce risk factors or otherwise increase transactional tax risk. The reason this requires emphasising is that, on former occasions when the arguments in this article have been presented, those arguments have been misunderstood as claiming that *any* transactional tax risk or uncertain filing position constitutes deliberately created tax risk. It is only 'deliberately created' tax risk if it derives from tax planning.

The core argument of this article is that deliberately created tax risk is abusive tax behaviour, rightly attracting the opprobrium that attaches to the term 'tax avoidance'.

It is conventional to distinguish unexceptionable tax planning, often characterised as tax planning in pursuit of tax reliefs intentionally made available in legislation, from other forms of tax avoidance which may or may not be abusive (this unexceptionable tax planning is sometimes, as we shall see, referred to as 'pro-purposive' tax planning). It is also conventional to distinguish 'aggressive' tax avoidance from other forms of tax avoidance, and to allow that the aggressive kind (however it is defined) is abusive notwithstanding that it is not fraudulent. It is conventional also to leave a gap between the unexceptionable tax planning and the aggressive tax avoidance, and that gap is generally characterised as a 'grey area'. The argument here is that (a) there is a sharp distinction between the unexceptionable tax planning and deliberately created tax risk, and (b) deliberately created tax risk is always abusive, even in circumstances where the risk is small.

That argument is developed below by reference to (a) the aggregate financial effect on the public exchequer of deliberate tax risk creation, and (b) the relation between the mitigation of deliberately created tax risk and legislative purpose.

TAX RISK CREATION AS A FINANCIAL TRANSFER OUT OF THE EXCHEQUER

Why, then, do taxpayers deliberately create tax risk? Clearly, it is to create the possibility of not paying tax which would otherwise be payable. However, there is a subtlety to this dynamic which needs to be expressly brought out into the open. When valuing a tax position, the amount of the tax saving which may or may not be available is no doubt to be discounted by reference to the chances of that tax position failing upon tax authority challenge. However, in circumstances where not all tax positions are challenged (and, in practice, only a tiny proportion of them are) there is a substantial additional upside for the taxpayer, to be added back in after the saving has been discounted by reference to the strength or weakness of the filing position, in the form of the tax saving which accrues in the event that no such challenge takes place. This saving accrues, it hardly need be added, whether or not the tax planning is effective.

This second tranche of upside is present in all cases of tax planning which introduces a tax risk factor, irrespective of the strength of the filing position. In a case where the filing position is weak, the possibility of not facing tax authority challenge at all forms the more substantial tranche of the upside for the taxpayer, but that tranche is nonetheless present in other cases. Indeed, such upside as is referable to the possibility of the filing position going unchallenged is not merely present, but is almost guaranteed to be realised in contrasting cases where the filing

position is likely to be upheld in any event, since tax authorities will (perfectly sensibly) positively avoid litigating in those circumstances. In the UK, for example, HMRC stated policy provides that 'Where HMRC believes that it is unlikely to succeed in litigation it will, in the majority of cases, concede the issue.'[13] Indeed, 'in general, HMRC will not take up a tax dispute unless the overall revenue flows potentially involved justify doing so'[14] and a dispute which it is likely to lose does not promise much by way of revenue flows.

That additional tranche of upside corresponds, of course, to an additional tranche of downside to the public exchequer. It is for this reason that the deliberate creation of transactional tax risk by means of tax planning *always* constitutes a financial transfer out of the public exchequer, irrespective of how likely the planning is to succeed or fail upon challenge. The additional taxpayer upside risk and exchequer downside risk attaching to the taxpayer's filing position succeeding in default of a challenge creates a risk asymmetry as between taxpayer and public exchequer at all points along the spectrum, from highly aggressive tax avoidance almost doomed to fall foul of anti-avoidance law to relatively vanilla planning introducing easily managed risk factors, and, by definition, that risk asymmetry constitutes a financial transfer.

Perhaps the most useful approach to understanding the effect of this risk asymmetry in the context of filing positions which are more likely than not to succeed is a statistical one. Suppose ten taxpayers each implement tax planning which introduces a mild risk factor such that each position bears a 20% likelihood of failure upon challenge. This should be understood to be different tax planning in each case, such that each case bears that 20% likelihood of failure independently of the others. Suppose further that in each case £1000 of additional tax will be payable if that 20% likelihood eventuates. In a world where all uncertain tax positions are litigated, the probabilities are that eight of the taxpayers will succeed and two will fail, such that £2000 of additional tax is collected out of the £10,000 total at stake. In the event, however, no additional tax will be collected because in no particular case will it be worthwhile for the tax authority to challenge the filing position. A tax position with an 80% chance of success is therefore effectively worth something approaching 100% of its nominal value. Thus it is that even low levels of deliberately created risk to the exchequer, in circumstances of full disclosure to the tax authority, create actual losses of tax.

Of course, in no individual such case is the money legally payable in tax; still less can it be said that the money is legally the property of the Crown. In each individual case, however, the upside for the taxpayer in creating the risk has been augmented by the non-negligible possibility of the filing position being wrong but going unchallenged, and that is the mechanism by means of which (in our example above) £2000 is effectively lost to the public exchequer. It is by reference to this dynamic that I have elsewhere described the deliberate creation of tax risk as 'risk-mining' the public exchequer.[15]

MITIGATION OF DELIBERATELY INTRODUCED TAX RISK FACTORS

As the example of Amazon illustrated, the distinction between tax avoidance which is likely to succeed and tax avoidance which is likely to fail is, in any event, a false one, since that distinction relies on taking at face value structural claims inherent in the tax planning which may not be borne out on the facts. This failure on the part of the taxpayer's arrangements in reality to live up to the intentions of the tax planning it has adopted (a failure on the part of

[13] HM Revenue & Customs, *Litigation and Settlement Strategy*, p.5.
[14] ibid p 2.
[15] See footnote 4.

clients familiar to many tax practitioners and tax tribunals[16]) gives rise to a further question, fundamental to the 'risk-mining' analysis of tax avoidance. What is the significance, in the risk-mining analysis of tax avoidance, of the mitigation of deliberately created tax risk?

We have seen that mitigating the risk of missing tax opportunities (otherwise known as tax planning) can introduce tax risk insofar as it can give rise to features of a taxpayer's circumstances which potentially result in its self-assessed tax liability being less than its actual liability. We also saw Hoyng, Kloosterhof and Macpherson mention that tax risk in this latter category, irrespective of its institutional genealogy (i.e. whether or not it derives from tax planning), should, in turn, be mitigated.

This imperative to mitigate transactional tax risk, in the specific context of transactional tax risk which traces its origins back to tax planning, is illustrated in the case of Amazon by their need to keep the functions of UKCo and LuxCo distinct, and it has important implications.

Let us suppose, for the sake of argument, that had Amazon been challenged on their tax planning by HM Revenue & Customs, any appeal by Amazon would have failed on the basis of findings such as those in *Cosmetic Warriors*. This is, as discussed above, by no means an implausible hypothesis given how strongly adverse those findings were from the perspective of Amazon's tax structuring. Under this hypothesis, a substantial additional tax liability would no doubt have arisen. If they had mitigated their transactional tax risk, however, by substantively (rather than merely formally) disaggregating their functions between UKCo and LuxCo, then HM Revenue & Customs' challenge would be unlikely to have led to additional tax being payable. That being the case, on the hypothesis of the tax planning being challenged, a subsidy would have been available to Amazon out of the public exchequer for disaggregating its functions.

Crucially, however, it is no part of the purpose of the UK domestic and international tax law regarding permanent establishment to positively encourage companies to disaggregate their otherwise commercially integrated business functions into two separate corporate entities, one inside and one outside the jurisdiction. The relevant legislation exists to give effect to an international consensus about how the corporate tax base should be shared between jurisdictions in circumstances of cross-border business activity, rather than to positively encourage the disaggregation of otherwise commercially integrated functions. The subsidy that Amazon was in a position to have extracted from the public exchequer (on the hypothesis of an HM Revenue & Customs challenge, that is) for substantively as well as formally disaggregating its functions as between UKCo and LuxCo does not therefore exist, as such. Amazon conjured it into existence by means of their tax structuring.

It is at this point in the 'risk-mining' analysis where we learn how it intersects with a more common framing of theoretical discussions of tax avoidance, which is by reference to the legislative purpose behind the relevant legislation. To take a widely-disseminated illustration, tax specialist, blogger and political activist Jolyon Maugham QC contrasts 'anti-purposive' with 'pro-purposive' avoidance, the former alone being the abusive kind. This framing is by no means unhelpful but it works best in the context of a relief or exemption from a tax charge, where there is often a clear policy purpose to do with courses of action which the taxpayer may or may not adopt. In circumstances where the relevant legislation exists simply to give effect

[16]See, for example, *Flanagan and others v Revenue and Customs Commissioners* [2014] SFTD 881; [2014] UKFTT 175 (TC) in which tax avoidance implemented by the famous DJ Chris Moyles failed on the basis that, in reality, he was not the used car dealer that his tax planning relied upon him being.

to the conceptual structure of the tax and is not trying to encourage or discourage any particular behaviour it is, however, harder to apply.

This difficulty of applying a definition of abusive tax behaviour such as Maugham's (which area of difficulty corresponds, more or less, to the 'grey area' noted above as conventionally being located between unexceptionable tax planning and aggressive tax avoidance) is well illustrated by the Amazon case. The legislation exists neither to encourage nor discourage the disaggregation of business functions, so it is hard to say whether the disaggregation of business functions in order to obtain a more favourable position under the legislation is actually 'anti-purposive' or merely purpose-neutral.

What we can say, however, is that the legislation does not exist to positively encourage the disaggregation of business activities. To generalise from this illustration, whereas the question 'is the tax planning anti-purposive or pro-purposive?' may not have a clear answer, a clear answer can be obtained from the following two questions:

(1) Does the tax planning introduce a tax risk factor?
(2) If so, is the action which might be taken to mitigate that tax risk factor something which it is within the purposes of the legislation to positively encourage?

If the answer to the second question is 'no', then the taxpayer is, by implementing the tax planning, seeking to extract a subsidy from the public exchequer which the legislation does not intend. This is abusive.

SUMMARY OF THE 'RISK-MINING' THEORY OF TAX AVOIDANCE AND CERTAIN CAVEATS

The foregoing arguments may be summarised as follows. Where a tax risk factor is introduced by tax planning then, (1) to the extent that the filing position might *fail* upon challenge, it effects a financial transfer out of the public exchequer and into the hands of the taxpayer by virtue of the taxpayer's augmented upside referable to the possibility of the planning going unchallenged, and (2) to the extent the filing position might *succeed* upon challenge, where such possibility is referable to tax risk mitigation, the taxpayer is extracting a subsidy which, by definition (since it rewards compliance with the requirements of the tax planning rather than statutory conditions for a tax advantage), is outwith the purpose of the legislation to grant. In any case of a deliberately introduced tax risk factor, however weak or strong the resulting filing position, at least one of these analyses must be in play (and in most cases it will be a combination of the two). Tax avoidance, *qua* abusive tax behaviour on the part of taxpayers, may therefore be defined as the introduction of tax risk factors insofar as they originate in tax planning, and the degree to which mitigation of such risk factors is successful is irrelevant to the status of the originating tax planning as tax avoidance.

This is offered as a general theory of tax avoidance although, as such, it is subject to a number of caveats. First, it is inapt to catch circumstances where taxpayers are exploiting a loophole in a way which would fail upon challenge, but where exploitation of the loophole is known to be tolerated by the tax authority. This, however, is effectively tax legislation by executive inaction and is therefore better characterised as a constitutional abuse by the state rather than tax abuse by the taxpayer. Second, the theory is inapt to catch pure exploitation of a cross-border mismatch, where tax arises in neither jurisdiction because each jurisdiction's tax regime regards the transaction as placing the taxable receipt or event in the other jurisdiction.

The third, and perhaps most significant, caveat is to do with the application of the theory to a situation where the risk factor in question increases existing transactional tax risk rather than creates it. In these circumstances, the theory relies on the assumption that any tax advantage which a taxpayer has structured for will be exploited as at filing. Take, for example, a simple cross-border intra-group transaction, entered into without any tax planning. This transaction introduces a risk factor in the form of transfer pricing risk, but the risk factor is not traceable back to tax planning and so there is no abuse of the kind identified by the risk-mining theory of tax avoidance. Now suppose that a tax haven hub entity is inserted between the buyer and the seller, in circumstances where there is no applicable anti-haven legislation. This is nonetheless abuse of the kind identified by the risk-mining theory of tax avoidance. The reason for this is as follows.

Transfer pricing is not an exact science and it generally yields a range of viable prices which means it can be manipulated to achieve a tax advantage. Absent the tax haven entity, however, a high deduction in the buying entity, while yielding a tax advantage in that entity's jurisdiction, would give rise to a cost in the form of the increased taxable receipt in the other jurisdiction. By the same token, a low taxable receipt in the selling entity would yield a tax advantage in that entity's jurisdiction but there would be a cost in the form of the decreased deduction in the other jurisdiction. The insertion of the haven entity eliminates these costs, and so (on the basis of the assumption regarding claiming the benefits of tax planning) it may be supposed that a greater deduction will be claimed in the buying entity jurisdiction, and a lower taxable receipt will be reported in the selling jurisdiction, than would otherwise be claimed or reported. These filing positions would give rise to an increased transfer pricing risk, and the insertion of the haven entity therefore constitutes the deliberate creation of tax risk as defined above.

There may be further areas where the theory is more awkward to apply than others; the purpose here is really to do with the fundamentals of how we look at tax avoidance - treating it as a process where multiple possible outcomes are engaged and then resolved into one as time progresses onwards, rather than something which can be treated as having a determinate outcome *ab initio*.

CONCLUSION: WHAT IS THE RISK-MINING THEORY FOR?

What, then, is the practical relevance of the theory? First, it is a theoretical basis for a number of existing policies. In the UK, for example, one might point to policies such as DOTAS,[17] APNs,[18] and GAAR penalties,[19] which, one way or another, seek to neutralise the taxpayer-favouring informational and cash-flow asymmetries of deliberate tax risk creation. These policies are all consistent with a 'risk-mining' theory of tax avoidance. To expressly ground them in a coherent shared theory of tax avoidance would facilitate the development of further such policies, adding to tax authorities' armouries when it comes to dealing with tax abuse.

Secondly, the risk-mining theory of tax avoidance could increase the prevailing levels of sophistication in the public debate about tax avoidance generally. As things stand, tax avoidance is broadly described as 'legal' and, while it is true that tax avoidance is not fraudulent, the fact is that (as may well have happened in Amazon's case) it can lead to tax going unpaid that is legally payable. As a category of behaviour it is not, therefore, 'legal' in

[17]Part 7 Finance Act 2004
[18]Part 4 Finance Act 2014
[19]Schedule 43C Finance Act 2013

the sense that tax avoidance which has been challenged by HM Revenue & Customs and forensically determined to be effective is 'legal'. It is a process of 'legally' pocketing what could 'legally' be public money and hoping, one way or another (i.e. either because the avoidance turns out upon challenge to be effective, or because it is ineffective and never challenged) to get away with it.

Thirdly, and perhaps most importantly, an area where the risk-mining theory of tax avoidance has a tremendous amount to offer is in improving discourse around tax as an area of corporate responsibility. Tax is an area where companies are being exhorted to behave better by civil society, consumers, investors, governments and international organisations, and companies are responding with increasingly detailed statements about their responsible tax behaviour. Currently, however, tax risk management is generally presented as an unalloyed all-round good, both in the exhortations to better behaviour[20] and in the claims made in response,[21] whereas (as we have seen) tax risk management includes tax avoidance, and in those circumstances, better tax risk management means better and more effective extraction of unintended tax expenditures out of the public exchequer.

This discourse needs to improve: corporate tax discourse needs to start acknowledging that 'tax risk management' encompasses within it tax avoidance at any level of aggression, and better and more responsible corporate tax behaviour involves not simply managing tax risk better, but eschewing tax planning that introduces tax risk factors or otherwise increases tax risk. It is not even enough to promise that tax positions are only taken if they reflect a filing position strength above a given threshold. If that filing position strength is obtained by competent mitigation of deliberately created tax risk, then the claim merely constitutes a claim that the taxpayer has done its best to ensure that the proceeds of its abusive tax behaviour will be realised.

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TAX AVOIDANCE AND OPTIMAL INCOME TAX ENFORCEMENT[1]

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Abstract

We examine the optimal auditing problem of a tax authority when taxpayers can choose both to evade and avoid. For a convex penalty function, the incentive-compatibility constraints may bind for the richest taxpayer and at a positive level of both evasion and avoidance. The audit function is non-increasing in reported income, and is higher for progressive tax functions than for regressive tax functions. Higher marginal tax rates increase the incentives for non-compliance, overturning the well-known Yitzhaki paradox.

INTRODUCTION

Individuals take a variety of actions to reduce their tax liabilities. In particular, one may distinguish between: actions that are clearly in breach of the law (tax evasion); actions that are not explicitly ruled out under law, but which violate its spirit (tax avoidance); and actions that are legitimate (tax planning). Explicit in this definition of tax avoidance is that we consider acts of form-changing that are so artificial in nature that the courts will deem them illegal if the tax authority mounts a legal challenge. These acts are often complex, and – unlike evasion – must be purchased from specialist providers known as "promoters". A recent example of this type of avoidance scheme is a 2012 legal case in the UK between H.M. Revenue and Customs (HMRC) and businessman Howard Schofield, who bought an avoidance scheme to reduce the amount of tax due on a £10 million capital gain on a share holding. The scheme used self-cancelling option agreements that would return the seller to his original position yet create an allowable loss. Although, when viewed separately, the options created exempt gains and allowable losses, they did not when viewed together as a composite transaction. HMRC (2012) described the scheme as "an artificial, circular, self-cancelling scheme designed with no purpose other than to avoid tax" and it was ultimately outlawed.

The first economic studies relating to tax compliance (e.g. Allingham & Sandmo, 1972; Srinivasan, 1973; Yitzhaki, 1974; Christiansen, 1980) utilised a general economic model of crime owing to Becker (1968). As this model lends itself much more readily to tax evasion (which is a crime) than tax avoidance (which is not outright illegal), these studies neglect the possibility of tax avoidance altogether. The economic literature that followed has largely retained this bias, even though, in many countries, it seems likely that loss of tax revenue due to avoidance activity is significant. For instance, according to Cobham (2005), developing

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countries lose $285 billion per year due to tax evasion and tax avoidance. Estimates provided by the UK tax authority put the value of tax avoidance at £2.7 billion, compared to £4.4 billion for tax evasion (HMRC, 2015).

One of the chief lines of enquiry for economists has been to study how a tax authority can collect a given amount of income tax revenue at minimum enforcement cost, when taxpayers can illegally under-report their true income. The instruments potentially available to the tax authority to achieve this objective are: (i) a tax function, which associates a tax liability to each level of income; (ii) a penalty function, which associates a level of penalty to each level of evaded tax; and (iii) an audit function, which associates a probability of audit to each level of reported income.

As in much of the literature, we focus on the audit function by exogenously assuming the form of the penalty and/or tax functions. This is justified if (i) the entity that sets the audit function (the tax authority) does not have discretion over fiscal policy and (ii) the setting of penalties is highly constrained. In practice, both of these conditions usually hold: the design of the tax function is typically seen as a *policy* matter to be determined by the Treasury (whereas the collection of tax is seen as an *operational* matter), while the penalty function is fixed in legislation (making it costly to change) and is bounded in its severity by the requirement that it be proportional to the perceived seriousness of the crime. Sanchez and Sobel (1993) assume that taxpayers are risk neutral, that the penalty rate on undeclared tax is constant, and that the tax function is given. They give general conditions under which tax revenue is most efficiently collected, as follows: taxpayers reporting an amount of income above a threshold amount are audited with probability zero, while taxpayers reporting an amount of income below the threshold are audited with a probability that is just sufficient that they will choose to report their income truthfully.[4] Given this audit probability function, all taxpayers with true income above the threshold amount declare exactly the threshold amount, and so pay the same amount of tax. Accordingly, the "effective" tax function (after taking into account the non-payment of tax due to under-reporting) becomes flat above the threshold declaration amount.

Another strand of literature assumes that a unified entity can simultaneously set the audit, penalty and tax functions. In this setting, Chander and Wilde (1998) show that, if taxpayers are risk neutral and fines are maximal, the effective tax function is regressive and the audit function is non-increasing. Marhuenda and Ortuño-Ortín (1994) show that these results continue to hold for a range of other (exogenously imposed) penalty functions. Chander (2007) generalises these results to a particular class of risk averse preferences.[5] Few other general results exist, however: for instance, Mookherjee and Png (1989) show that the introduction of risk aversion can imply that the audit function is not always non-increasing in the amount of income declared.

In this paper, we investigate how accounting for the ability of individuals to avoid tax, as well as to evade tax, alters the conclusions for optimal enforcement of models in which only tax evasion is possible. In our model, individuals can engage in tax evasion by under-reporting their income, but can also, at a cost, participate in a tax avoidance scheme that permits them to further lower reported income. In addition to the financial cost of avoidance, both forms of non-compliance are assumed, when detected, to impose psychic harm in the form of a social stigma cost. The nature of the avoidance scheme is not unambiguously prohibited by law, but is unacceptable to the tax authority. Accordingly, if the tax authority learns of the scheme, it will

[4] Earlier contributions that arrived at the conclusion of an audit threshold under less general assumptions include Reinganum and Wilde (1985), Scotchmer (1987) and Morton (1993).

[5] See, however, Hindriks (1999) for situations in which the regressivity of the tax function is reversed.

move to outlaw it ex-post. If a taxpayer is audited, the tax authority observes whether they are using a tax avoidance scheme and also the extent of any tax evasion. The taxpayer is fined on the evaded tax, but the tax authority has no grounds to impose a fine on the avoided tax (it can only take measures to outlaw the scheme and then recover the tax owed on the avoided income). In this context, we characterise the audit function first for a linear penalty function, and later for a general penalty function. The tax authority can condition its audit function only on the amount of income declared; it does not observe the amount of non-compliance, or how it is split between evasion and avoidance. We therefore look for a taxpayer such that, if this taxpayer (weakly) prefers to report truthfully rather than hide an amount of income, then all other taxpayers will also wish to report truthfully.

We find that, if the penalty function is linear or strictly concave then, irrespective of the tax function, it holds that (i) if the wealthiest taxpayer is induced to report honestly, so will all other taxpayers; and (ii) at every income declaration, x, enforcement must be just sufficient that the wealthiest taxpayer does not wish to evade the amount of income $w - x$ (if evasion is more attractive than avoidance), or does not wish to avoid the amount of income $w - x$ (if avoidance is more attractive than evasion). That is, if the tax authority enforces to the point where "pure" evasion/avoidance becomes unattractive then mixtures of evasion and avoidance will also be unattractive. On the other hand, if the penalty function is convex (the marginal rate of penalty is increasing), it is possible that the focus of enforcement is not the wealthiest taxpayer, but rather a taxpayer with intermediate wealth. The level of wealth of this critical taxpayer is an increasing function of income declared, implying that the focus of enforcement is on lower wealth individuals at lower levels of declared income, and on higher wealth individuals at higher levels of declared income. It also becomes possible that taxpayers prefer engaging simultaneously in evasion and avoidance over pure strategies. When this is so, the optimal mix of avoidance and evasion moves in favour of avoidance as reported income decreases, as the competitiveness of the market for avoidance schemes increases, and as the social stigma associated with tax non-compliance falls.

In all cases, we find the audit function to be a non-increasing function of declared income. When enforcement is predicated on the wealthiest taxpayer, the audit function is strictly decreasing in declared income. The function is shifted upwards by an increase in wealth (of the wealthiest taxpayer), and shifted downwards by a steepening of penalties, an increase in the social stigma attached to tax non-compliance and a lessening of competition in the market for avoidance schemes. When the focus of enforcement is not the wealthiest taxpayer, however, the audit function becomes independent of declared income and of the competitiveness of the market for avoidance. By analysing the audit function under example progressive and regressive tax functions, we find that, as in Chander and Wilde (1998), less enforcement is required to achieve truth-telling under a regressive tax than under a progressive tax. Stronger risk aversion shifts the audit function downwards, with larger downward movements for lower values of reported income.

We also find that an increase in marginal rates of tax stimulates incentives for non-compliance, such that the audit function must shift upwards to maintain truthful reporting. This is the opposite of the finding of Yitzhaki (1974), in which the incentives to be non-compliant diminish as marginal tax rates increase. The difference in predictions is of interest, as Yitzhaki's finding is counter-intuitive and at variance with most empirical evidence. Whereas taxpayers can only evade in Yitzhaki's model, they can also avoid in our model. We find that the incentives to avoid unambiguously increase following an increase in marginal tax rates, so even though the incentives for evasion may worsen, the tax system becomes more costly to enforce, and compliance falls unless enforcement is stiffened.

This article adds to the small, but growing, economic literature that models the tax avoidance choice (Alm, 1988; Alm & McCallin, 1990; Alm et al., 1990; Cowell, 1990). Like us, Alm and McCallin (1990) describe avoidance as a risky asset owing to the possibility of effective anti-avoidance measures by the tax authority, whereas the remaining papers characterise avoidance as a riskless, albeit costly, asset. None of these contributions considers the implications for optimal auditing of tax avoidance, however.

Much of the remaining literature on tax avoidance, however, is concerned with whether income tax has "real" effects upon labour supply or simply leads to changes in the "form" of compensation (e.g. Slemrod & Kopczuk, 2002; Piketty, Saez, & Stantcheva, 2014; Slemrod, 1995, 1996, 2001; Uribe-Teran, 2015). Feldstein (1999) finds that accounting for tax avoidance significantly increases estimates of the implied deadweight loss of income taxation. Fack and Landais (2010) show that the response of charitable deductions to tax rates is concentrated primarily along the avoidance margin (rather than the real contribution margin), while Gruber and Saez (2002) show that the elasticity of a broad measure of income is notably smaller than the equivalent elasticity for taxable income, suggesting that much of the response of taxable income comes through deductions, exemptions and exclusions. In these studies, the term "tax avoidance" typically refers to all form-changing actions that reduce a tax liability.[6] This definition overlaps with ours, but is broader, in the sense that it also includes actions that fall into our notion of tax planning. By this broader definition, Lang et al. (1997) estimate that tax avoidance costs the German exchequer an amount equal to around 34 percent of income taxes paid.

The plan of the article is as follows: the "Model" section outlines the model; the main analysis is performed in the "Analysis" section; and a range of extensions are considered in the "Extensions" section. The final section concludes the paper. All proofs are in the Appendix.

MODEL

A taxpayer has an income (wealth) w; w differs among individuals on the support $[0, \bar{w}]$, where $\bar{w} > 0$. Each taxpayer faces a tax on income w given by $t(w)$, satisfying $t(w) < w$ and $t' \geq 0$. Taxpayers behave as if they maximise expected utility, where utility is denoted by $U(z)$, with $U' > 0$ and $U'' \leq 0$. A taxpayer's true income w is not observed by the tax authority, but the taxpayer must declare an amount $x \in [0,w]$. A taxpayer can choose to illegally evade an amount of income E and to avoid paying tax on a further amount of income A, where $x = w - E - A$.

Evasion is financially costless, but avoidance technology is bought in a market in which "promoters" sell avoidance schemes to "users".[7] A common feature of this market is the "no saving, no fee" arrangement, under which the price received by a promoter is linked to the amount by which their scheme stands to reduce the user's tax liability. Although systematic information regarding the precise contractual terms upon which avoidance schemes are typically sold is scarce, we understand from a detailed investigation in the UK that, for the majority of mass-marketed schemes, the fee is related to the reduction in the annual theoretical tax liability of the user, not the ex-post realisation of the tax saved (Committee of Public Accounts, 2013). This implies, in particular, that the monetary risks associated with the possible

[6] For a detailed discussion of these "form-changing" actions see, e.g., Stiglitz (1985), and Slemrod and Yitzhaki (2002).

[7] For analyses of the market for tax advice see, e.g., Reinganum and Wilde (1991), and Damjanovic and Ulph (2010).

subsequent detection and termination of a tax avoidance scheme are borne by the user.[8] Accordingly, we assume that the promoter's fee is a proportion $\phi \in (0,1)$ of the tax saving accruing from the scheme. In this way, ϕ may be interpreted as measuring the degree of competition in the market for tax avoidance schemes, with lower values of ϕ indicating the presence of stronger competitive forces. When a taxpayer is simultaneously evading and avoiding, the tax saving accruing to the avoidance scheme is not always unambiguous, however. To see this, note that the total tax underpayment of a taxpayer is given by $t(w) - t(x)$. This can be decomposed in two ways: one decomposition is to assign $t(w) - t(w - E)$ to be the evaded tax, and $t(x + A) - t(x)$ to be the avoided tax, but an alternative taxonomy is to assign $t(x + E) - t(x)$ to be the evaded tax and $t(w) - t(w - A)$ to be the avoided tax. These alternative approaches are equivalent if the tax function is assumed to be linear, but are distinct otherwise. As our results are not especially sensitive to which of these conventions is adopted, however, we adopt the first of these decompositions in our baseline specification. Hence, we may write the total fee paid by the taxpayer[9] to the promoter as $\phi[t(x + A) - t(x)]$.

We adopt a principal-agent approach in which the principal can commit to an audit and penalty function which taxpayers then take as given. Though important, as in many other contexts, we do not address the issue of how the principal can make these commitments.[10] A taxpayer reporting income x is audited with probability $p(x)$. If audited, E and A are observed. A taxpayer must then make a payment $f(t(w) - t(w - E))$ on account of the amount of evaded tax, where $f(0) = 0$ and $f' > 1$ (which, together, imply $f(k) > k$ for $k > 0$). The taxpayer cannot be fined on the avoided tax, however. The tax authority mounts a (successful) legal challenge to the avoidance scheme, giving the tax authority the right to reclaim the tax owed. Thus, instead of paying $t(x)$, the taxpayer must pay $t(x + A)$.

The experiments of Baldry (1986) provide compelling evidence that the non-compliance decision is not just a simple gamble. This can be rationalized by introducing an additional cost into the decision. This cost can be financial (Chetty, 2009; Lee, 2001) or psychic. We adopt a psychic cost interpretation, where the psychic cost is identified as the social stigma associated with being caught performing activities that either abuse the spirit of the law, or outright violate it. Other models to allow for costs due to social stigma include: al-Nowaihi and Pyle (2000), Benjamini and Maital (1985), Dell'Anno (2009), Dhami and al-Nowaihi (2007), Gordon (1989), and Kim (2003). Social stigma is incurred when $A + E\ (= w - x) > 0$ and the taxpayer is audited. Specifically, in the audit state of the world, we write

$$S\left(w-x\right)=\begin{cases}0 & \text{if } x=w;\\ s>0 & \text{otherwise.}\end{cases}$$

One might think that the stigma cost, as well as having a fixed component, might also have a component that increases in the total amount of non-compliance ($A + E$). We shall allow for this possibility in Section 4 as an extension to the baseline model.[11] It might also be argued that the social stigma associated with avoidance and evasion differ. For instance, Kirchler et al.

[8] It is apparent that such arrangements give promoters incentives to misrepresent the level of risk involved in particular schemes. Consistent with this point, the Committee of Public Accounts (2013, p. 11) indeed finds evidence of such mis-selling.

[9] The cost of the avoidance scheme is assumed not to be deductible from income tax for analytical tractability.

[10] Reinganum and Wilde (1986), and Erard and Feinstein (1994) study the case of the principal not being able to make commitments.

[11] A further line of literature (see, e.g., Hashimzade et al., 2014; 2015; 2016; Myles and Naylor, 1996) relates social stigma to the prevalence of non-compliance among taxpayers. We do not explore this route here, but offer it as a possible avenue for future research.

(2003) find socially positive attitudes towards tax avoidance (but socially negative attitudes towards tax evasion) among students, fiscal officers and small business owners in Austria. Recent poll evidence for the UK, however, suggests that evasion and avoidance are viewed similarly (Stone, 2015). Given the mixed evidence, and that public attitudes may well vary over time, assuming that social stigma is associated equally with avoidance and evasion seems reasonable.

A taxpayer's expected utility is therefore given by

$$EU = \left[1 - p\left(x\right)\right]U^{n} + p\left(x\right)U^{a}, \tag{1}$$

where U^n is a taxpayer's utility in the state in which they are not audited and U^a is a taxpayer's utility in the state in which they are audited. We then write $U^n \equiv U(w^n)$ and $U^a \equiv U(w^a) - S(w - x)$, where $\{w^a, w^n\}$ are, respectively, a taxpayer's wealth in the audit and non-audit states. Note that, owing to the equality $x = w - E - A$, we can write w^a and w^n as either functions of $\{x, A, w\}$ or of $\{E, A, w\}$. As each formulation yields separate insights, we define both here. In the former case, we have:

$$w^{n}\left(x, A, w\right) = w - t\left(x\right) - \varphi\left[t\left(x + A\right) - t\left(x\right)\right];$$
$$w^{a}\left(x, A, w\right) = w - t(x + A) - f\left(t\left(w\right) - t\left(x + A\right)\right) - \varphi\left[t\left(x + A\right) - t\left(x\right)\right];$$

and, in the latter, we have

$$w^{n}\left(A, E, w\right) = w - t\left(w - A - E\right) - \varphi\left[t\left(w - E\right) - t\left(w - A - E\right)\right];$$

$$w^{a}\left(A, E, w\right) = w - t(w - E) - f\left(t\left(w\right) - t\left(w - E\right)\right) - \varphi\left[t\left(w - E\right) - t\left(w - A - E\right)\right].$$

We adopt the standard assumption of *limited liability*, whereby the tax and fine payments of a taxpayer cannot exceed their wealth w. Accordingly, to ensure that the limited liability condition always holds, we assume $w^a(x, A, w) > 0$, a necessary condition for which is that $w \geq f(t(w))$.

A *mechanism* for the tax authority consists of a set of possible income reports $M \in [0, w]$, a tax function $t(\cdot)$, an audit function $p(\cdot)$, and a penalty function $f(\cdot)$. In this article, we focus only on *incentive compatible* mechanisms, i.e. mechanisms that induce all taxpayers to report truthfully. The standard justification for this approach is the *revelation principle*: when this holds then, for any feasible mechanism, one can find an equivalent mechanism that induces taxpayers to report truthfully (see, e.g. Myerson, 1979; 1982; 1989). Chander and Wilde (1998) show that the revelation principle applies when the tax authority has unfettered ability to choose the tax and audit functions, while the penalty function is only constrained to be bounded above. Unfortunately, penalty functions of this type deviate significantly from those observed in practice, as the penalty for under-reporting by any amount, no matter how small, is extreme. As noted by Cremer and Gahvari (1995), however, adopting more appealing but exogenously given penalties implies that one can no longer rely on the revelation principle. Whereas most of the literature has implicitly opted for tractability over realism, here we follow the lead of Marhuenda and Ortuño-Ortín (1994) in considering a setting in which the revelation principle does not hold. Implicitly, therefore, we restrict attention to the set of mechanisms that are payoff equivalent to the set of incentive compatible mechanisms we consider here. Our focus shall be

primarily on the shape of the audit function for a given penalty and tax function. Accordingly, we do not allow the tax authority to choose the latter two functions.

The utility when reporting truthfully (honestly) is $U^h \equiv U(w^h)$, where $w^h = w - t(w)$. In order that the mechanism be incentive compatible, a taxpayer must never receive a utility higher than $U(w^h)$ when reporting $x < w$. This implies that

$$p(x;A,w) \geq \frac{U^n - U^h}{U^n - U^a} \text{ for all } A \in [0, w-x],\ x \in [0,w] \text{ and for all } w. \tag{2}$$

Performing an audit costs the tax authority an amount $c > 0$. Given this, a revenue maximising scheme will always minimise $p(x; A, w)$ subject to the condition in (2) holding. It follows that, at an optimum, (2) must bind, so

$$p(x;A,w) = \begin{cases} \dfrac{U^n - U^h}{U^n - U^a} = \dfrac{t(w) - t(x) - \varphi[t(A+x) - t(x)]}{f\left(t(w) - t(A+x)\right) + t(A+x) - t(x) + s} & \text{if } x < w; \\ 0 & \text{if } x = w. \end{cases} \tag{3}$$

The restriction $p(x; A, w) \leq 1$ necessarily holds as $U^h \geq U^a$. When $x = w$ the definition of $p(x; A, w)$ becomes arbitrary, for the condition in (2) must hold for any $p(x)$. In setting $p(w; A, w) = 0$ we follow Chander (2007, p. 325). In what follows, we define $p(w; A, w)$ on the interval $x < w$ unless it is explicitly stated otherwise. Note that in (3) the tax function always appears in the form $t(v_1) - t(v_2)$, with the implication that the audit function is independent of the *level* of the tax function (any vertical shift of $t(\cdot)$ must cancel). Accordingly, it is without loss of generality that we set $t(0) = 0$.

The tax authority cannot, however, utilise $p(x; A, w)$ as it observes x, but not A or w. Instead, the tax authority must choose $p(x)$ such that, for each x, reporting is truthful for all feasible A and w. Accordingly, we then define $p(x)$ as

$$p(x) = \max_{A,w} p(x;A,w).$$

The arguments of A and w that maximise $p(x; A, w)$ we write as $A^* = argmax_A\ p(x; A, w^*)$ and $w^* = argmax_w\ p(x; A^*, w)$.

ANALYSIS

We start by considering the special case in which taxpayers are risk neutral ($U'' = 0$), while the case of risk aversion ($U'' < 0$) will be considered in the Extension Section. Initially, we shall not restrict the form of the tax function, but will, instead, restrict the penalty function to be linear: $f(k) = [1 + h]k$, $h > 0$. In this way, we obtain a very simple version of the model that provides ready intuitions.

Proposition 1 *If the penalty function is linear then*

$$p(x) = \begin{cases} \dfrac{[1-\varphi][t(\overline{w}) - t(x)]}{t(\overline{w}) - t(x) + s} & \text{if } \varphi < \hat{\varphi}; \\ \dfrac{t(\overline{w}) - t(x)}{f(t(\overline{w}) - t(x)) + s} & \text{if } \varphi > \hat{\varphi}. \end{cases} \tag{4}$$

where

$$\hat{\varphi} = \frac{h[t(w) - t(x)]}{s + [1+h][t(w) - t(x)]}.$$

According to Proposition 1, the predictions of the linear model hinge on the value of ϕ: when $\phi < \hat{\varphi}$ avoidance carries a higher expected return than evasion, and when $\phi > \hat{\varphi}$ the reverse holds. Thus, when the market for avoidance schemes is sufficiently competitive ($\phi < \hat{\varphi}$), it is sufficient to incentivise truthful reporting by all taxpayers that the wealthiest taxpayer does not wish to avoid all of their income. This holds irrespective of the shape of the tax function. If, however, $\phi > \hat{\varphi}$, evasion is more attractive than avoidance to taxpayers. In this case, it is sufficient to incentivise truthful reporting that the wealthiest taxpayer does not wish to evade all of their income.

The form of $p(x)$ in (4) applies more generally whenever A^* takes corner values and $w^* = \overline{w}$ (not only when the penalty function is linear). It transpires that a corner solution necessarily arises when $f'' \leq 0$, and may also arise when $f'' > 0$ under further conditions. We now analyse the comparative statics properties of $p(x)$ in (4).

Proposition 2 *In an equilibrium in which $A^* \in \{0, w - x\}$ and $w^* = \overline{w}$ then the comparative statics of $p(x)$ are given as in columns 1 and 2 of Table 1.*

Proposition 2 is most readily understood with respect to the expected marginal returns to evasion and avoidance. The expected return to the gamble of reporting $x < w$ (rather than w) is given, for a fixed p, by

$$R(A,E) = p\left[w^c(A,E,w) - s\right] + (1-p)w^n(A,E,w) - w^h(w) \tag{5}$$

In the formulation in (5), we retain A and E, by suppressing x. This allows us to consider, for example, the effect of moving A holding E constant (with x adjusting to maintain the equality $x = w - E - A$). As taxpayers are risk neutral, it must hold that $R(A^*, E^*) = 0$, for if $R(A^*, E^*) > 0$ incentive compatibility is violated, and if $R(A^*, E^*) < 0$, the tax authority could achieve

truthtelling at a lower cost. From (5), the expected marginal benefit to, respectively, E and A (for a fixed p) are therefore given by

$$\frac{\partial R}{\partial A} = (1 - p - \varphi)t'\left(w - A - E\right); \tag{6}$$

$$\frac{\partial R}{\partial E} = \frac{\partial R}{\partial A} - \left\{p\left[f' - 1\right] - \varphi\right\}t'\left(w - E\right). \tag{7}$$

The corner solution $A^* = 0$ arises when $\partial R/\partial E > \partial R/\partial A$ for all A and the corner solution $A^* = w - x$ when $\partial R/\partial A > \partial R/\partial E$ for all A. As the $p(x)$ in Proposition 2 is predicated on requiring the wealthiest taxpayer to report truthfully, it is responsive to changes in $\overline{w}$. In particular, when $A^* = 0$, if the wealthiest taxpayer chooses to evade an incremental increase in their income in full, the effect on the expected return to evasion is given by

$$\frac{\partial R}{\partial \overline{w}}\Big|_{x=\text{const.}} = \left[1 - pf'\left(t(\overline{w}) - t\left(\overline{w} - E\right)\right)\right]t'(\overline{w}).$$

Note by inspection of (4) that at the corner solution $A^* = 0$, it holds that $p < [f'(t(\overline{w}) - t(x))]^{-1}$, so $1 - pf'(t(\overline{w}) - t(\overline{w} - E)) > 0$. It follows that $\partial R/\partial \overline{w}|_{x = \text{const.}} > 0$, so the probability of audit must necessarily rise to maintain a zero expected return to non-compliance. If $A^* = w - x$ instead, if the wealthiest taxpayer chooses to avoid in full an incremental increase in their income, the effect on the expected return to avoidance is given by

$$\frac{\partial R}{\partial \overline{w}}\Big|_{x=\text{const.}} = \left[1 - p - \varphi\right]t'(\overline{w}).$$

By inspection of (4), at the corner solution $A^* = w - x$, it holds that $p < 1 - \phi$, so necessarily $\partial R/\partial \overline{w}|_{x = \text{const.}} > 0$. Again, the probability of audit must rise to preserve a zero expected return. Hence, whichever corner solution for A applies, the audit function is increasing in the wealth of the wealthiest taxpayer. As it is gainful to the wealthiest taxpayer to increase evasion (when $A^* = 0$) and avoidance (when $A^* = w - x$), it follows that to discourage the taxpayer from reporting low values of x requires more enforcement activity than does discouraging the reporting of higher values, hence the audit function is decreasing in reported income.

When the avoidance market is sufficiently competitive that avoidance is a superior instrument to evasion in reducing a taxpayer's liability (i.e., $\partial R/\partial A > \partial R/\partial E$), a further increase in the competitiveness of the market for avoidance schemes (a fall in ϕ) induces the wealthiest taxpayer to wish to avoid more, and forces $p(x)$ to shift upwards to maintain truth-telling. When, however, the avoidance market is sufficiently uncompetitive that, in any case, avoidance is unappealing (relative to evasion) as a means of reducing one's tax liability, the audit function becomes independent of ϕ. Similarly, a multiplicative shift in the penalty function (which increases the marginal rate of penalty by a fixed proportion) only affects $p(x)$ when the wealthiest taxpayer wishes to evade rather than to avoid. In this case, evasion becomes more costly at the margin, thereby relaxing the truth-telling constraint. We also see that an increase in social stigma results in a fall in the attractiveness of both evasion and avoidance, allowing $p(x)$ to shift downwards while maintaining honest reporting.

A proportional increase in marginal tax rates (a multiplicative shift of the tax function such that $t(\overline{w}) - t(x)$ increases for every x) increases both the expected benefits and costs of evasion and avoidance, making its effect difficult to anticipate with intuition alone. In the absence of

avoidance, it is well-known that the standard model of tax compliance of Yitzhaki (1974) predicts that an increase in the marginal tax rate decreases the incentive to evade, which implies (in a model without avoidance) that the tax authority would therefore be able to shift the audit function downwards while still achieving truthful reporting. In columns 1 and 2 of Table 1, we observe the opposite result: as marginal tax rates increase, the audit function increases. To understand this result, first consider the corner solution $A^* = 0$. Here, what is crucial is how the expected return to evasion responds to a multiplicative shift of the tax function. As $t(0) = 0$, a multiplicative shift can equally be thought of as an anti-clockwise pivot of $t(\cdot)$ around the origin (intercept). Hence, we may write $t(\cdot)$ as $\varepsilon t(\cdot)$, and then consider $\lim_{\varepsilon \to 1} \partial R/\partial\varepsilon|_{A=0}$

$$\lim_{\varepsilon\to 1}\frac{\partial R}{\partial\varepsilon}|_{A=0}=\left[t'(w)-t'(w-E)\right]\left[1-pf'\left(t(w)-t(x)\right)\right]>0.$$

Hence, when $A^* = 0$, evasion is made more attractive by stiffening marginal tax rates. When $A^* = w - x$, it is instead crucial how the expected return to avoidance responds to a multiplicative shift of the tax function. We have:

$$\lim_{\varepsilon\to 1}\frac{\partial R}{\partial\varepsilon}|_{A=w-x}=\left[1-p-\varphi\right]\left[t(w)-t(w-A)\right]>0, \tag{8}$$

which implies that the audit function must shift upwards to restore the expected return to zero. Noting from (6) that $1 - p - \phi > 0$ is the condition for avoidance to be gainful in expectation, (8) implies that, when avoidance is gainful in expectation, a multiplicative shift of the tax function will increase the expected return to avoidance.

Having established that a linear penalty function always leads to a corner A^*, we now examine the case in which the penalty function is kept general. In particular, we are interested in understanding the conditions under which $A^* \in (0, w - x)$. An alternative approach to differentiating $p(x; A, w)$ directly (as we did above) is to exploit the observation that $R(A^*, E^*) = 0$. The implicit function theorem (IFT) then implies that (10) and (11) can also be rewritten more generally as

$$\frac{\partial p(x;A,w)}{\partial z}=\frac{\left[\frac{\partial w^a}{\partial z}-\frac{\partial w^n}{\partial z}\right]p(x;A,w)+\frac{\partial w^n}{\partial z}-\frac{\partial w^h}{\partial z}}{w^n-w^a+s};\qquad z\in\{A,w\}, \tag{9}$$

giving

$$\frac{\partial p(x;A,w)}{\partial A}=\frac{\{p(x;A,w)[f'-1]-\varphi\}t'(x+A)}{w^n-w^a+s}; \tag{10}$$

$$\frac{\partial p(x;A,w)}{\partial w}=\frac{[1-p(x;A,w)f']t'(w)}{w^n-w^a+s}. \tag{11}$$

Using (10), at a stationary point for A, we have

$$p(x;A^*,w)=\frac{\varphi}{f'-1}, \tag{12}$$

and, from (11), at a stationary point for w, we have

$$p(x;A,w^*)=\frac{1}{f'}. \tag{13}$$

To verify when these define a maximum, we use (10) and (11) to compute the second derivatives at a stationary point as

$$\frac{\partial^2 p(x;A,w)}{[\partial A]^2}\Big|_{\frac{\partial p(x;A,w)}{\partial A}=0}=-\frac{p(x;A,w)\left[t'(x+A)\right]^2 f''}{w^n-w^a+s}; \tag{14}$$

$$\frac{\partial^2 p(x;A,w)}{[\partial w]^2}\Big|_{\frac{\partial p(x;A,w)}{\partial w}=0}=-\frac{p(x;A,w)\left[t'(w)\right]^2 f''}{w^n-w^a+s}. \tag{15}$$

Inspecting equations (14) and (15), we see that their sign is the sign of f'', so for an interior maximum with respect to one or both of A and w, it must hold that $f''>0$. We now investigate the case in which $A^* \in (0, w-x)$:

Lemma 1 *If*

(i) $A^* \in (0, w-x)$ *then* $p(x)f'<1<[1-\varphi]f'$ *and* $p(x)<1-\varphi$;
(ii) $w^* \in (x+A, \overline{w})$ *then* $p(x)f'=1>1-\phi$.

Lemma 1 implies that both the expected marginal returns to avoidance and evasion must be positive when A^* is an interior value, whereas, when w^* is an interior value, it holds that $\partial R(A, E)/\partial E=0>\partial R(A, E)/\partial A$. Define $\varepsilon_f(z)=zf'(z)/f(z)$ to be the elasticity of the penalty function with respect to evaded tax. With Lemma 1 in hand, we have the following proposition:

Proposition 3

(i) If $A^* \in (0, w-x)$*, a necessary condition for which is that* $s>\varepsilon_f(t(\overline{w})-t(x+A^*))-1$*, then*

$$p(x)=\frac{\varphi}{f'\left(t(\overline{w})-t(x+A^*)\right)-1};$$

$$w^*=\overline{w};$$

(ii) If $w^* \in (x+A, \overline{w})$*, a necessary condition for which is that* $s<\varepsilon_f(t(\overline{w})-t(x+A^*))-1$*, then*

$$p(x)=\frac{1}{f'\left(t(w^*)-t(x)\right)};$$

$$A^*=0.$$

According to Proposition 3, the assumed level of social stigma leads to two different characterisations of optimal enforcement. For lower levels of stigma, the critical taxpayer is not

the taxpayer with the highest wealth, but this taxpayer becomes the critical taxpayer above a critical level of stigma.

The finding in part (i) of the proposition is illustrated in Figure 1. We depict $p(x)$ in panel (a), the associated $\{A^*, E^*, w^*\}$ in panel (b), and the expected marginal returns (denoted R_A and R_E for brevity) drawn at $p = p(x)$ and $E = E^*$ in panel (c). The figure is drawn for a linear tax function, $t(v) = 0.3v$, a quadratic penalty function of the form $f(k) = [1.1 + k/2]k$, $\phi = 0.2$, $s = 3$, and $\bar{w} = 10$. For $x \in [0, \hat{x})$ A^* is interior – so $p(x)$ is as in part (a) of Proposition 3. For $x \geq \hat{x}$ $A^* = 0$ – so $p(x)$ is as in Proposition 1.

In panel (a) of Figure 1, we see that $p(x)$ is decreasing and concave in x. Consistent with Lemma 1, we see that the audit function lies below $1/f'$, which is itself bounded above by $1 - \phi$. In panel (b), A^* is initially decreasing and concave in x, and E^* is initially increasing and convex in x. In panel (c), the expected marginal return to avoidance is seen to be constant in x. This is due to the choice of a linear fine rate; more generally, it is seen from (6) that tax avoidance displays increasing/constant/diminishing marginal returns as the tax function is regressive ($t'' < 0$)/linear ($t'' = 0$)/progressive ($t'' > 0$). To understand the shape of the expected marginal return to evasion, observe that the variation of the expected marginal return to evasion at different levels of evasion is given at the optimum by

$$\frac{\partial^2 R}{\partial E^2}\Big|_{\frac{\partial R(A,E)}{\partial A}=\frac{\partial R(A,E)}{\partial E}} = \frac{\partial^2 R}{\partial A^2} - p(x)\left[t'\left(w - E^*\right)\right]^2 f''.$$

As $f'' > 0$ at an interior A^*, it must hold that $\partial^2 R/\partial E^2 < \partial^2 R/\partial A^2$, as seen in Figure 1.

The finding in part (ii) of the proposition (w^* interior) is illustrated in Figure 2. Figure 2 is analogous to Figure 1 but, to ensure an interior solution for w^*, we now set $s = 0.1$. For $x \in [0, \hat{x})$ A^* is interior – so $p(x)$ is as in part (ii) of Proposition 3. For $x \geq \hat{x}$ $A^* = 0$ – so $p(x)$ is as in Proposition 1. In Figure 2(a), we see that $p(x)$ is initially independent of x, but falls rapidly in a concave manner after w^* reaches the upper bound $w^* = \bar{w}$. In this example, $\partial w^*/\partial x = 1$ in panel (b), but we shall show that, more generally, $\partial w^*/\partial x = t'(x)/t'(w)$. In panel (c), we see that the expected return to avoidance is negative for all w. The variation of the expected marginal return to evasion in w is given at the optimum by

$$\frac{\partial^2 R}{\partial E \partial w}\Big|_{\frac{\partial R(A,E)}{\partial E}=0} = -p(x)t'(w)t'(w - A - E)f''.$$

As $f'' > 0$ at an interior w^*, it must hold that $\partial^2 R/\partial E\partial w < 0$, as seen in Figure 2.

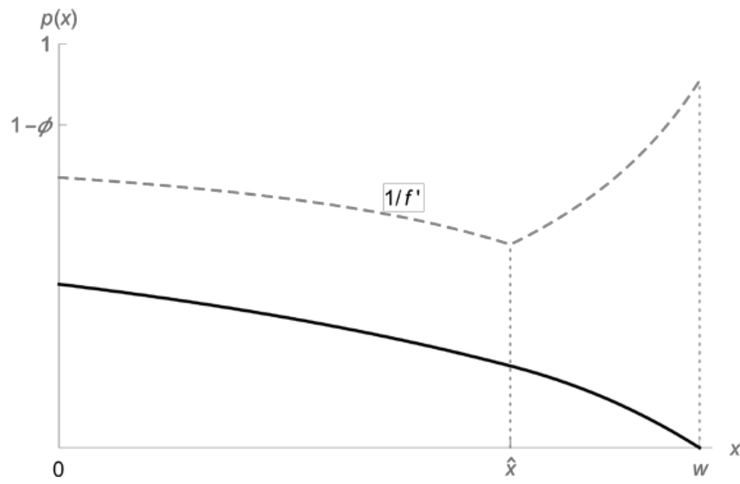

Figure 1(a): Audit function for $A^* \in (0, w^* - x]$.

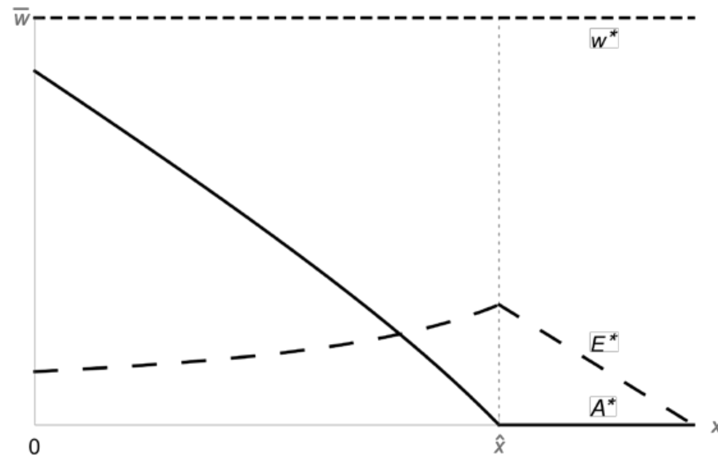

Figure 1(b): $\{A^*, E^*, w^*\}$ for $A^* \in (0, w^* - x]$.

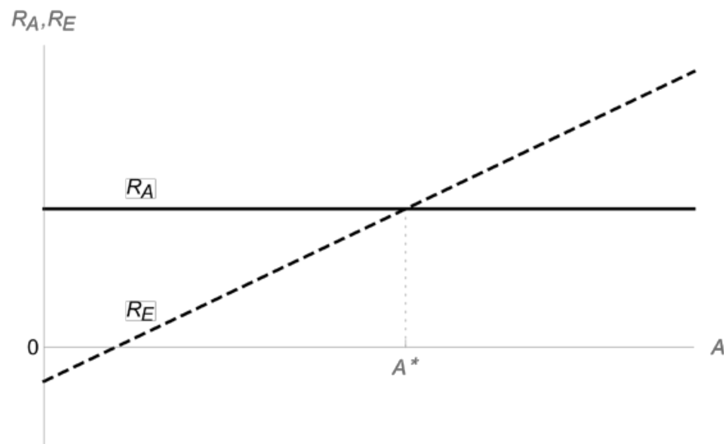

Figure 1(c): Expected marginal return to avoidance and evasion for $A^* \in (0, w^* - x)$.

We now formally investigate the comparative statics of the two cases analysed above:

Proposition 4 *In an equilibrium in which either A^* or w^* takes an interior value, the comparative statics of $\{A^*, p(x), w^*\}$ are given as in columns 3 and 4 of Table 1.*

When A^* takes an interior value, the results in Table 1 (column 3) for the comparative statics of $p(x)$ are consistent with those obtained in Proposition 2: the audit function is a decreasing function of declared income, shifts downwards with increases in ϕ and s, and shifts upwards in $\bar{w}$. Moreover, $\partial A^*/\partial x$ can be written as

$$\frac{\partial A^*}{\partial x} = -1 - \frac{\{[1-\varphi] f' - 1\} t'(x)}{\left[w^n - w^h\right] t'(x+A) f''} < -1,$$

with the implication that E^* is an increasing function of x (and A^*/E^* is a decreasing function of x). Whether A^*/E^* is an increasing or decreasing function of wealth depends on the shape of the tax function. If the tax function is progressive or linear, it can be shown that $\partial A^*/\partial \bar{w} > 1$, so E^* must fall, but both A^* and E^* may rise if the tax function is regressive.

When w^* takes an interior value, however, the audit function becomes independent of declared income (and this holds for any tax function). The audit function also becomes independent of $\bar{w}$ (as it is not predicated on the wealthiest taxpayer) and of ϕ (as avoidance is dominated by evasion as a means of reducing tax liability). In both types of interior optimum, a steepening of the penalty function shifts the audit function downwards.

We now return to the question of the effects of a proportional increase in marginal tax rates (a steepening of the tax function – again by means of an anti-clockwise pivot about the intercept). Matching our finding in Proposition 2 for the case of a corner solution, the findings in Table 1 predict the opposite of the Yitzhaki (1974) finding: as marginal tax rates increase, the tax authority must shift the audit function upwards to maintain truthful reporting. This finding is of note as Yitzhaki's result is not only paradoxical intuitively, but much empirical and experimental evidence finds a negative relationship between compliance and the tax rate (see, for example, Bernasconi et al., 2014, and the references therein).[12] In interpreting this result, it is of importance to note that the Yitzhaki (1974) model can be augmented with a constant utility cost due to social stigma – as in our model – without affecting the direction of the relationship between marginal tax rates and non-compliance.[13] This difference between models is not, therefore, a part of the explanation of our differing findings. Rather, the reversal of Yitzhaki's finding relies on the idea that, even in cases where evasion becomes less attractive following an increase in marginal tax rates, tax avoidance will become more attractive for sure. Thus the overall incentives for non-compliance grow, even if the incentives for evasion weaken.

We illustrate this point graphically in Figure 3a, which shows the effect on the expected marginal returns to evasion (R_E) and avoidance (R_A) of a multiplicative shift of a (linear) tax function.

[12] See also Piolatto and Rablen (2017) for a detailed analysis of Yitzhaki's finding, and when it is and is not overturned.

[13] If, however, social stigma is viewed as a monetary, rather than utility cost, then a negative relationship between compliance and the marginal tax rate can emerge in the Yitzhaki framework when the stigma cost is sufficiently high (see, e.g., al-Nowaihi and Pyle, 2000).

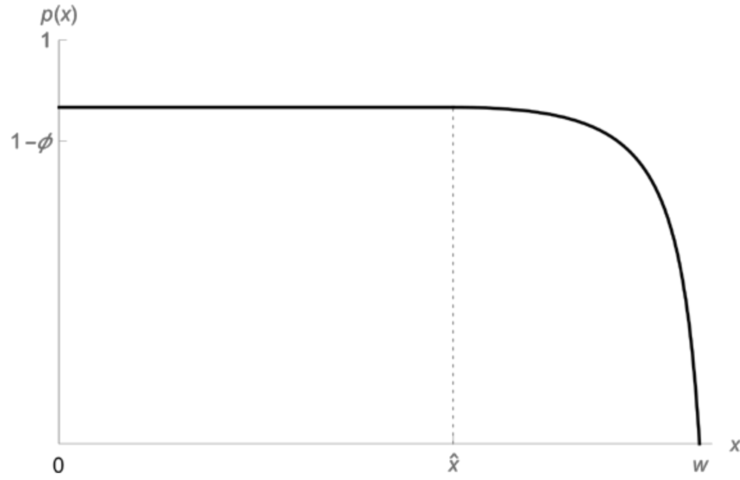

Figure 2(a): Audit function for $w^* \in (x + A^*, \bar{w}]$.

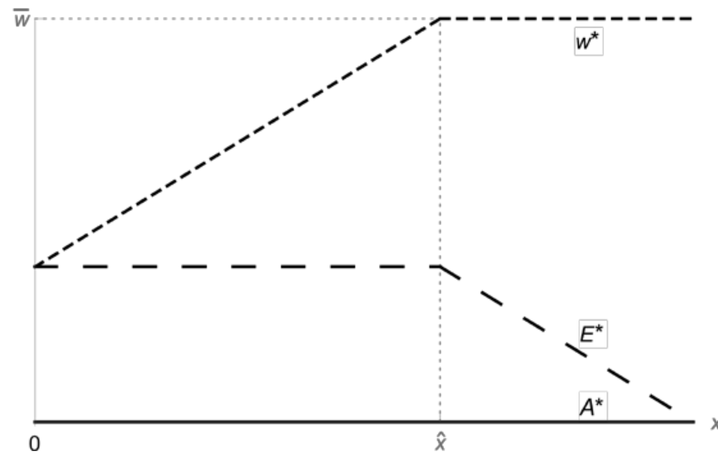

Figure 2(b): $\{A^*, E^*, w^*\}$ *for* $w^* \in (x + A^*, \bar{w}]$.

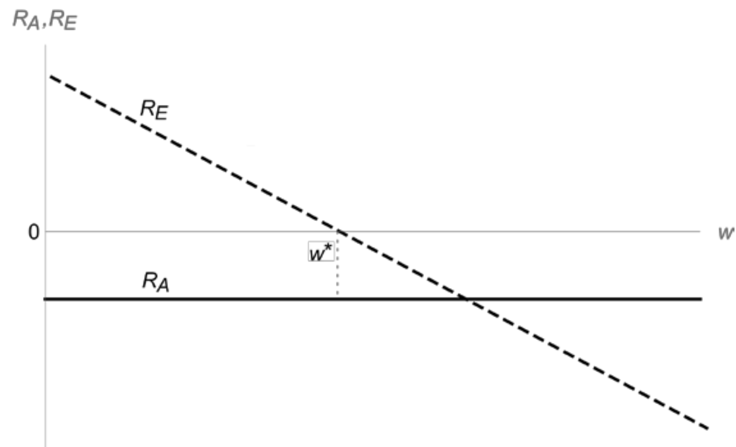

Figure 2(c): Expected marginal return to avoidance and evasion for $w^* \in (x + A^*, \bar{w})$.

Specifically, we increase the marginal tax rate from $t^{-} = 0.2$ to $t^{+} = 0.7$ in the model specification used in Figure 1. The increase in marginal tax rates is seen to increase the expected marginal return to avoidance, so that the overall expected marginal return to non-compliance at the optimum is increased (making $p(x)$ higher).

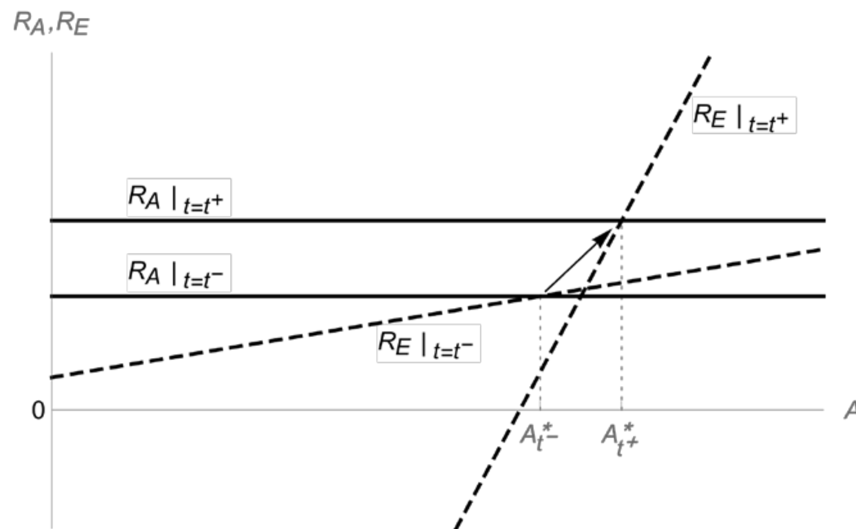

Figure 3a: Effect of a multiplicative shift in the tax function on the expected marginal return to avoidance and evasion – risk neutral case.

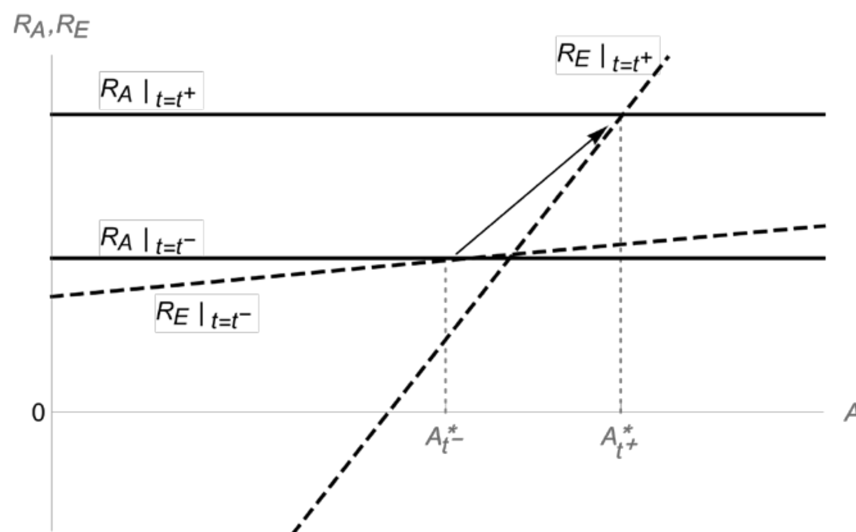

Figure 3b: Effect of a multiplicative shift in the tax function on the expected marginal return to avoidance and evasion – risk aversion case ($U(z) = z^{2/3}$).

In this case, the expected marginal return to evasion does not uniformly increase or decrease but, rather, evasion becomes subject to stronger diminishing marginal returns (recall that evasion and avoidance are inversely related for a fixed x, so the amount of evasion increases from right to left in Figure 3).

EXTENSIONS

In this section, we consider a range of realistic extensions to the model in the previous section. As, however, these extensions reduce (often substantially) the tractability of the model, we proceed here with solved examples, rather than general analytic solutions. As a key feature of our analysis is the incorporation of tax avoidance, we herein focus on the case in which the incentive compatibility constraints bind for an interior level of avoidance.

Optimal Auditing

We now revisit the finding of Chander and Wilde (1998) that regressive tax functions are more efficient than progressive tax functions (in the sense that they cost less to enforce). In Figure 4, we show $p(x)$ for the linear ($t'' = 0$), regressive ($t'' < 0$), and progressive ($t'' > 0$) cases.[14] As in previous figures, A^* is interior for $x < \hat{x}$ and $A^* = 0$ for $x \geq \hat{x}$. We see that the audit function in the progressive case is everywhere above the audit function in the regressive case.

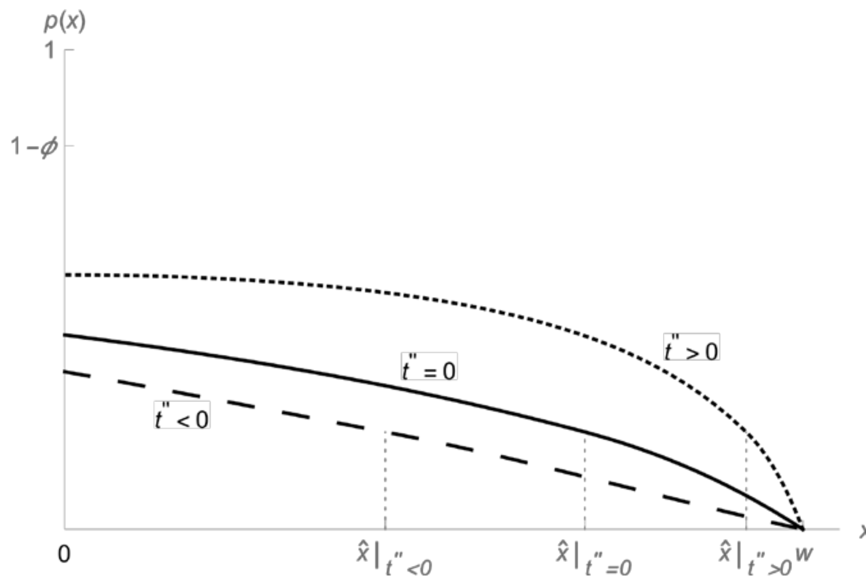

Figure 4: Audit function for a progressive, linear, and regressive tax function.

Hence, the model retains Chander and Wilde's finding regarding the desirability of regressive taxation from an enforcement cost perspective. Our finding is not significantly altered if we instead employ the alternative formulation of the model, whereby $t(x + E) - t(x)$ is considered the evaded tax and $t(w) - t(w - A)$ is considered to be the avoided tax.

[14] The specific functions depicted are $t(v) = 0.3v$ (linear case); $t(x) = 0.3v - 0.01v^2$ (regressive case); and $t(v) = 0.06v^2$ (progressive case).

Risk Aversion

So far we have restricted the utility function to be linear. More generally, however, much evidence points towards risk aversion, which implies a utility function satisfying $U'' < 0$. Figure 5 illustrates $p(x)$ when taxpayers are risk neutral ($U(z) = z$) and when they are risk averse ($U(z) = z^{2/3}$). The audit function under risk aversion is seen to lie everywhere below the equivalent function when taxpayers are risk neutral. To understand this finding, we apply Jensen's inequality to obtain

$$p(x)U^a + [1 - p(x)]U^n = U^h \leq U\left(p(x)[w^a - S] + [1 - p(x)]w^n\right).$$

This inequality implies that $w^h \leq p(x)[w^a - S] + [1 - p(x)]w^n$, which is equivalent to $p(x) \leq [w^n - w^h]/[w^n - w^a + S]$. Under risk neutrality, this inequality binds, so $p(x)$ must necessarily lie below the risk neutral level when risk aversion is introduced.

Furthermore, the audit function under risk neutrality is steeper than under risk aversion. Under risk neutrality, an increase in declared income affects the taxpayer's payoff by the difference between the expected marginal return from truthful declaration and the expected marginal return of the lottery associated with under-declaration. However, if the taxpayer is risk averse, the expected marginal utility of an increase of x will also factor (positively) the reduction of risk. Hence, in the risk aversion case, the audit function is less sensitive to increases in the amount declared.

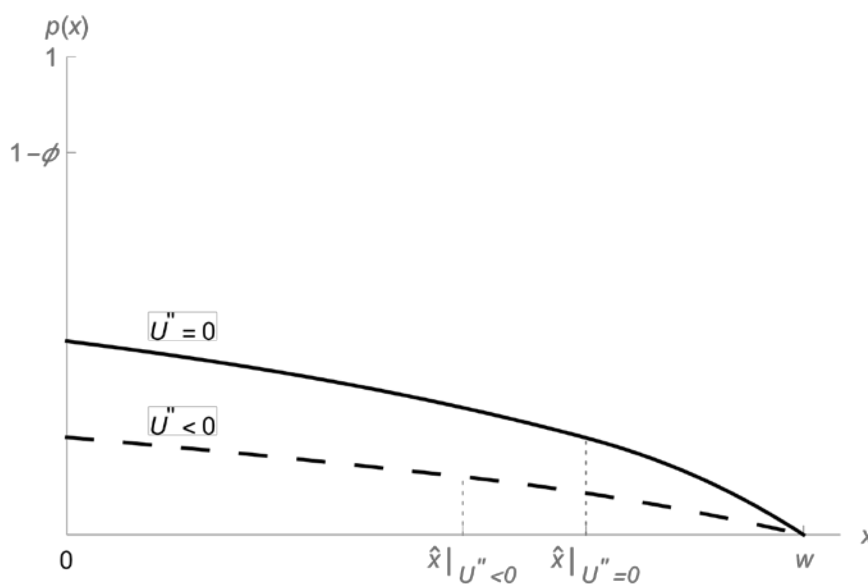

Figure 5: Effect of risk aversion.

Allowing for risk aversion – in particular, decreasing absolute risk aversion – also allows us to demonstrate that the differences in findings in our model and the analysis of Yitzhaki continue to pertain. In Figure 3b, we observe that the tendency for avoidance to become more attractive after a tax rate rise is more pronounced in the presence of risk aversion than without it.

Variable Social Stigma

We now relax the previous assumption of a constant utility cost of social stigma by allowing for this cost to contain a variable component. We write

$$S(w-x)=\begin{cases}0 & \text{if } x=w;\\ s+\psi\left[w-x\right]>0 & \text{otherwise;}\end{cases}$$

where $\psi \geq 0$. When $\psi = 0$, we recover the specification of $S(\cdot)$ used in the previous section. Figure 6 compares the audit function in the two cases: one with a constant social stigma ($s = 3$, $\psi = 0$) and one with variable stigma ($s = 3$, $\psi = 0.9$). As can be seen from Figure 6, the increase in ψ causes $p(x)$ to shift downward and become flatter. While the first effect is due to the absolute increase of the stigma cost, the second one is caused by variation in the marginal stigma cost. Indeed, for a unitary increase of declared income x, the taxpayer reduces his stigma by an amount ψ, hence the reduction in the probability of audit following an increase x is smaller the higher is ψ. In this way, holding the level of stigma constant, stiffer deterrence is needed when the stigma cost is dependent on evaded liabilities so as to counteract the stigma-relieving effect of an increase in the declaration.

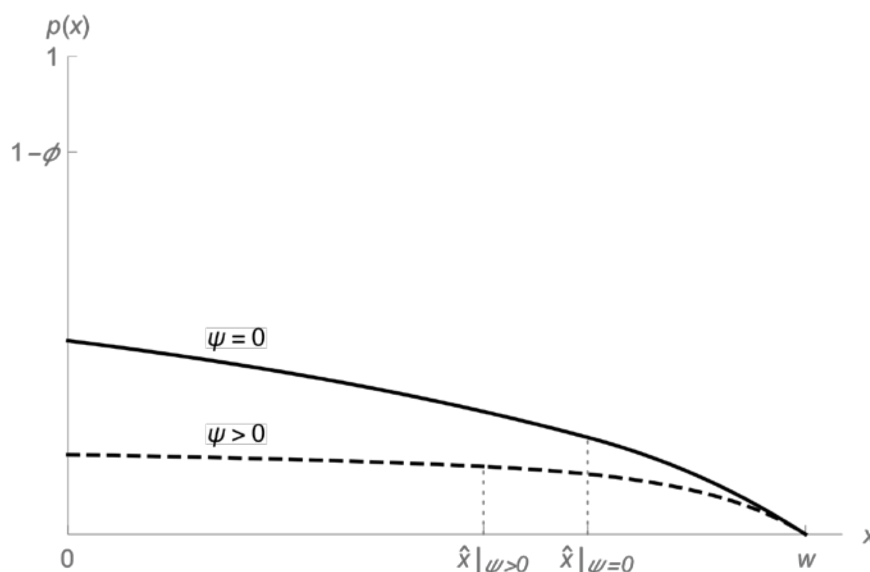

Figure 6: Effect of a variable component to social stigma.

CONCLUSION

In this article, we investigated how accounting for the ability of individuals to avoid tax, as well as to evade tax, alters the conclusions for optimal auditing of models in which only tax evasion is possible. The nature of the avoidance activity we consider is not explicitly prohibited by law, but is unacceptable to the tax authority. Accordingly, if the tax authority learns of the avoidance, it moves (successfully in our model) to outlaw it ex-post.

Some key features of the literature that considers only evasion are preserved: we find that the

audit function is a non-increasing function of declared income and, as in Chander and Wilde (1998), less enforcement is required to enforce a regressive tax than to enforce a progressive tax. The model does, however, also yield new insights, in particular around the relationship between tax compliance and marginal tax rates. The evasion-only literature has encountered the so-called "Yitzhaki puzzle", whereby stiffer marginal tax rates decrease incentives to be non-compliant. In our framework, however, the opposite applies: incentives to be non-compliant increase with marginal tax rates. The key to this result is that the incentives to avoid tax unambiguously increase following an increase in marginal tax rates. Thus, even though the incentives for evasion may worsen, the tax system becomes more costly to enforce, and overall compliance falls unless enforcement is stiffened.

We are also able to understand further questions, such as "which taxpayers are the most difficult (expensive) to make compliant?" and "should tax auditing be geared to preventing avoidance or evasion?". With regard to the first question, we find that, in plausible circumstances, it is the wealthiest taxpayer who is the most difficult to make compliant. While we know of no direct empirical evidence on this matter, our result chimes with the findings of attitudinal research regarding perceptions of the compliance of the rich (e.g. Wallschutzky, 1984; Citrin, 1979). The answer to the second question depends critically on: (i) the level and shape of the penalties for evasion; and (ii) the competitiveness of the market for avoidance schemes (for this determines the share of the possible proceeds from avoidance that must be paid as a fee). If the penalty function is linear or concave then, irrespective of the tax function, a non-compliant taxpayer will engage purely in avoidance, or purely in evasion. Thus, enforcement is focussed entirely on one form of non-compliance or the other. When, however, the penalty function is convex (which seems quite likely empirically, given that smaller cases of tax evasion are typically punished through fines, but larger cases are punished through prison sentences), a non-compliant taxpayer may simultaneously want to avoid and evade tax, so enforcement must reflect both of these possibilities. We have shown that a taxpayer's preferred mix of avoidance and evasion moves in favour of avoidance as reported income decreases, as the competitiveness of the market for avoidance schemes increases, and as the social stigma associated with tax non-compliance falls.

We close with some avenues for future research. Firstly, it would be of interest to allow for imperfect audit effectiveness, as in Rablen (2014), and Snow and Warren (2005a; 2005b), for it might be that evasion and avoidance differ in the amount of tax inspector time required to detect them. Secondly, it might also be of interest to model the market for avoidance more carefully. In practice, there are a range of providers of tax advice, ranging from those who solely offer tax planning, to those who are willing to offer aggressive (or even criminal) methods, making it important to understand the separate supply-side and demand-side effects. A last suggestion is to explore the effects of different forms of avoidance. We assume that avoidance permits some amount of income to be hidden from the tax authority, but an alternative modelling approach might be to assume that it allows some amount of income to be taxed at a lower rate.

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APPENDIX

Proof of Proposition 1: For each value of x, we wish to maximise $p(x; A, w)$ in (3) with respect to A and w (allowing the suppressed variable E to vary). First, maximising with respect to A, the first order condition for a maximum is

$$\frac{\partial p(x;A,w)}{\partial A} = -\frac{\{\varphi s + \{\varphi - h[1-\varphi]\}[t(w)-t(x)]\}t'(A+x)}{\{[1+h][t(w)-t(A+x)] + t(A+x) - t(x) + s\}^2}. \qquad (A.1)$$

Then (A.1) implies that $A^* = 0$ when

$$\varphi > \hat{\varphi} = \frac{h[t(w)-t(x)]}{s + [1+h][t(w)-t(x)]},$$

and $A^* = w - x$ when $\phi < \hat{\varphi}$. When $\phi = \hat{\varphi}$, all feasible values of A weakly maximise $p(x; A, w)$. Taking the case $\phi > \hat{\varphi}$ first, to find $p(x)$, we now maximise $p(x; 0, w)$ with respect to w. The first derivative with respect to w is

$$\frac{\partial p(x;0,w)}{\partial w} = \frac{st'(w)}{\{[1+h][t(w)-t(x)] + s\}^2} > 0, \qquad (A.2)$$

so $w^* = \overline{w}$. In the case $\phi < \hat{\varphi}$, the relevant first derivative with respect to w is

$$\frac{\partial p(x;w-x,w)}{\partial w} = \frac{s[1-\varphi]t'(w)}{[t(w)-t(x)+s]^2} > 0, \qquad (A.3)$$

so again $w^* = \overline{w}$.

Proof of Proposition 2: Differentiating in (4), we obtain that, if $A^* = 0$, then

$$\frac{\partial p(x)}{\partial \overline{w}} = \frac{t'(\overline{\text{w}})[1-p(x)]f'}{f+s} > 0;$$

$$\frac{\partial p(x)}{\partial x} = -\frac{[1-p(x)f']t'(\overline{\text{w}})}{f+s} < 0;$$

$$\frac{\partial p(x)}{\partial s} = -\frac{p(x)}{f+s} < 0;$$

$$\frac{\partial p(x;\varepsilon f)}{\partial \varepsilon} = -\frac{p(x)f}{f+s} < 0;$$

$$\frac{\partial p(x,\varepsilon t)}{\partial \varepsilon} = p(x)[1 - p(x) f'] > 0;$$

$$\frac{\partial p(x)}{\partial \varphi} = 0.$$

The comparative statics when $A^* = w - x$ follow similarly.

Proof of Lemma 1: (i) We first prove $p(x)f' < 1$. From (11), (13) and (15), if there exists a $\hat{w} \leq \overline{w}$ such that $p(x; A, w)$ attains the value $p(x; A, \hat{w}) = [f'(t(\hat{w}) - t(x + A))]^{-1}$ then $p(x; A, \hat{w}) = max_w\ p(x; A, w)$ – for if (10) defines a maximum in A, as assumed, then (10) defines a maximum in w. $p(x; A, \hat{w})$ is maximised in A when $\hat{A} = 0$ (as $f'' > 0$ for there to be an interior A^*), so $\hat{w} \neq w^*$ for, by assumption, if it were that $\hat{w} = w^*$ then $p(x; A, \hat{w})$ would be maximised for an interior value of A.

Hence we have $[f'(t(\hat{w}) - t(x + A^*))]^{-1} > p(x; A^*, w^*) = p(x)$. As this will hold for every $\hat{w}$, we have $p(x)f' < 1$. If $\partial p(x; A, w)/\partial w > 0$ everywhere then there does not exist a $\hat{w} \leq \overline{w}$ such that $\partial p(x; A, w)/\partial w = 0$. We note that it cannot be that $\partial p(x; A, w)/\partial w < 0$ everywhere, as $\partial p(x; A, w)/\partial w|_{A = w - x = 0} = \phi\, t'(x)/[s + f(0)] > 0$. In this case, $p(x; A, w)$ is maximised at $w = \overline{w}$ and satisfies $p(x; A, \overline{w}) < [f'(t(\overline{w}) - t(x + A))]^{-1}$. An analogous argument to that above then establishes that $p(x)f' < 1$. Then, from (12), we may set $p(x) = \phi[f' - 1]^{-1}$ in $p(x)f' < 1$ to obtain $[1 - \phi]\, f' > 1$. That $p(x) < 1 - \phi$ follows immediately. Part (ii) follows by similar arguments.

Proof of Proposition 3: Using (10), the effect of w on $p(x; A, w)$ when $\partial p(x; A, w)/\partial A = 0$ is given by

$$\frac{\partial p(x;A,w)}{\partial w}\Big|_{\frac{\partial p(x;A,w)}{\partial A}=0} = \frac{[1-\varphi - p(x;A,w)]t'(w)}{w^n - w^a + s} > 0;$$

where the inequality follows from Lemma 1. This implies that when A^* is interior, w^* is maximal. Substituting $w = \overline{w}$ in (12), we therefore obtain

$$p(x) = \frac{\varphi}{f'\left(t(\overline{w}) - t\left(x + A^*\right)\right) - 1}.$$

From (10) and Lemma 1, we have

$$1 - p(x) - \varphi = \frac{s + f\left(t(\overline{w}) - t\left(x + A^*\right)\right) - \left[t(\overline{w}) - t\left(x + A^*\right)\right] f'\left(t(\overline{w}) - t\left(x + A^*\right)\right)}{s + f\left(t(\overline{w}) - t\left(x + A^*\right)\right) + \left[t\left(x + A^*\right) - t(x)\right] f'\left(t(\overline{w}) - t\left(x + A^*\right)\right)} > 0.$$

Hence, it must hold that $s > \varepsilon_f\,(t(\overline{w}) - t(x+A^*)) - 1$, where $\varepsilon_f\,(z) = zf'\,(z)/f\,(z)$ is the elasticity of the penalty function with respect to evaded tax, so interior values of A^* arise for sufficiently high social stigma costs.

Using (11), the effect of A on $p(x; A, w)$ when $\partial p(x; A, w)/\partial w = 0$ is given by

$$\frac{\partial p(x;A,w)}{\partial A}\Big|_{\frac{\partial p(x;A,w)}{\partial w}=0} = \left[1-p(x;A,w)-\varphi\right]t'\left(x+A\right)<0.$$

This implies that when w^* is interior, A^* takes its minimum possible value of zero. Substituting $A = 0$ in (13), we therefore obtain

$$p(x)=\frac{1}{f'\left(t\left(w^*\right)-t\left(x\right)\right)}.$$

From (11), we have

$$1-p(x)-\varphi=1-\frac{\left[t\left(w^*\right)-t\left(x\right)\right]f'\left(t\left(w^*\right)-t\left(x\right)\right)}{s+f\left(t\left(w^*\right)-t\left(x\right)\right)}<0. \quad \text{(A. 4)}$$

As (A. 4) is negative, it must be that $s < \varepsilon_f\ (t(w^*) - t(x)) - 1$. Hence, w^* is interior when a sufficiently low level of social stigma prevails, whereas A^* is interior when a sufficiently high level of social stigma prevails.

Proof of Proposition 4: The comparative statics of a pivot around $(k, f(k)) = (0, 0)$ are found by writing $f(\cdot)$ as $\varepsilon f(\cdot)$, differentiating with respect to ε, and then examining the resulting derivative as $\varepsilon \rightarrow 1$. The pivot of the tax function is performed analogously. The comparative statics of a shift of the tax function are found by replacing $t(\cdot)$ with $t(\cdot) + \varepsilon$, differentiating with respect to ε, and then examining the resulting derivative as $\varepsilon \rightarrow 0$. When $A^* \in (0, w - x)$, we use the implicit function theorem in (10) to obtain:

$$sgn\left(\frac{\partial A^*}{\partial s}\right)=-sgn\left(\varphi t'(A+x)\right)<0;$$

$$sgn\left(\frac{\partial A^*}{\partial \varphi}\right)=-sgn\left(f+[t(A+x)-t(x)]f'+s\right)<0;$$

$$sgn\left(\frac{\partial A^*}{\partial \overline{w}}\right)=sgn\left([1-\varphi]f'-1+[w^n-w^h]f''\right)>0;$$

$$sgn\left(\frac{\partial A^*}{\partial x}\right)=-sgn(\left\{[1-\varphi]f'-1\right\}t'(x)+[w^n-w^h]t'(A+x)f'')<0;$$

$$sgn\left(\frac{\partial A^*(\varepsilon f)}{\partial \varepsilon}\right)=sgn(s\varphi+t(\overline{w})-t(x))>0;$$

$$sgn\left(\frac{\partial A^*(\varepsilon t)}{\partial \varepsilon}\right)=sgn([t(\overline{w})-t(A+x)][w^n-w^h]f''+\{[1-\varphi]f'-1\}[t(\overline{w})-t(x)]>0;$$

and when $w^* \in (x, x + A)$ we use the IFT in (11) to obtain

$$sgn\left(\frac{\partial w^*}{\partial s}\right) = sgn\left(t'(w^*)\right) > 0;$$

$$sgn\left(\frac{\partial w^*(\varepsilon f)}{\partial \varepsilon}\right) = -sgn\left(\frac{st'(w^*)}{[f+s]^2}\right) < 0;$$

$$sgn\left(\frac{\partial w^*}{\partial x}\right) = sgn\left(\frac{t'(x)}{t'(w^*)}\right) > 0;$$

$$sgn\left(\frac{\partial w^*}{\partial \overline{\mathrm{w}}}\right) = sgn\left(0\right) = 0;$$

$$sgn\left(\frac{\partial w^*(\varepsilon t)}{\partial \varepsilon}\right) = -sgn\left(\frac{f''t'(w^*)}{[f']^2}\right) < 0;$$

$$sgn\left(\frac{\partial w^*}{\partial \varphi}\right) = sgn(0) = 0.$$

Turning to $p(x)$, we use the IFT in (2) along with (10) or (11) to obtain:

$$sgn\left(\frac{\partial p(x)}{\partial s}\right) = -sgn(w^n - w^h) < 0;$$

$$sgn\left(\frac{\partial p(x;\varepsilon f)}{\partial \varepsilon}\right) = -sgn([w^n - w^h]f) < 0;$$

$$sgn\left(\frac{\partial p(x)}{\partial x}\right) = \begin{cases} -sgn\left(\dfrac{1-p(x)-\varphi}{w^n - w^c + s}\right) < 0 & \text{if } A^* \in \left(0, w-x\right); \\ sgn(0) = 0 & \text{if } w^* \in \left(x, x+A\right); \end{cases}$$

$$sgn\left(\frac{\partial p(x)}{\partial \overline{w}}\right) = \begin{cases} sgn(\{[1-\varphi]f'-1\}) > 0 & \text{if } A^* \in \left(0, w-x\right); \\ sgn(0) = 0 & \text{if } w^* \in \left(x, x+A\right); \end{cases}$$

$$sgn\left(\frac{\partial p(x;\varepsilon t)}{\partial \varepsilon}\right) = \begin{cases} sgn([1-\varphi]f'-1) > 0 & \text{if } A^* \in \left(0, w-x\right); \\ sgn(0) = 0 & \text{if } w^* \in \left(x, x+A\right); \end{cases}$$

$$sgn\left(\frac{\partial p(x)}{\partial \varphi}\right) = \begin{cases} -sgn\left([1-\varphi]f'-1\right) < 0 & \text{if } A^* \in \left(0, w-x\right); \\ sgn(0) = 0 & \text{if } w^* \in \left(x, x+A\right); \end{cases}$$

TABLES

	$A^* = 0$	$A^* = w^* - x$	$A^* \in (0, w^* - x)$		$w^* \in (x + A^*, \overline{w})$	
	$p(x)$	$p(x)$	A^*	$p(x)$	w^*	$p(x)$
x	–	–	–	–	+	0
$\overline{w}$	+	+	+	+	0	0
φ	0	–	–	–	0	0
s	–	–	–	–	+	–
pivot of $f(\cdot)$	–	0	+	–	–	–
pivot of $t(\cdot)$	+	+	+	+	–	0

Table 1: Comparative statics.

TACKLING THE INFORMAL SECTOR IN EAST-CENTRAL EUROPE

Colin C Williams[1], *Ioana A Horodnic*[2]

Abstract

To tackle participation in the informal sector, an emergent literature has called for the dominant deterrence approach, which increases the penalties and risks of detection, to be replaced and/or complemented by a tax morale approach that fosters citizens' commitment to compliance. Applying logistic regression analysis to the results of a Eurobarometer survey of 11 East-Central European countries reveals that, although both approaches reduce the likelihood of participation in the informal sector, deterrence measures reduce participation only when tax morale is low and have little impact when tax morale is high. The paper then discusses the policy implications of these findings.

1. INTRODUCTION

In East-Central Europe, a burgeoning literature has uncovered how employers use the informal sector in multifarious ways to reduce their labour costs, ranging from employing off-the-books workers, through outsourcing to the informal sector, to under-reporting the wages of their formal employees (Williams, Round, & Rodgers, 2013). With an estimated quarter of national income in East-Central Europe, and an equivalent proportion of jobs in the informal sector, not being declared to the authorities (Schneider & Williams, 2013), tackling participation in this sphere is important. However, in contrast to the numerous studies highlighting the extent and nature of the informal sector in East-Central Europe (Aasland, Grødeland, & Pleines, 2012; Kukk & Staehr, 2014; Lukiyanova, 2015; Sauka & Putniņš, 2011; Slonimczyk & Cimpelson, 2015; Torosyan & Filer, 2014; Wallace & Latcheva, 2006; Williams, 2015a, 2015b), rather less attention has been paid to evaluating the different ways in which this sector can be tackled. However, unless effective strategies are developed to tackle the issue of monetary transactions not being declared to the state for tax, social security and/or labour law purposes, not only will governments suffer public revenue losses and have little control over the quality of working conditions, but unfair competition for legitimate businesses will continue to persist (Andrews, Caldera Sanchez, & Johansson, 2011; ILO, 2014; OECD, 2012; TUC, 2008). The aim of this paper, therefore, is to begin to evaluate the two policy approaches that have been proposed for tackling the informal sector.

Until now, the dominant policy approach adopted in East-Central Europe has been one of deterrence which, grounded in a rational economic actor perspective, views participation in the informal sector as occurring when the pay-off is greater than the expected cost of being caught and punished (Allingham & Sandmo, 1972). Consequently, engagement is deterred by increasing the actual or perceived penalties and risks of detection. However, the growing recognition that many citizens do not participate in the informal sector even if the pay-off from participation is greater than the expected costs (Alm, Cherry, Jones, & McKee, 2010; Kirchler, 2007; Murphy, 2008) has begun to lead to the emergence of a 'tax morale' approach, which views engagement in the informal sector as arising when there is a low intrinsic motivation to

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pay taxes (Cummings, Martinez-Vazquez, McKee, & Torgler, 2009; Torgler, 2007a, 2007b). The outcome has been a discussion about whether the conventional deterrence approach should be replaced and/or complemented with an approach that seeks to foster citizens' commitment to compliance (Alm, Kirchler, Muelhbacher, Gangl, Hofmann, Logler, & Pollai, 2012; Alm & Torgler, 2011; Torgler, 2012). Moreover, there is also some emergent recognition that potentially complex interaction effects may exist between increasing the level of penalties and risks of detection, and improving tax morale (Alm et al., 2012).

To evaluate these policy approaches and their interaction effects, therefore, Section 2 introduces the contrasting policy approaches. This displays how governments in East-Central Europe conventionally adopt a deterrence approach based on increasing the penalties and risks of detection, despite the lack of evidence that a deterrence approach is more effective than a tax morale approach. Replacing or combining this with a tax morale approach has, therefore, seldom been considered. Neither is there an understanding of how these approaches interact if used together. To evaluate these contrasting approaches and their interaction effects, therefore, Section 3 introduces the data and methodology used, namely a logistic regression analysis of the results of a 2013 Eurobarometer survey conducted in the 11 East-Central European countries that are member states of the European Union (i.e., Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia). Section 4 then reports the results of the relationship between participation in the informal sector and, on the one hand, the perceived level of penalties and risk of detection and, on the other hand, the level of tax morale, as well as the complex interaction effects. Section 5 discusses the resultant findings in terms of their implications for policy and further research, before conclusions are drawn in Section 6.

At the outset, however, it is necessary to define the informal sector. Here, and reflecting the widespread consensus in both the academic literature and policy circles, the informal sector is defined as paid work that is legal in all respects other than the fact that it is not declared to the authorities for tax, social security or labour law purposes (Aliyev, 2015; Boels, 2014; European Commission, 2007; OECD, 2012; Williams, 2014a, 2014b). If there are additional differences to the formal sector, then it is not part of the informal sector. For example, if the goods and/or services exchanged are illegal (such as illegal drugs), this is not part of the informal sector but part of the wider criminal economy.

2. POLICY APPROACHES TOWARDS THE INFORMAL SECTOR: A REVIEW

It is now recognised that the informal sector is an extensive and persistent feature in East-Central Europe (Kukk & Staehr, 2014; Schneider & Williams, 2013; Williams et al., 2013). There is also recognition that there will be deleterious consequences if the informal sector is not tackled. Economies lose 'natural' competitiveness because productive formal enterprises suffer unfair competition from unproductive informal enterprises (Leal Ordóñez, 2014; Lewis, 2004); governments lose regulatory control over work conditions (ILO, 2014) and tax revenue (Bajada & Schneider, 2005); and customers lack legal recourse and certainty that health and safety regulations have been followed (Williams & Martinez-Perez, 2014). Moreover, informal workers: lack access to credit and financial services; have no entitlement to labour rights such as the minimum wage and sick pay; cannot build up rights to the state pension and other contributory benefits, or access occupational pension schemes; and lack access to health and safety standards, as well as bargaining rights and voice (European Commission, 2007; ILO, 2014; OECD, 2015).

What approaches are available, therefore, for tackling the informal sector? Here, we differentiate two broad but distinct approaches, each of which represents participation in the informal sector in different ways. These are first, a deterrence approach, grounded in a rational economic actor view of participants, that seeks to tackle the informal sector by ensuring that payoff from informal work is outweighed by the costs, and second, a tax morale approach, grounded in a view that participants are social actors and of the informal sector as arising when there is low commitment to compliance. Here, each is considered in turn, along with whether they are viewed as competing or complementary approaches.

Deterrence Approach

The origins of the deterrence approach towards the informal sector lie in the classic utilitarian theory of crime, which views citizens as rational actors who engage in crime when the benefits outweigh the expected penalty and probability of being caught (Bentham, 1788). Becker (1968) popularised this approach towards crime, arguing that by increasing the sanctions and risks of detection confronting those considering or actually disobeying the law, legal behaviour would become the rational choice for citizens. During the early 1970s, this rational actor approach was applied to tax evasion by Allingham and Sandmo (1972) by viewing the non-compliant as rational actors who engage in tax evasion because the benefits are greater than the expected costs of being caught and punished. To change the cost/benefit ratio confronting those engaged in, or thinking about participating in, tax evasion, it was therefore argued that the actual and/or perceived penalties and risks of detection needed to be increased. This deterrence approach was subsequently widely adopted as an approach for explaining and tackling the informal sector (Grabiner, 2000; Gramsick & Bursik, 1990; Hasseldine & Li, 1999; Job, Stout, & Smith, 2007; Lewis, 1982; Milliron & Toy, 1988; Richardson & Sawyer, 2001; Sandford, 1999).

Nevertheless, the evidence that increasing deterrents reduces participation in the informal sector is mixed. Some suggest that increasing the probability of detection reduces the likelihood of engagement in the informal sector, at least for some income groups (Beron, Tauchen, & Witte, 1992; Dubin & Wilde, 1988; Dubin, Graetz, & Wilde, 1987; Kinsey & Gramsick, 1993; Klepper & Nagin, 1989; Slemrod, Blumenthal, & Christian, 2001; Varma & Doob, 1998; Witte & Woodbury, 1985). Similarly, some support the view that increasing fines reduces the informal sector (De Juan, Lasheras, & Mayo, 1994; Elffers & Hessing, 1997; Feld & Frey, 2002; Friedland, 1982; Friedland, Maital, & Rutenberg, 1978; Klepper & Nagin, 1989; Schwartz & Orleans, 1967; Spicer & Lunstedt, 1976; Varma & Doob, 1998; Webley & Halstead, 1986; Wenzel, 2004a, 2004b).

Others, however, argue that increasing penalties either leads to a growth in the informal sector, has no effect, or only has a short-term effect (Elffers & Hessing, 1997; Feld & Frey, 2002; Friedland, 1982; Murphy, 2005; Spicer & Lunstedt, 1976; Varma & Doob, 1998; Webley & Halstead, 1986), and that improving the risks of detection does not result in less non-compliance (Dubin et al., 1987; Dubin & Wilde, 1988; Elffers & Hessing, 1997; Shaw, Slemrod, & Whiting, 2008; Webley & Halstead, 1986). Some also claim it raises the level of non-compliance by breaking down the level of trust between the state and its citizens (Ayres & Braithwaite, 1992; Blumenthal, Christian, & Slemrod, 2001; Brehm & Brehm, 1981; Chang & Lai, 2004; Kagan & Scholz, 1984; Kirchler, Kogler, & Muehlbacher, 2014; Murphy & Harris, 2007; Tyler, Sherman, Strang, Barnes, & Woods, 2007). To evaluate the validity of this deterrence approach, in consequence, the following hypothesis can be tested:

Deterrence hypothesis (H1): the greater the perceived penalties and risk of detection, the lower the participation in the informal sector.

H1a: the greater the perceived penalties, the lower the participation in the informal sector.

H1b: the greater the perceived risks of detection, the lower the participation in the informal sector.

Tax Morale Approach

There has been growing recognition, however, that many comply voluntarily even when the level of penalties and risks of detection suggest that they should not if they were truly rational economic actors (Alm et al., 2010; Kirchler, 2007; Murphy, 2008; Murphy & Harris, 2007). To explain this, a 'tax morale' approach has emerged, which views citizens as social actors and explains engagement in the informal sector to be a consequence of low tax morale, i.e. a low intrinsic motivation to pay taxes (Alm & Torgler, 2006, 2011; Cummings, Martinez-Vazquez, McKee, & Torgler, 2009; McKerchar, Bloomquist, & Pope, 2013; Torgler, 2011; Torgler & Schneider, 2007). Consequently, the objective is to foster the commitment of citizens to comply voluntarily by improving their tax morale, rather than seeking to force them to comply by using threats (Kirchler, 2007; Torgler, 2007a, 2007b, 2011).

The roots of this tax morale approach lie in the work of Georg von Schanz (1890), who first drew attention to the tax contract between the state and its citizens. Some sixty years later, the German 'Cologne school of tax psychology' revived this and constructed measures of tax morale (Schmölders, 1952, 1960, 1962; Strümpel, 1969). Although the emergence of the rational economic actor model from the 1970s resulted in the abeyance of this approach, it has resurfaced since the turn of the millennium (Alm et al., 2012; Kirchler, 1997, 1998, 1999, 2007; Torgler, 2003, 2005a, 2005b, 2006a, 2006b, 2007a, 2007b, 2011). Rather than pursue compliance using deterrence measures in a low commitment, low trust and adversarial culture, using close supervision and monitoring, tight rules, prescribed procedures and centralised structures, this tax morale approach pursues compliance through self-regulation in a high trust, high commitment culture that aligns the values of citizens with the formal rules, so as to engender greater voluntary commitment to compliant behaviour (Alm & Torgler, 2011; Torgler, 2012). It is therefore argued that improvements in tax morale require improvements in certain structural conditions, such as the quality of governance and level of government intervention (Autio & Fu, 2015; Dau & Cuervo-Cazzurra, 2014; Klapper, Amit, Guillen, & Quesdada, 2007; Thai & Turkina, 2014).

As such, when viewed through the lens of institutional theory (Baumol & Blinder, 2008; Efendic, Pugh, & Adnett, 2011; North, 1990), all societies are seen as having formal institutions (codified laws and regulations that define the legal rules of the game) and informal institutions, which are the 'socially shared rules, usually unwritten, that are created, communicated and enforced outside of officially sanctioned channels' (Helmke & Levitsky, 2004, p. 727). Tax morale is seen to provide a measurement of the gap between the formal institutions (here termed 'state morale') and informal institutions (here termed 'civic morale'). When this gap is large, engagement in the informal sector will be more prevalent (Webb, Tihanyi, Ireland, & Sirmon, 2009). To evaluate the validity of this approach, therefore, the following hypothesis can be evaluated:

> *Tax morale hypothesis* (H2): the greater the tax morale, the lower the likelihood of participation in the informal sector.

Interaction Effects: Competing or Complementary Policy Approaches

In East-Central Europe, and as Dekker, Oranje, Renooy, Rosing, & Williams (2010) reveal in a study of senior government officials and social partners on the most important policy approach in their countries, the deterrence approach is seen as the dominant and most effective approach. The vast majority (75%) viewed the increase of penalties and risks of detection as the dominant approach in their countries and 80% also view this as the most effective approach, with the remainder stating that the focus should be upon increasing the benefits of compliant behaviour. None viewed the tax morale approach as the most important or effective.

As such, this tax morale approach has so far found little support in government policy circles, despite the mixed evidence on whether the deterrence approach is effective. Although some of those advocating the tax morale approach have viewed it as an alternative to the deterrence approach (Eurofound, 2013; Williams, 2014a; Williams & Renooy, 2013), most of the tax morale literature has viewed it as complementary. In what has become known as the ‘slippery slope’ approach, it has been argued that governments might pursue not only ‘enforced’ compliance by increasing the penalties and risks of detection and therefore the power of authorities, but also pursue ‘voluntary’ compliance by improving tax morale and therefore trust in authorities (Kirchler, Hoelzl, & Wahl, 2008; Kogler, Muelbacher, & Kirchler, 2015; Kastlunger, Lozza, Kirchler, & Schabmann, 2013; Khurana & Diwan, 2014; Muehlbacher, Kirchler, & Schwarzenberger, 2011; Prinz, Muehlbacher, & Kirchler, 2013; Wahl, Kastlunger, & Kirchler, 2010).

According to the 'slippery slope' approach, when there is no trust in authorities and authorities have no power, the informal sector will be more prevalent. When trust in, and/or the power of, authorities increases, however, the informal sector work reduces.

To illustrate this, Wahl et al. (2010) randomly presented laboratory experiment participants with one of four different descriptions of a fictitious country, in which the authorities are depicted, on the one hand, as either trustworthy or untrustworthy and, on the other hand, as either powerful or powerless. Their results revealed that participants paid significantly more taxes when both power and trust were high. They also revealed that voluntary compliance was highest when the authorities were both trusted and powerful, while enforced compliance was highest when authorities were powerful but not trustworthy. These findings are further reinforced by two additional surveys of real-world taxpayers (Muehlbacher et al., 2011). The outcome appears to be that a combination of greater trust in authorities and the greater power of authorities is the most effective means of tackling the informal sector (Kogler et al., 2015).

However, there is also recognition that increasing the power of authorities and trust in authorities may have complex interaction effects. Applying higher penalties and risks of detection might not always lead to the same outcome. In situations where there is already high tax morale, for example, it is posited that increasing the penalties and risks of detection might lead to greater non-compliance, not least due to a breakdown of trust between the state and its citizens (Ayres & Braithwaite, 1992; Blumenthal et al., 2001; Brehm & Brehm, 1981; Chang & Lai, 2004; Kagan & Scholz, 1984; Kirchler et al., 2014; Murphy & Harris, 2007; Tyler et al., 2007). The intimation, therefore, is that tax morale may moderate the effects of increasing the perceived penalties and risks of detection on participation in the informal sector.

Until now, however, only a few studies have analysed the interaction effect of tax morale and deterrence. Wenzel (2004b) shows that deterrence is only effective when personal norms to comply with tax obligations (defined as personal standards of behaviour the person is motivated to uphold, which is akin to tax morale) are low. A similar tax morale moderation effect is also documented by Cabral, Kotsogiannis & Myles (2015), who find that deterrents (sanctions and detection) play an important role when the morale in the economy is low, but are less important when morale is high. A similar negative association between enforcement and trust in authorities supporting the moderation effect is also reported by Gangl, Hofmann, & Kirchler (2015). To evaluate this moderation effect, therefore, the following hypothesis can be tested:

> *Moderating effects hypothesis* (H3): the effect of perceived penalties and risk of detection on the likelihood of participation in the informal sector is different at varying levels of tax morale.
>
> *H3a:* the effect of perceived penalties on the likelihood of participation in the informal sector is different at varying levels of tax morale.
>
> *H3b:* the effect of perceived risk of detection on the likelihood of participation in the informal sector is different at varying levels of tax morale.

3. METHODOLOGY

Data

In order to analyse the above hypotheses in the context of East-Central Europe, we include data from special Eurobarometer survey no. 402. This survey involved 11,131 face-to-face interviews, which were conducted in April and May 2013 across 11 East-Central European countries that are member states of the European Union. The interviews were conducted in the national language with people aged 15 years and older. In each country, a multi-stage random (probability) sampling methodology was employed, with the number of interviews varying from 500 in smaller countries to 1,500 in the larger nations. This methodology ensured that each country and each level of sample was representative in proportion to its population size in terms of gender, age, region and locality size. A sample weighting scheme was used for the univariate analysis in order to obtain meaningful descriptive results, as recommended in the wider literature (Sharon & Liu, 1994; Solon, Haider, & Wooldridge, 2013; Winship & Radbill, 1994) and the Eurobarometer methodology. However, debate exists as to whether or not to use a weighting scheme for multivariate analysis (Pfefferman, 1993; Sharon & Liu, 1994; Solon et al., 2013; Winship & Radbill, 1994). It was decided, in this instance, not to use a weighting scheme, so as to represent the view of the majority.

In order to investigate this sensitive topic, the face-to-face interviews moved gradually from less sensitive to more sensitive questions. First, participants were asked attitudinal questions regarding their views on the acceptability of various forms of informal work, and also their views on the expected sanctions if caught and the risks of detection. They were then questioned as to whether or not they had purchased goods and services in the informal sector, and finally as to whether or not they had worked in the informal sector. Here, we first focus upon the questions about whether or not they had worked in the informal sector, and then turn our attention to the attitudinal questions asked in order to examine the level of tax morale, and how the participants perceived the penalties and risk of detection in respect to participation in the informal sector.

Variables

The dependent variable used in order to evaluate whether higher penalties and risks of detection and higher levels of tax morale reduce the likelihood of participation in the informal sector in East-Central Europe is whether the interviewee participates in the informal sector. This is a dummy variable with recorded value 1 for persons who answered 'yes' to the following question: 'Apart from a regular employment, have you yourself carried out any undeclared paid activities in the last 12 months?'.

Three explanatory variables are used in order to evaluate the association between participation in the informal sector and the various policy measures. First, to evaluate whether the perceived risk of detection influences the likelihood of participation, a dummy variable is used describing the perceived risk of being detected when participating in the informal sector, with value 0 for a very small or fairly small risk and value 1 for a fairly high or very high risk. Secondly, to evaluate how penalties are associated with the likelihood of participation in the informal sector, a dummy variable is used of the expected sanctions if caught working in the informal sector, with value 0 for the expected sanction being that normal tax or social security contributions will be due, and value 1 for the expected sanction being that normal tax or social security contributions will be due, plus a fine or imprisonment.

Finally, a continuous variable is used based on a 10-point Likert scale in order to evaluate the association between participation in the informal sector and the level of tax morale. Rather than use a single question to assess tax morale, participants are asked to report the acceptability of six types of informal work, where 1 means that they believe it is absolutely unacceptable and 10 means that it is absolutely acceptable. These six types of informal work are:

- An individual is hired by a household for work and s/he does not declare the payment received to the tax or social security authorities, even though it should be declared;
- A firm is hired by a household for work and it does not declare the payment received to the tax or social security authorities;
- A firm is hired by another firm for work and it does not declare its activities to the tax or social security authorities;
- A firm hires an individual and all or a part of the wages paid to him/her are not officially declared;
- Someone receives welfare payments without entitlement;
- Someone evades taxes by not declaring or only partially declaring their income.

An aggregate 'tax morale index' is constructed for each participant by collating their attitudes regarding the acceptability of these six forms of informal work, and weighting their view of the acceptability of each form of informal work equally. The Cronbach's Alpha coefficient of the scale is 0.860, which shows a good internal consistency of the scale (Kline, 2000). Here, this index is used in the original 10-point Likert scale format. Therefore, the lower the index value, the higher the tax morale.

Drawing on past studies that identify the socio-demographic, socio-economic and spatial variables which influence participation in the informal sector (Williams & Horodnic, 2015a, 2015b), the control variables selected are:

- *Gender*: a dummy variable with value 0 for women and 1 for men.
- *Age*: a continuous variable indicating the exact age of a respondent.
- *Occupation*: a categorical variable grouping respondents by their occupation, with value 1 for self-employed, value 2 for employed, and value 3 for not working.
- *Marital status*: a categorical variable for the marital status of the respondent, with value 1 for unmarried individuals, value 2 for married/ remarried individuals or single individuals with partners, value 3 for those separated or divorced, and value 4 for those widowed.
- *People 15+ years in own household*: a categorical variable for people aged 15+ years in the respondent`s household (including the respondent), with value 1 for one person, value 2 for two people, value 3 for 3 people, and value 4 for 4 or more people.
- *Children*: a dummy variable for the presence of children up to 14 years old in the household, with value 0 for individuals with no children and value 1 for those having children.
- *Difficulties paying bills*: a categorical variable for the respondent's difficulties in paying bills, with value 1 for having difficulties most of the time, value 2 for occasionally having difficulties, and value 3 for almost never/never having difficulties.
- *Area*: a categorical variable for the area where the respondent lives, with value 1 for a rural area or village, value 2 for a small or middle-sized town, and value 3 for a large town.

Analytical Methods

A logistic regression analysis was conducted in order to evaluate the association between participation in the informal sector and the perceived penalties and risk of detection, and the level of tax morale. Only information relating to respondents for whom data was available in respect of each and every control variable was analysed, resulting in 7,141 participants being examined. The results follow.

4. FINDINGS

Of the 7,141 participants interviewed in these 11 East-Central European countries, 4% reported engaging in the informal sector in the past 12 months (see Table 1). Even if this is a lower-bound estimate due to the fact that the issue of participation in the informal sector is a sensitive one, 1 in 26 of these East-Central European countries' citizens reported participating in the informal sector in the past year. The level of participation, moreover, varies across countries. Estonia and Latvia have the highest reported levels of participation in the informal sector (13% and 12% respectively), compared with 7% in Croatia, Lithuania and Slovenia, 5% in Bulgaria, Czech Republic, Hungary and Slovakia, 4% in Romania and 3% in Poland.

Table 1. Participation in informal sector: by expected sanctions, detection risk, and tax morale in East-Central Europe (N = 7,141)

	East-Central Europe	Country:										
		Estonia	Latvia	Croatia	Lithuania	Slovenia	Bulgaria	Czech Republic	Hungary	Slovakia	Romania	Poland
Engaged in informal sector (%)	4	13	12	7	7	7	5	5	5	5	4	3
Expected sanctions (%)												
Tax or social security contributions due	46	37	60	43	69	43	28	23	35	51	56	56
Tax or social security contributions + fine or prison	54	63	40	57	31	57	72	77	65	49	44	44
Detection risk (%)												
Very small/ Fairly small	75	72	76	79	60	86	91	79	40	62	73	91
Fairly high/ Very high	25	28	24	21	40	14	9	21	60	38	27	9
Tax morale	4.1	3.8	5.0	2.7	4.7	3.2	3.7	4.6	3.6	5.5	3.6	4.4
Not engaged in informal sector (%)	96	87	88	93	93	93	95	95	95	95	96	97
Expected sanctions (%)												
Tax or social security contributions due	40	40	47	48	46	38	16	24	19	27	36	61
Tax or social security contributions + fine or prison	60	60	53	52	54	62	84	76	81	73	64	39
Detection risk (%)												
Very small/ Fairly small	58	46	67	65	46	83	67	74	55	56	59	52
Fairly high/ Very high	42	54	33	35	54	17	33	26	45	44	41	48
Tax morale	2.6	2.6	3.5	2.0	2.8	2.0	2.2	2.9	2.8	2.8	2.3	2.8

Table 1 also shows the differences in perception of the expected sanctions, risks of detection and tax morale between those who engage in the informal sector and those who do not. Those engaging in the informal sector are more likely to view the expected sanctions and risk of detection as lower than those not doing informal work. 46% of those engaged in informal work believe that only the normal tax or social security contributions will be due if they are caught, while only 40% of those who were not engaged in informal work hold the same view. 75% of those undertaking informal work perceive the risk of being detected as very small or fairly small, compared with 58% of those not engaged in informal work. Those engaging in informal work also have a lower level of tax morale (4.1) compared with those not engaging in the informal sector (2.6). Moreover, in all countries examined, those participating in the informal sector more commonly view the expected sanctions and risk of detection as lower, and have a lower level of tax morale. As such, participants in the informal sector in all 11 East-Central European countries surveyed perceive a smaller risk of detection, view the severity of the

punishment as lower, and have a lower level of tax morale than those not participating in the informal sector.

Table 2. Logistic regressions of the propensity to participate in the informal sector in East-Central Europe

	Model 1				Model 2			
	β		Robust se(β)	Exp(β)	β		Robust se(β)	Exp(β)
Expected sanctions (Tax or social security contributions due)								
Tax or social security contributions + fine or prison	-0.226	**	0.109	0.798	-0.664	***	0.212	0.515
Detection risk (Very small/ Fairly small)								
Fairly high/ Very high	-0.574	***	0.116	0.563	-0.831	***	0.241	0.436
Tax morality	0.342	***	0.025	1.407	0.263	***	0.0379	1.300
Gender (Female)								
Male	0.913	***	0.112	2.491	0.912	***	0.112	2.488
Age (exact age)	-0.033	***	0.004	0.967	-0.034	***	0.004	0.967
Occupation (Self-employed)								
Employed	-0.494	***	0.179	0.610	-0.480	***	0.180	0.619
Not working	-0.510	***	0.188	0.600	-0.501	***	0.188	0.606
Marital status (Unmarried)								
(Re-)Married/Single with partner	0.246		0.165	1.279	0.238		0.164	1.269
Divorced or separated	0.305		0.223	1.356	0.294		0.222	1.342
Widowed	0.267		0.312	1.306	0.255		0.311	1.290
People 15+ years in own household (One)								
Two	-0.466	***	0.175	0.628	-0.474	***	0.175	0.622
Three	-0.484	**	0.190	0.616	-0.499	***	0.189	0.607
Four and more	-0.598	***	0.197	0.550	-0.612	***	0.196	0.542
Children (No children)								
Having children	-0.008		0.129	0.992	-0.014		0.129	0.968
Difficulties paying bills (Most of the time)								
From time to time	-0.702	***	0.141	0.496	-0.694	***	0.141	0.500
Almost never/ never	-1.018	***	0.144	0.361	-1.013	***	0.144	0.363
Area (Rural area or village)								
Small or middle sized town	-0.202		0.127	0.817	-0.199		0.127	0.819
Large town	-0.140		0.131	0.869	-0.144		0.131	0.866
Interactions								
Tax or social security contributions + fine or prison x Tax morality					0.112	**	0.048	1.118
Fairly high/ Very high x Tax morality					0.065		0.054	1.067
Constant	-1.182	***	0.338	0.307	-0.843	**	0.356	0.431
N				7,141				7,141
Pseudo R^2				0.1531				0.1550
Log pseudolikelihood				-1359.8189				-1356.8344
χ^2				452.66				444.71
p>				0.0000				0.0000

Notes:
Significant at *** p<0.01, ** p<0.05, * p<0.1
All coefficients are compared to the benchmark category, shown in brackets.

Table 2 shows the results of a logistic regression analysis, so that we can analyse whether or not these relationships are significant when a range of control variables are taken into account and held constant, as well as the interaction effects of tax morale and deterrents.

Before evaluating the association between policy approaches and participation in the informal sector, it is important to highlight the findings in relation to the groups most likely to participate in the informal sector and, thus, the groups that need to be targeted by public authorities when seeking to tackle the informal sector. Table 2 reveals that men are significantly more likely to participate in the informal sector than women, and younger people are more likely to do so than older people. Those living in smaller households are more likely to participate in informal work than those in larger households, and those facing difficulties with paying their household bills most of the time are more likely to participate in the informal sector than those who have difficulties paying them less frequently. Additionally, when compared to the self-employed, the employed and those not working are significantly less likely to engage in informal work. As such, this identifies the socio-demographic and socio-economic characteristics of those most likely to participate in the informal sector. The next issue to consider, therefore, is to assess which approach is the most effective at tackling the informal sector.

Commencing with the relationship between participation in the informal sector and the perceived level of penalties, when other variables are introduced and held constant, a statistically significant association is identified. Those viewing the expected sanctions to be higher (that is, tax or social security contributions plus a fine or prison) are significantly less likely to participate in the informal sector (confirming H1a). When examining the relationship between participation in the informal sector and the perceived level of risk of being detected, a similar significant association is identified. Those viewing the risk of being caught as fairly high or very high are significantly less likely to participate in the informal sector than those who consider the risk of being caught as fairly small and very small (confirming H1b). These results, therefore, validate the deterrence approach adopted by many governments; increasing the actual or perceived penalties and risks of detection is significantly associated with reductions in the likelihood of participation in the informal sector in East-Central Europe.

When considering the tax morale approach, meanwhile, it is again the case that there is a significant association between engagement in informal work and the level of tax morale. The direction of the association is that the higher the tax morale, the lower the likelihood of participation in the informal sector (confirming H2). This logistic regression analysis therefore reveals a significant association between the likelihood of participating in the informal sector and, not only the risk of detection and level of punishments, but also the level of tax morale.

What, however, is the interaction effect between deterrence and tax morale? It might be the case, for example, that there will be a greater decrease in the level of engagement in the informal sector if a government combines the conventional deterrence approach of increasing sanctions and/or risk of detection with the tax morale approach. It might also be the case that tax morale will moderate the effectiveness and impacts of using deterrents. Model 2 in Table 2 introduces the interaction terms between tax morale and the level of punishment and risk of detection, so as to analyse whether the effects of these two deterrence measures on participation in the informal sector vary by the level of tax morale. The finding is that the impact of the perceived penalties on the likelihood of participation in the informal sector varies at different levels of tax morale (confirming H3a). That is, the effect of the perceived penalties on the likelihood of participation in the informal sector is significantly different at varying levels of tax morale. However, the interaction term between the risk of detection and tax morale is not significant

(refuting H3b), meaning that the effect of the risk of detection on the likelihood of participation in the informal sector is not significantly different at varying levels of tax morale.

In order to visually display the interactions between the perceived risks of detection, the expected level of punishment and tax morale, Figure 1 shows the predicted probabilities of a 'representative' East-Central European citizen participating in the informal sector by their level of tax morale and their perception of the likely penalties and risks of detection. The 'representative' East-Central European citizen is derived by taking the mean and modal values of the other independent variables. Consequently, the representative citizen here is a 44-year-old woman who is not working, (re-)married, living in a two person household, located in a rural area or village, has no children, and never, or almost never, faces financial problems. Figure 1 presents the predicted probabilities of this 'representative' East-Central European citizen engaging in the informal economy by their level of tax morale and what they perceive as the likely penalties and risk of detection. This shows that, for those with higher tax morale (below a score of 6), deterrence measures have little impact on reducing the probability of participation in the informal sector. It is only when tax morale is low (above a score of 6) that raising the level of deterrents has an impact, with increasing the perceived risks of detection leading to higher reductions in the likelihood of participation in the informal sector than increasing the expected punishments. It can therefore be tentatively asserted that:

- Increasing tax morale is effective as a means of tackling the informal sector;
- It is only in populations with low tax morale (above a score of 6) that raising the level of deterrents has an impact, with increasing the risks of detection having a greater impact than increasing the penalties.

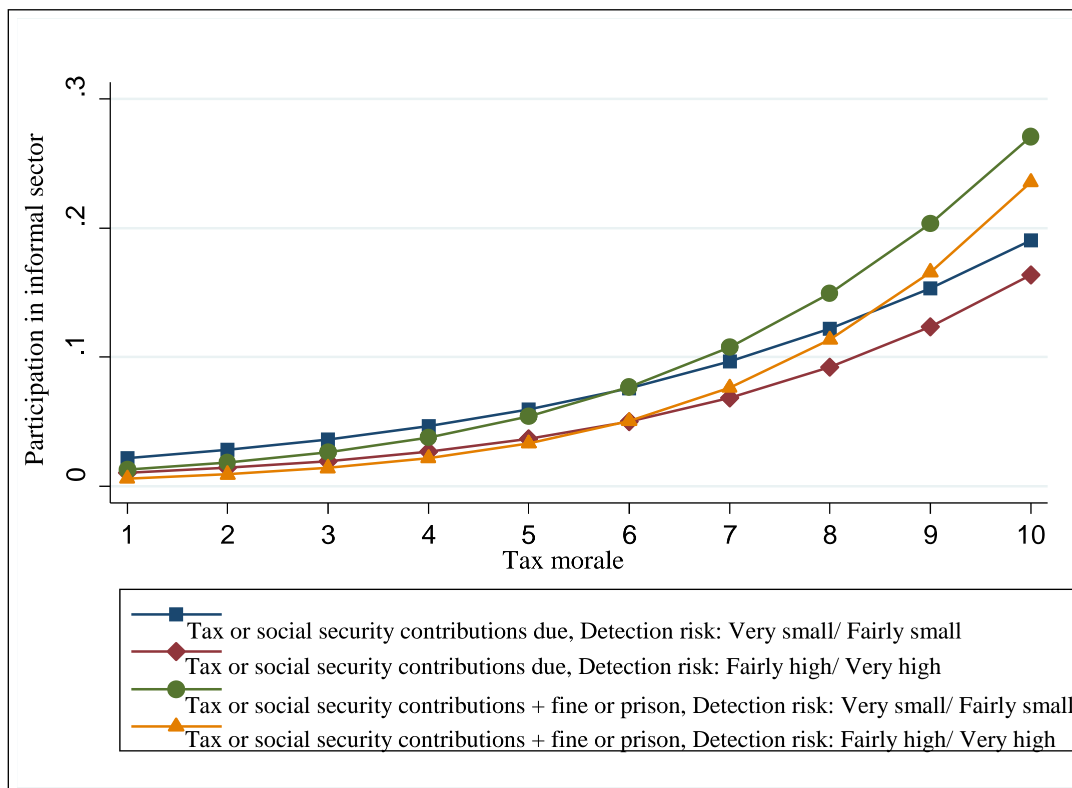

Figure 1. Predicted probability of a "representative" citizen living in East-Central Europe participating in the informal sector: by expected sanctions, detection risk and tax morale

5. DISCUSSION

These results suggest that participation in the informal sector decreases as the expected level of penalties and risk of detection increase, and when tax morale improves. This suggests that both the conventional deterrence and tax morale approaches are effective in decreasing participation in the informal sector. The finding of this paper, however, is that the impact of increasing deterrence varies at different levels of tax morale. Evaluating the probability of the ‘representative’ East-Central European citizen participating in the informal sector, it has been shown that when tax morale is relatively high (above a score of 6), increasing deterrence has little effect on the probability of engagement in the informal sector. It is only when tax morale decreases below a score of 6 that deterrence plays a more significant role in reducing the predicted odds of the 'representative' citizen participating in the informal sector. In such low trust contexts, the greater the level of deterrents, the lower the probability of engagement in the informal sector, with higher expected risks of detection reducing the predicted odds of engagement in the informal sector to a greater extent than higher perceived sanctions.

Consequently, if participation in the informal sector is to be reduced in East-Central Europe, an either-or approach can be adopted. If investment is made in increasing tax morale, it renders a deterrence approach redundant, given that the analysis shows that deterrents are ineffective at high levels of morale. However, if no investment is made in increasing tax morale, deterrents seem effective based on the regression results. So, the question is why would authorities wish to increase tax morale if deterrence works? One answer is that deterrence may well be more costly to sustain. Future research therefore needs to evaluate the costs of each approach in terms of the differential costs of reducing the informal sector by a percentage point using tax morale and deterrents, as well as whether and how these costs vary according to the size of the informal sector. If it is indeed the case that tax morale is more cost-effective, increasing tax morale gradually (and decreasing deterrence proportionally) would make financial sense as a longer term strategy for tax administrations.

Therefore, to achieve this shift towards a tax morale approach, and as discussed in the literature review, low tax morale can be read through the lens of institutional theory as measuring the degree of non-alignment of the laws, codes and regulations of formal institutions and the norms, beliefs and values of informal institutions (Helmke & Levitsky, 2004; North, 1990; Webb et al., 2009). When viewed through this lens, two types of change are required. On the one hand, the norms, values and beliefs regarding the acceptability of participating in the informal sector need altering by, for example, raising awareness about the benefits of formality and paying taxes in terms of the public goods and services received. On the other hand, changes in formal institutions are also needed, particularly in countries where lack of trust in the government results in low tax morale. This requires alterations in the country-level conditions that have been found to be associated with lower tax morale, such as the quality of governance and level of government intervention (Autio & Fu, 2015; Dau & Cuervo-Cazzurra, 2014; Klapper et al., 2007; Thai & Turkina, 2014). For example, previous studies have shown that tax morale is higher when the following exist: procedural justice, which refers to whether or not citizens perceive the government to treat them in a respectful, impartial and responsible manner (Braithwaite & Reinhart (2000); Gangl, Muehlbacher, de Groot, Goslinga, Hofmann, Kogler, Antonides, & Kirchler (2013); Murphy (2005); Taylor (2005); Tyler (1997); Wenzel (2002)); procedural fairness, which refers to the extent to which citizens believe that they are paying their fair share when compared with others (Kirchgässner 2011; McGee, 2008); McGee, Alver, & Alver, 2008; Molero & Pujol, 2012); and redistributive justice, which refers to whether citizens believe they receive the goods and services that they deserve, given the taxes that they pay (Kirchgässner, 2011).

6. CONCLUSIONS

In this paper, we have sought to evaluate the competing approaches for tackling participation in the informal sector in East-Central Europe. To do this, we have evaluated the validity of pursuing not only the conventional deterrence approach, which increases the penalties and risks of detection, but also the emergent tax morale approach and the interaction effects of combining these two approaches. Applying logistic regression analysis to the results of a Eurobarometer survey of 11 East-Central European countries has revealed that, although both approaches reduce the likelihood of participation in the informal sector, deterrence measures only reduce participation when tax morale is low and have little impact when tax morale is high. Whether this is the case in each and every East-Central European country now needs to be evaluated. Taking such an evidence-based approach to policy formulation is important if the effectiveness and efficiency of the fight against the informal sector is to be improved in individual countries.

If this paper therefore contributes to stimulating evaluations of the different policy approaches towards the informal sector and the interaction effects of combining them in individual countries and other global regions, then it will have achieved one of its intentions. If this then results in governments widening their policy approaches when tackling the informal sector beyond the currently dominant deterrence approach, it will have fulfilled its broader intention. As this paper suggests, it can no longer be assumed that the conventional deterrence approach is the only, or even the most effective, way of reducing participation in the informal sector.

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APPENDIX

Table A1. Variables used in the analysis: definitions and descriptive statistics

Variables	Definition	Mode or mean	Min / Max
Participation in the informal sector (dependent variable)	Dummy variable of whether participated in informal sector in past 12 months	Not engaged in informal sector (96%)	0 / 1
Expected sanctions	Dummy for the penalties associated with participation in the informal sector	Tax or social security contributions + fine or prison (59%)	0 / 1
Detection risk	Dummy for the perceived risk of detection	Very small/ Fairly small (59%)	0 / 1
Tax morality	Constructed index of self-reported tolerance towards tax non-compliance	2.7	1 / 10
Gender	Dummy for the gender of the respondent	Female (51%)	0 / 1
Age	Respondent's exact age	44 years	15 / 96
Occupation	Respondent's occupation in categories	Not working (47%)	1 / 3
Marital status	Respondent's marital status in categories	(Re-)Married/ Single with partner (63%)	1 / 4
People 15+ years in own household	People 15+ years in respondent`s household (including the respondent) in categories	Two (46%)	1 / 4
Children	Dummy for the presence of children (up to 14 years old) in the household	No children (72%)	0 / 1
Difficulties paying bills	Respondent's difficulties in paying bills in categories	Almost never/ never (57%)	1 / 3
Area	Size of the area where the respondent lives in categories	Rural area or village (36%)	1 / 3

INCOME TAX VERSUS VALUE ADDED TAX: A MIXED-METHODS COMPARISON OF SOCIAL REPRESENTATIONS

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Abstract

To date, tax research has strongly focused on income tax compliance. Meanwhile, a large proportion of tax revenue is raised by consumption taxes, such as value added tax (VAT). This study compared the respective social representations of income tax and VAT by employed and self-employed taxpayers. The aim was to gain an understanding of similarities and differences in the overall quantitative evaluation and qualitative content of the two taxes. For this purpose, we administered a free association task to employed (n = 140) and self-employed (n = 349) Austrian taxpayers with the stimuli *income tax* and *VAT* (between-subject design). Moreover, we measured emotional reactions and knowledge referring to the two types of taxes as well as individuals' mental accounting practices. Our results revealed that both taxes were evaluated negatively overall, although they did not differ from each other in their quantitative evaluation. Regarding employment status, self-employed taxpayers generated a larger number of negative associations, had higher knowledge, and expressed more negative emotions than employed taxpayers. The qualitative analysis also revealed that the social representations were specific to the two taxes. We conclude that findings from income tax research cannot be directly translated to the context of VAT.

1. INTRODUCTION

Since its introduction in the 1950s, value added tax (VAT) has developed into a key source of tax revenue. By 2012, it accounted for 19.5% of total tax revenue in member countries of the Organisation for Economic Cooperation and Development (OECD, 2014). Within the same period, the revenue from personal income tax stayed relatively stable, amounting to 24.5% of the total tax revenue in 2012 (OECD, 2015). Considering these proportions, the distinctive focus on income tax within the field of empirical tax research is surprising. One reason might be rooted in the unique structure of VAT, where suppliers act as tax collectors for the state and consumers carry the tax burden, thus involving three agents. This makes empirical research more challenging than in the case of income tax, which only involves taxpayers and the tax authorities.

To the best of our knowledge, a systematic analysis of how income tax and VAT are perceived by taxpayers in a comparative study is currently missing from the literature. We aim to address this gap by investigating similarities and differences between social representations of income tax and VAT. In doing so, we contrast evaluations, held concepts, shared beliefs, emotional reactions, and knowledge of the two taxes against each other. First, this investigation will reveal social representations for both types of taxes, whereas prior research focused on social

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representations of taxes in general (Kirchler, 1998; Kirchler, Maciejovsky, & Schneider, 2003; Schmölders, 1960). Additionally, in comparing VAT against income tax, the latter constitutes an adequate benchmark, because it is well-researched in terms of tax compliance compared with the former. Hence, apart from revealing similarities and differences in social representations per se, the results can serve as a basis for future research on VAT compliance.

The remainder of this section is organized as follows. Firstly, income tax and VAT are both briefly described in terms of their formal characteristics and possibilities for evasion. Secondly, social representations theory and the free association task are presented as means by which to empirically investigate the social representations of income tax and VAT by consumers and suppliers. Finally, we present the existing related literature together with the hypotheses for the quantitative analyses.

1.1 FORMAL CHARACTERISTICS OF INCOME TAX AND VAT

Personal income tax is a direct tax that is levied upon the income of a taxpayer (Schenk & Oldman, 2006). Most OECD countries employ different types of progressive income tax structures, in which tax rates grow with increasing income (OECD, 2016). In Austria, the location of the present study, the income tax of employed taxpayers is withheld by the employer and forwarded to the tax authorities each month. In comparison, self-employed taxpayers usually make quarterly pre-payments of their own income tax based on previously declared tax amounts (WKO, 2015). The actual amount of income tax is determined in the course of the annual tax declaration, leading to either a tax refund or an additional payment. Thus, employed taxpayers can evade income tax, for instance, by falsely claiming tax deductions. Meanwhile, self-employed taxpayers have more direct options for evasion, most notably understating personal income to reduce the tax base (Feinstein, 1991).

With regard to tax rates in Austria, from 2009 to 2015, annual incomes up to 11,000 euro were exempted, and three progressively increasing tax rates (36.5%, 43.2% and 50%) were then applied. The highest rate, 50%, was applied to incomes exceeding 60,000 euro annually. A tax reform in 2016 aimed at reducing the tax burden of low and medium income earners by introducing six tax rates (25%, 35%, 42%, 48%, 50% and 55%). Incomes of up to 11,000 euro are still exempted, but the highest tax rate was increased to 55% for annual incomes exceeding 1,000,000 euro (*Austrian income tax law, § 33 Abs. 1 EStG 1988*, 2015).

The traditional model of income tax evasion assumes that a taxpayer will evade taxes if it seems advantageous based on certain parameters, including income size, tax rate, fine level, and audit probability (Allingham & Sandmo, 1972). The authors have acknowledged that their theory is simple and may be criticized for ignoring non-monetary factors, which is an argument brought forward in the majority of psychological publications dealing with income tax. Many different approaches have been proposed since then to add to the understanding of tax compliance. In addition to deterrence (i.e. fine level and audit probability), many other factors, including knowledge, attitudes, different types of norms, justice perceptions, interindividual differences in taxpayers' motivation to comply, framing effects, and trust in the tax authorities, influence compliance behavior (Kirchler, 2007). However, the vast majority of these publications refer to the context of income tax compliance and not to other types of taxes.

VAT is a tax on general consumption and constitutes an indirect tax (Schenk & Oldman, 2006). It is collected from producers and distributors at different stages in the production and distribution process, and is assessed based on the value added to the goods and services at each stage. Businesses pay VAT on purchases from producers or suppliers and collect VAT on sales

to customers. The difference between paid and collected VAT is transferred to the tax authorities. Hence, the tax burden is carried by the final consumer who pays the tax as part of the price. In this chain, businesses supplying goods and services take over the role of tax collectors (James, 2015; OECD, 2014; see Webley & Ashby, 2010 for an explanatory sample calculation).

Until 2014, more than 160 countries have introduced VAT. The OECD average tax rate in 2014 was 19.1%. Austria introduced VAT in 1973 and the standard rate is currently 20% (unchanged since 1984). In addition to the standard rates, most countries have reduced rates for certain goods and services, such as books, food, postal services, culture, firewood, and transportation, with the aim of disburdening lower-income households. These lower rates are currently at 10% and 13% in Austria. In most countries, any business with a turnover exceeding a certain threshold must register for VAT payments. These thresholds vary considerably among countries (Austria: €30,000 in 2016; Charlet & Owens, 2010; OECD, 2014).

Evading VAT payments can occur on two levels: the individual level and the group level. On the individual business level, it can be evaded by not registering for VAT, underreporting sales, misclassifying commodities so that lower rates can be applied, and importing goods but not declaring them[5] (Keen & Smith, 2006). On the group level, VAT can be evaded through collusion between consumers and suppliers by agreeing on a lower price so that VAT is not due. Given that the supplier does not file such a transaction, the seller's income tax is also evaded; this is called collaborative tax evasion (Balafoutas, Beck, & Kerschbamer, 2015; Boadway, Marceau, & Mongrain, 2002, Chang & Lai, 2004).

1.2 SOCIAL REPRESENTATIONS THEORY AS A RESEARCH FRAMEWORK

Taxes constitute a complex economic phenomenon (e.g., Cuccia & Carnes, 2001; Krause, 2000). Paired with their social relevance, they evoke discussions aimed at gaining a better understanding of this topic (Wagner, Duveen, Farr, Jovchelovitch, Lorenzi–Cioldi, Markova, & Rose, 1999). The phenomenon is evaluated during these discussions, thus leading to personal opinions and attitudes (Moliner & Tafarni, 1997), which are ultimately confounded with knowledge and emotions (el Sehity & Kirchler, 2006). These processes of familiarization result in shared representations (Wagner et al., 1999). Social representations theory provides a conceptual framework through which we can explore, describe, and explain psychosocial phenomena and processes (Wagner, 1994; Wagner et al., 1999).

Social representations can be described as systems of values, notions, ideas, knowledge, emotions and practices shared by a social group with respect to a socially relevant phenomenon, such as *income tax* or *VAT*. Instruments to investigate social representations incorporate qualitative and quantitative methods, and a mixed-methods approach is often recommended (el Sehity & Kirchler, 2006; Wagner et al., 1999). Among these, the free association task represents a popular approach. In this task, participants are presented with a stimulus and asked to generate associations that spontaneously come to mind, which they then evaluate as positive, neutral or negative (Nelson, McEvoy, & Dennis, 2000; Vergès, 1992).

The single associations represent the qualitative content, whereas the evaluations serve as quantitative information. The analyses reveal the attitude toward a stimulus as well as the

[5] When importing goods from abroad as a business, the obligation to forward the VAT is shifted to the buyer of the commodity (called reverse charge). A business can evade the tax by not declaring the goods as imported (James, 2015).

concrete components of the representations and their relation to each other (Schnabel & Asendorpf, 2013; deRosa, 1995; Vergès, 1992). One advantage is grounded in the great amount of freedom of expression as individuals are not led into a predetermined direction by structured questions (Gangl, Kastlunger, Kirchler, & Voracek, 2012).

Within this theoretical framework, our aim is to compare social representations of income tax and VAT. We thereby try to answer how different groups of taxpayers (employed vs. self-employed) evaluate the two taxes (from negative to positive), and which distinct concepts, beliefs, emotional reactions, and level of knowledge can be observed. The following section introduces the related literature and derives concrete hypotheses for the analyses.

1.3 RELATED LITERATURE

Previous studies have suggested generally negative attitudes toward taxation (Kirchler, 2007). In this vein, Sussman and Olivola (2011) introduced the term "tax aversion" to describe the general desire to avoid taxes. Kirchler (1998) asked participants to spontaneously associate terms with the word "tax" and found that the content was predominantly negative. Hence, we expect (H1), the evaluations of associations for both taxes, to be predominantly negative.

One psychologically relevant difference that stems from the taxes' formal properties is the salience, wherein indirect taxes are assumed to be less visible than direct taxes (Bird, 2010). Indeed, if consumers are shown tax-inclusive prices (rather than tax-exclusive prices), as is the case with VAT in most countries, the observed consumer demand decreases (Chetty, Looney, & Kroft, 2009). With regard to the perceived tax burden, the indirect presentation of a tax leads to an underestimation of the burden (Sausgruber & Tyran, 2005). In line with this finding, a review of the compliance costs of different taxes concludes that the main cost burden for individual taxpayers stems from income tax (Eichfelder & Vaillancourt, 2014). Based on the higher visibility of income tax for consumers and greater income tax compliance costs for self-employed taxpayers, we expect (H2), the stimulus *income tax*, to evoke a larger proportion of negative evaluations than *VAT*.

Regarding the employment groups, self-employed taxpayers pay their taxes out-of-pocket, whereas employed taxpayers' income tax is withheld, which is assumed to cause a less pronounced loss perception (Kirchler, 2007; Kirchler & Maciejovsky, 2001; Yaniv, 1999). Kirchler (1998) argued that the perceptions of the self-employed can best be described with reactance theory, where taxes constitute a loss of freedom. As to VAT, we have already established that employed taxpayers tend to underestimate the extent of indirect tax when purchasing products, whereas the self-employed ones may still perceive it as administratively burdensome (Bird, 2010; Sausgruber & Tyran, 2005). Hence, (H3) self-employed taxpayers are expected to evaluate taxes more negatively than employed ones. We did not formulate any hypotheses for the share of neutral associations and plan to include this variable in our analyses for explorative purposes.

Given that emotions and knowledge are key components of social representations, we also incorporated these constructs in our study. In line with the hypotheses regarding the polarity of associations, we assume that (H4) negative emotional responses are stronger for *income tax* and among self-employed taxpayers. Additionally, due to their higher exposure to the topic of taxation, we hypothesize that (H5) the self-employed, in general, have higher knowledge about both taxes.

A qualitative interview study that investigated small business owners' perceptions of VAT found that participants' perceptions of the tax burden varied (Adams & Webley, 2001). Some business owners saw VAT as a burden on their businesses, whereas others perceived it as money belonging to the state. These different perceptions of VAT can be explained by mental accounting theory (Thaler, 1985, 1999), which describes how individuals organize and monitor their finances by having designated mental accounts for different financial activities (e.g., rent, food, and clothing). In this sense, business owners who perceive VAT as belonging to the tax authorities are suspected to have a designated mental account for collected taxes. Meanwhile, others integrate collected tax into the business turnover and perceive forwarding the tax as a loss. Quantitative studies that focused on income tax compliance have confirmed interindividual differences with regards to mental accounting practices and associations with tax compliance (Muehlbacher, Hartl, & Kirchler, 2015; Muehlbacher & Kirchler, 2013). To our knowledge, no study has quantitatively investigated mental accounting and perceptions of VAT. We expect (H6) a larger proportion of positive associations among those individuals with higher mental accounting scores for both taxes.

2. METHOD

2.1 PARTICIPANTS

A total of 489 individuals participated in the questionnaire study: 140 employed and 349 self-employed taxpayers. The sample of self-employed taxpayers can be further divided into three branches of industry: (1) *catering* (n = 55), restaurant, bar and hotel owners; (2) *crafts* (n = 99), carpenters, painters, plumbers, etc.; and (3) *consulting* (n = 90), coaches, consulters, and non-clinical psychologists. Mean age in the overall sample was 45.7 (SD = 10.9); 33.1% of the participants were female. Further socio-demographic information by sub-sample and business information for self-employed participants is provided in Table 1.

Table 1: Socio-demographic information by sub-sample.

	Self-employed					
	Catering (n = 55)	Crafts (n = 99)	Consulting (n = 90)	Other (n = 105)	**Overall** (n = 349)	**Employed** (n = 140)
Age	47.3 (10.7)	45.7 (9.5)	50.0 (9.1)	47.8 (9.6)	47.7 (9.7)	40.7 (12.1)
Sex (*male* %)	69.1%	80.8%	70.0%	74.3%	74.2%	48.6%
Experience	5.5 (1.4)	5.3 (1.6)	5.6 (1.3)	5.7 (1.4)	5.6 (1.4)	4.4 (1.9)
Education	3 (2)	3 (1)	4 (0)	4 (1)	3 (2)	3 (2)
Net income	3 (3)	3 (3)	6 (3)	5 (4)	4 (4)	3 (2)
Subject to VAT	100%	94%	92%	97%	95%	N/A
Hire tax consultant	95%	90%	82%	81%	86%	34%

***Note*. For Age and Experience, *M* and *SD* were computed, whereas we used *Mdn* and *IQR* for the ordinal scales Education and Net Income, respectively. Education was measured with 1 = *Apprenticeship*, 2 = *High School without higher education entrance*, 3 = *High School with higher education entrance*, and 4 = *University degree*. Net income was measured on a 7-point scale, starting with 1 = *up to €1,000*, followed by increases of €500 (e.g., *€1,000–€1,500*), until 7 = *more than €3,501*.**

The sample size was predetermined based on a power analysis in G*Power with $\alpha = .05$, $1–\beta = .95$, and an expected effect size of $\eta_p^2 = .03$ (effect in the mid-range of a small effect[6], corresponding to Cohen's $d = .35$). The main statistical test of the study was a 2 (stimulus) by 2 (employment status) MANOVA with two dependent variables (polarity and neutrality of the associations). However, the power analysis resulted in a sample size of $N = 344$, assuming equal group sizes. Our sample consisted of unequal group sizes in the factor employment. Thus, we increased the targeted number of participants and reached a final sample size of $N = 489$.

2.2 PROCEDURE

Data collection took place between December 2014 and April 2015. All respondents were contacted in person or via email, and asked to participate in a questionnaire study on taxes. The data collection started exclusively with a paper–pencil approach. For this purpose, the questionnaire, which took approximately 20 minutes to complete, was accompanied by a cover letter and a stamped return envelope. Questionnaires were handed out to self-employed business owners in the city of Vienna, and targeted three different branches of industry from the suppliers' side: (1) *catering*, (2) *crafts*, and (3) *consulting*. The overall response rate was 18.3% (30 out of 164 contacted individuals), well within the range of survey response rates in tax research (Kogler, Muehlbacher, & Kirchler, 2015: 28%; Lignier & Evans, 2012: 4.5%; Webley & Ashby, 2010: 13.5% and 18%). Nevertheless, data collection was extended to include an online questionnaire. Using the Aurelia database, which contained information of more than 370,000 companies throughout Austria, small to medium-sized businesses that fit the profiles of the targeted branches of industry were contacted via email, which contained a link redirecting them to the questionnaire[7]. Additionally, we collected data for a second sample of average consumers comprising a convenience sample of employed taxpayers.

2.3 MATERIAL

Following a mixed-methods approach, the questionnaire combined qualitative and quantitative parts, and comprised six sections. In the first section, participants were introduced to the study, presented with either the stimulus income tax or VAT[8] (randomized between participants), and asked to write down up to nine associations that came to mind in relation to the respective stimulus. As a next step, participants were asked to read their associations again and to assign a valence to each association [positive (+), neutral (0), or negative (-)] to evaluate each association.

The second section assessed participants' general mental accounting practices. Individuals were asked to indicate their agreement with five items of a short version of the Mental Accounting Scale (Muehlbacher, Hartl, & Kirchler, 2014) on a seven-point scale ranging from 1 = *does not*

[6] We were unable to identify prior research that provides a reference for an expectable effect size. Based on our general experience in the field of tax research, we expected an effect size in the range of small effects. Cohen (1988) classifies *d* from .20 to .50 as small, from .50 to .80 as medium, and above .80 as large.

[7] An automated mail messaging program was used to send out the link. We do not know how many e-mail addresses were valid business addresses, nor how many mails were actually read. Unfortunately, we did not consider that the database contained all commercially registered businesses and those that were already closed, which were not checked when exporting the business information. Thus, we were unable to compute a valid response rate. The most conservative estimate was to use all finished online questionnaires divided by e-mail addresses used, leading to a response rate of 5.8%.

[8] In Austria, the official term of value added tax is "Umsatzsteuer," which translates to turnover tax. However, the term "Mehrwertsteuer," which translates to "value added tax," is also commonly used to refer to VAT. Thus, the stimulus was presented as "Umsatzsteuer (=Mehrwertsteuer)," which corresponded to "turnover tax (=value added tax)."

apply to 7 = *fully applies* (e.g., "I classify my expenses into different categories; e.g., clothing, entertainment, education…;" α = .78).

Section three served to assess participants' personal attitudes toward taxes in general, and was adapted from the motivational postures subscale Commitment plus one item from the subscale Disengagement (Braithwaite, 2003; Rechberger, Hartner, & Kirchler, 2009). Participants were asked to indicate their agreement with nine statements on a seven-point scale ranging from 1 = *totally disagree* to 7 = *totally agree* (e.g., "Paying tax is the right thing to do;" α = .83).

Section four assessed individuals' feelings about both *income tax* and *VAT*. The order depended on the between-subject assignment to one of the two stimuli, wherein participants were first asked about their emotional responses corresponding to the association task, followed by the other tax type. To measure various types of positive and negative emotionalities, the Positive and Negative Affect Schedule (PANAS) (Krohne, Egloff, Kohlmann, & Tausch, 1996; Watson, Clark, & Tellegen, 1988) was administered, using a seven-point scale ranging from 1 = *very slightly or not at all* to 7 = *extremely* (e.g., "When I think about paying VAT, I feel distressed").

In section five, participants' knowledge about *income tax* and *VAT* was measured. Individuals were asked to reply to seven multiple choice questions about *income tax* and eight multiple choice questions about *VAT* by marking the correct answer from a set of five (e.g., "Who carries the VAT burden?"). We constructed these items for the purpose of this study. The order in the questionnaire corresponded to the procedure used with the PANAS.

Section six served to collect socio-demographic information. See http://osf.io/phnm5 to access the original materials and data.

2.4 ANALYSIS

Free associations can be analyzed on a quantitative or qualitative level. The quantitative analyses focus on the ratio of positive, neutral, and negative evaluations. The qualitative level highlights the content of the associations and how they are organized.

Starting with the quantitative analyses, the evaluations assigned to each association with respect to the stimuli *income tax* or *VAT* were used to calculate two indices: a polarity index and a neutrality index. The polarity index refers to the difference between frequencies of positive and negative evaluations divided by the total frequency of evaluations. This index ranges from −1 to +1, with negative attitudes closer to −1 and positive attitudes closer to +1. The neutrality index was calculated by the frequency of neutral evaluations divided by the total frequency of evaluations. It ranges from 0 to 1 and represents the ratio of neutral associations (de Rosa, 1995, 1996). The indices were computed for each participant and then aggregated for the relevant groups of comparison.

To explore the structure of the social representations for the two stimuli, every single association was assigned to a category to aggregate the qualitative information. The categorical assignments, along with the variables stimulus, employment status, and evaluation of the underlying association, were used for a multiple correspondence analysis. This exploratory multivariate procedure was used with the aim of revealing the structure and patterns of a nominal data set by identifying dimensions that explain a maximum of inertia (a concept similar to variance). Using categories, instead of single associations, is more appropriate for the analysis of structure, as the information becomes more systematic, which is also most common in social representation research (Barthes & Jeziorski, 2012; Kirchler, 1998; Rodler, Kirchler,

& Hoelzl, 2001). The resulting dimensions, and the organization of data in relation to these dimensions, allow for a better interpretation of the overall structure of the social representations. Essentially, correspondence analysis works in a similar way as principal component analysis, but is applied to categorical data (Greenacre, 2007).

3. RESULTS

The results are presented in five main sections. Firstly, we analyze polarity and neutrality by stimulus and employment status. Secondly, we explore the semantic contents of the social representations. Thirdly, differences in emotional responses to the two stimuli by employment groups are tested. Fourthly, we investigate knowledge differences between the two employment groups for each of the two taxes. Finally, we examine the correlations among business characteristics, as well as those between such characteristics and polarity and neutrality[9].

In the association task, 1,931 associations were produced overall, of which 870 were different. Participants freely associating to the stimulus *income tax* wrote down 985 associations (500 were different). In the group that was presented with the stimulus *VAT*, 946 associations were produced (445 were different). The average frequencies of associations for *income tax* were $M = 3.95$ ($SD = 2.18$) and $M = 3.94$ ($SD = 2.16$) in the case of *VAT*. Table 2 depicts the polarity (average evaluation of the respective stimulus) and neutrality (ratio of neutral associations) indices for both stimuli by sub-sample.

Table 2: Mean polarity and neutrality.

	Self-employed					**Employed**
	Catering	Crafts	Consulting	Other	**Overall**	
Income tax	*n* = 30	*n* = 41	*n* = 50	*n* = 49	*n* = 170	*n* = 79
Polarity	−.52 (0.62)	−.43 (0.63)	−.30 (0.63)	−.30 (0.67)	−.37 (0.64)	−.16 (0.61)
Neutrality	.18 (0.29)	.21 (0.33)	.23 (0.26)	.18 (0.26)	.20 (0.28)	.24 (0.28)
VAT	*n* = 25	*n* = 58	*n* = 40	*n* = 56	*n* = 179	*n* = 61
Polarity	−.14 (0.45)	−.23 (0.59)	−.30 (0.52)	−.24 (0.49)	−.24 (0.52)	−.09 (0.59)
Neutrality	.48 (0.36)	.36 (0.36)	.31 (0.30)	.39 (0.33)	.37 (0.34)	.36 (0.35)

Note. Indices are presented for *income tax* and *VAT*, divided by employment status and branch of industry. Standard deviations are given in parentheses.

3.1 ANALYSES OF POLARITY AND NEUTRALITY INDICES

3.1.1 Analysis of the total sample

To test our first hypothesis, we investigated whether the point estimates of the mean polarity by stimulus (*income tax* vs. *VAT*) were negative and whether the 95% confidence intervals of the means included zero. See the black dots in Figure 1 for a graphical presentation. The mean polarity for the stimulus *income tax* was $M = -.30$, 95% confidence interval (CI) [−.38, −.22],

[9] For clarity of presentation, the results part does not follow the usual separation of confirmation and exploration. Instead, all results are presented in the stated sequence in order to maintain a logical structure of analyzed content.

which did not include zero. The same was the case for *VAT* with a mean polarity of $M = -.20$, 95% CI [−.27, −.13]. Thus, we can confirm that the polarity of associations was predominantly negative for both stimuli (H1).

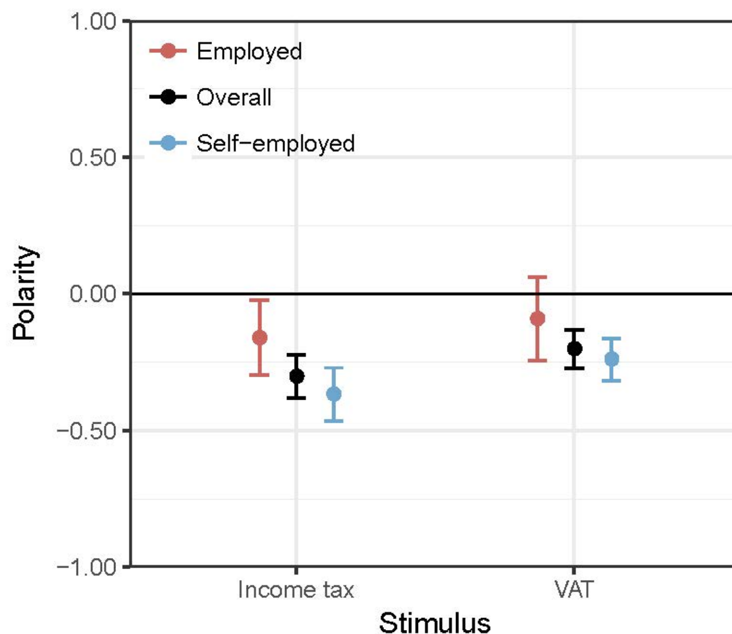

Figure 1: Mean polarity by stimulus and employment status. Error bars represent 95% confidence intervals (CI) of the means.

In order to test for differences in the polarity and neutrality indices between the stimuli (*income tax* vs. *VAT*) and employment status (employed vs. self-employed), we conducted a MANOVA with two dependent variables (polarity and neutrality of the associations). The red and blue dots in Figures 1 and 2 depict mean polarity and neutrality by stimulus and employment status respectively (also see Table 2).

The multivariate results suggested significant differences between the two stimuli, $F(2, 484) = 10.66$, $p < .001$, $\eta_p^2 = .042$, as well as significant differences between the two employment groups, $F(2, 484) = 4.52$, $p = .011$, $\eta_p^2 = .018$. We did not observe an interaction effect, $F(2, 484) = 0.44$, $p = .644$, $\eta_p^2 = .002$.

The univariate results for the polarity index showed no significant differences between the two stimuli, $F(1, 485) = 2.79$, $p = .096$, $\eta_p^2 = .006$, suggesting that they were equally negative, contrary to H2. The two employment groups did differ significantly in their evaluations, $F(1, 485) = 8.93$, $p = .003$, $\eta_p^2 = .018$, which was in line with our prediction of more negative evaluations occurring among self-employed participants (H3). There was no interaction effect, $F(1, 485) = 0.25$, $p = .620$, $\eta_p^2 = .001$.

The univariate results for the neutrality index served exploratory purposes. In this case, there was a significant difference between the two stimuli, $F(1, 485) = 20.97$, $p < .001$, $\eta_p^2 = .041$. The share of neutral associations was higher for the stimulus *VAT*. No difference was observed between the two employment groups, $F(1, 485) = 0.12$, $p = .725$, $\eta_p^2 < .001$. Again, there was no significant interaction effect, $F(1, 485) = 0.79$, $p = .373$, $\eta_p^2 = .002$.

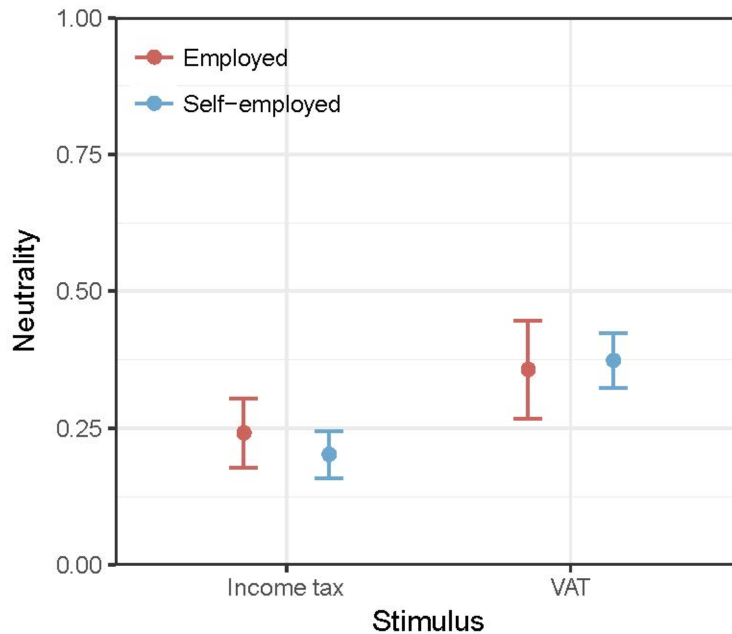

Figure 2: Mean neutrality by stimulus and employment status. Error bars represent 95% CI of the means.

In summary, as expected, both taxes were evaluated negatively overall, but we were unable to confirm a relative difference between *income tax* and *VAT* in terms of polarity of associations. However, we confirmed that self-employed participants generated a higher share of negative content in comparison to employed participants. Furthermore, our exploration revealed a lower share of neutral associations for *income tax* in comparison to *VAT*.

3.1.2 Exploration of the targeted sub-sample of self-employed taxpayers

We explored differences in polarity and neutrality for the three targeted branches of industry (see the first three columns of Table 2). For this explorative purpose, we calculated a 2 (*income tax* vs. *VAT*) by 3 (catering, crafts, vs. consulting) MANOVA, again with the polarity and neutrality indices as dependent variables. The tax stimulus was significant, $F(2, 237) = 9.38$, $p < .001$, $\eta_p^2 = .073$. However, there were no differences among the three branches, $F(4, 476) = 0.45$, $p = .772$, $\eta_p^2 = .004$, nor a significant interaction effect, $F(4, 476) = 1.52$, $p = .195$, $\eta_p^2 = .013$.

With regards to the significant effect of tax stimulus, the univariate analyses revealed that among the three targeted branches, *income tax* was evaluated more negatively than *VAT*, $F(1, 238) = 5.85$, $p = .016$, $\eta_p^2 = .024$. Additionally, *income tax* led to less neutral content than *VAT*, $F(1, 238) = 17.09$, $p < .001$, $\eta_p^2 = .067$, as already established in the main analyses.

In summary, our exploration did not reveal any differences in polarity or neutrality among the three targeted branches. However, within this sub-sample, we found a main effect of tax stimulus on polarity, indicating that more negative associations were observed for *income tax* than for *VAT*, which we did actually hypothesize for our overall sample.

3.2 SEMANTIC CONTENT OF SOCIAL REPRESENTATIONS

The content of the association was investigated after aggregating the qualitative information. For this purpose, each association was assigned to a set of a priori created categories by two independent raters who both had in-depth knowledge of the tax literature. Cohen's κ was used to determine the degree of agreement between the two raters. The resulting $\kappa = .54$ ($p < .001$) indicated moderate agreement between the raters (Landis & Koch, 1977). Subsequently, under nonparticipating observation of one of the authors, the two raters discussed all inconsistent category assignments until they reached full agreement. In a final step, very large categories were further divided into more specific sub-categories. The final categories are listed in Table 3 and further explained by illustrative terms.

Table 3: Absolute frequencies of associations assigned to each of the categories by stimulus.

		Stimulus	
Category	Examples	Income tax $N = 985$	VAT $N = 946$
Authorities and laws	tax authorities, §19	42	44
Complexity	many exceptions, complex	51	35
Criticism (state)	rip-off, non-transparent	78	64
Criticism (tax burden)	too high, expensive	135	34
Due date	15th of the month, quarterly	30	46
Effort	bureaucracy, tedious	35	34
Emotions	headache, anger	22	5
Income and gain	money, wage, income	37	12
Inequity	unfair, not justified	32	5
Influence on prices	increases prices	4	27
Int'l comparison	different within EU	7	30
Justice	redistribution, fairness	21	10
Loss	burden, costs, payment	44	32
Miscellanea	various	45	68
National budget	public revenue	10	16
Necessity	necessary, tax liability	26	16
People and roles	self-employed, minister	20	11
Pre-payment	input tax, pre-registration	14	69
Progressivity	progression, scaled	54	3
Reform	tax reform, tax increase	20	23
Tax allowances	tax deductions, tax benefit	38	7
Tax consultant	tax accountant	27	8
Tax declaration	tax ID, tax assessment	93	88
Tax definitions	consumer tax, wage tax	40	49
Tax evasion	black labor, evasion	9	20
Tax rates	10%, 20%, 52%	20	116
Terminology	reverse charge, tax	18	24
Transitory item	senseless for B2B	0	46
Welfare	health system, solidarity	13	4

Note: the correspondence analysis additionally contained the variables *evaluation* (positive, neutral, & negative) and *employment status* (employed and self-employed), ultimately leading to a 29 × 2 × 2 × 3 table. To increase readability, only a reduced table was depicted here.

We ran a multiple correspondence analysis to reveal the underlying structure of the categories by stimulus, evaluation, and employment status. The two dimensions of the solution explained 41.8% (Dimension 1) and 37.8% (Dimension 2) of inertia. See Table 3 for a simplified representation of the initial frequency table and Figure 3 for a graphical representation of the rotated final solution. On the one hand, Dimension 1 differentiated negative content from positive and neutral contents. Dimension 2, on the other hand, differentiated between the two stimuli, with *income tax* on the upper end and *VAT* on the lower end.

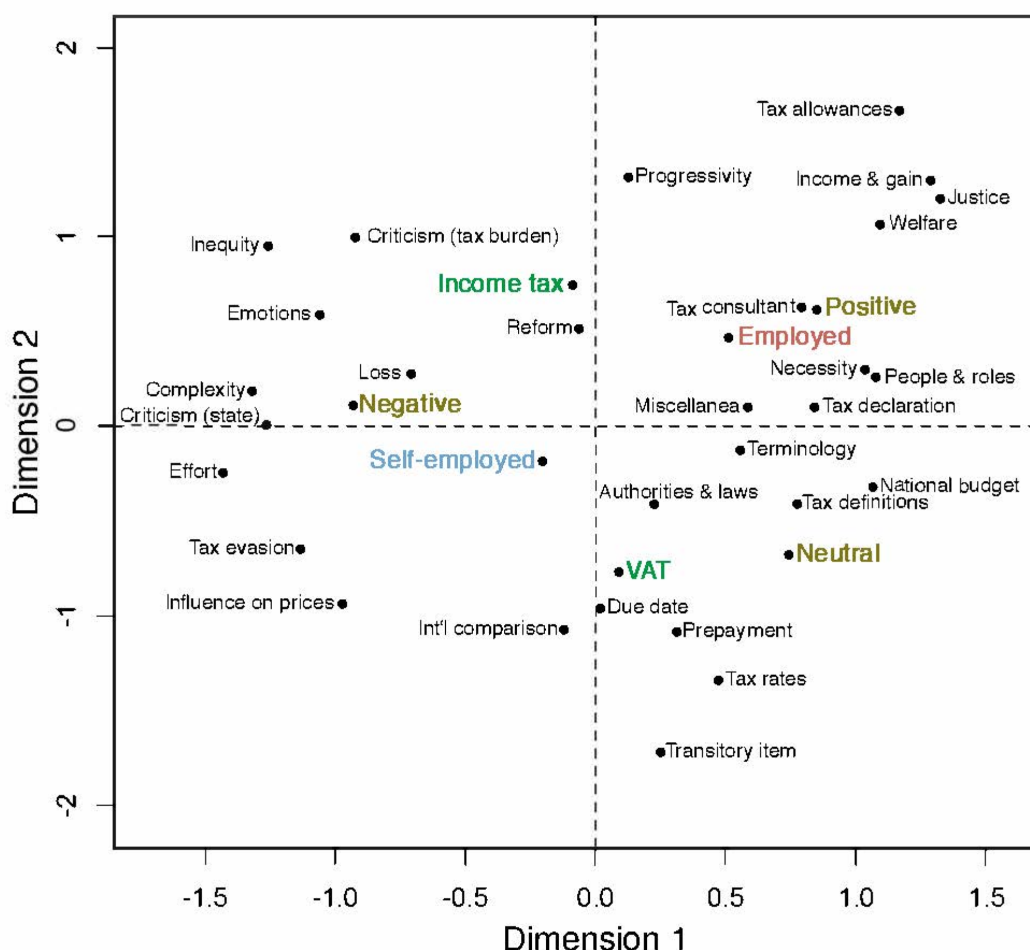

Figure 3: Plot of multiple correspondence analysis with category, employment status, tax stimulus, and evaluation.

The interpretation of a correspondence analysis is based on the position of content along the two dimensions (Greenacre, 1991) as well as the spatial distance between points of different nominal variables (Abdi & Valentin, 2007). The closer the two points, the more often these connections occur in the data. Again, we can observe the main results as established in the

analyses of polarity and neutrality. Employed taxpayers generated more positive content than self-employed participants. Furthermore, both taxes had a negative overall evaluation. At the same time, more neutral content was produced when participants were confronted with *VAT* than with *income tax*. Thus, *income tax* was positioned between negative and positive, and *VAT* between negative and neutral.

In addition to a confirmation of these established results, the correspondence analysis provided the opportunity to further explore the underlying content. *Income tax* was closest to the categories "reform"[10], "criticism (tax burden)," and "progressivity." The dimensional interpretation identified the categories "inequity," "emotions," and "criticism (tax burden)" as negatively linked to *income tax*, whereas "tax allowances," "income and gain," "justice," and "welfare" were attributed as positive elements of the tax. Meanwhile, *VAT* was closest to the categories "pre-payment," "due date," and "authorities and laws," which described formal processes and administrative tasks. Based on the dimensional interpretation, we further identified "tax evasion" and "influence on prices" as negatively associated with *VAT*, whereas "tax rates," "transitory item," and "tax definitions" comprised further neutral content.

Overall, the most negative categories were "complexity," "criticism (state)," and "effort," which were positioned around the mid-point of Dimension 2, indicating that these categories were relevant for both taxes. On the contrary, the most positive categories were "tax consultant," "people and roles," "necessity," "welfare," "income and gain," and "justice," which related to societal and individual levels. Employed taxpayers were positioned closely to these contents, whereas self-employed taxpayers were arranged closest to "authorities and laws" and "loss."

3.3 EMOTIONS

In this section, emotional responses to the two stimuli by the two employment groups are reported. The full PANAS instrument measures 20 specific affects, of which ten are positive and ten negative. We computed one score for all 10 negative affects, which we regarded as the extent of negative emotions. The positive affects were omitted from the analyses[11].

We ran a 2 (stimulus) by 2 (employment status) ANOVA with the negative affect score as dependent variable. As hypothesized (H4), negative emotions were more pronounced when confronted with *income tax*, $M = 2.65$, 95% CI [2.49, 2.81], than with *VAT*, $M = 2.39$, 95% CI [2.22, 2.56], $F(1, 475) = 5.27$, $p = .022$, $\eta_p^2 = .011$, and also higher among self-employed, $M = 2.60$, 95% CI [2.46, 2.74], compared with employed participants, $M = 2.33$, 95% CI [2.14, 2.51], $F(1, 475) = 5.16$, $p = .024$, $\eta_p^2 = .011$. However, the observed effect sizes were rather small. We did not observe an interaction effect, $F(1, 475) = 0.17$, $p = .678$, $\eta_p^2 < .001$.

In summary, participants confronted with the stimulus *income tax* reported higher feelings of negative affect than in the case of *VAT*. Additionally, self-employed participants reported more pronounced negative emotional reactions than employed ones.

3.4 KNOWLEDGE

Seven items were used to measure knowledge about *income tax* and eight items for *VAT*, respectively. As we have no information regarding item difficulties, knowledge about the two

[10] At the time of data collection, an income tax reform was being discussed intensively in the Austrian media.
[11] An exploration revealed little variance and no difference in positive emotional responses to the two stimuli nor between the two employment groups.

taxes cannot be compared against each other. Nevertheless, we can compare the knowledge of the two employment groups for each tax, to test our hypothesis that the self-employed have greater tax knowledge.
We conducted a MANOVA with employment status (employed vs. self-employed) as an independent variable and the two knowledge scores as dependent variables. The multivariate results indicated that knowledge differed between the two employment groups, $F(2, 486) = 13.18$, $p < .001$, $\eta_p^2 = .051$.

The univariate results confirmed that knowledge was higher for both types of taxes among self-employed participants compared with employed participants (H5), for *income tax* with $F(1, 487) = 16.40$, $p < .001$, $\eta_p^2 = .033$, employed $M = 4.69$, 95% CI [4.46, 4.91], self-employed $M = 5.24$, 95% CI [5.09, 5.38], and for *VAT* with $F(1, 487) = 16.08$, $p < .001$, $\eta_p^2 = .032$, employed $M = 6.38$, 95% CI [6.11, 6.61], self-employed $M = 6.89$, 95% CI [6.77, 7.01]. The observed effects met the expected effect assumptions.

Our findings clearly indicate that self-employed taxpayers had more knowledge about both taxes than employed ones.

3.5 SELF-EMPLOYMENT AND FURTHER CONSTRUCTS

Among the group of self-employed taxpayers, we assessed a number of business characteristics, psychological constructs referring to the business environment and perceptions of taxes, and socio-demographic information. Table 4 displays the intercorrelations among these variables as well as with the polarity and neutrality indices. We do not distinguish between the two stimuli groups.

With regard to polarity, more positive personal attitudes toward taxes in general were related to more positive associations, $r = .28$, $p < .001$. Furthermore, self-employed participants who indicated being politically more right-leaning generated more negative content, $r_s = -.20$, $p < .001$. Mental accounting, the tendency to keep track of financial activities by separating these into different mental accounts, was hypothesized to be associated with the polarity index, which could not be confirmed (H6), $r = .04$, $p = .491$. Looking at the correlations with the neutrality index, we observed that participants with lower incomes generated more neutral associations, $r_s = -.13$, $p = .019$. Furthermore, positive personal attitudes were linked to more neutral content, $r = .14$, $p = .007$. Increased experience with taxes was associated with less neutral associations, $r_s = -.11$, $p = .041$. The relationship with political orientation indicated more neutral content of left-leaning taxpayers, $r_s = -.17$, $p = .002$. However, the correlations with the neutrality index were all rather small.

The following intercorrelations were noteworthy. Older, self-employed participants generally had more positive attitudes toward taxes, $r = .17$, $p = .001$. Additionally, positive attitudes were linked to left-leaning political attitudes, $r_s = -.22$, $p < .001$ and to higher mental accounting scores, $r = .16$, $p = .003$. Mental accounting was also higher among participants who had more experience with paying taxes, $r_s = .15$, $p = .004$. Furthermore, experience was associated with slightly higher attitude levels, $r_s = .12$, $p = .025$.

Table 4: Intercorrelations of business-related variables as well as polarity and neutrality index.

	Descriptive	1	2	3	4	5	6	7	8	9	10	11	12
1. Polarity	*M* = −0.30 *SD* = 0.59												
2. Neutrality	*M* = 0.29 *SD* = 0.32	.29***											
3. Age	*M* = 47.71 *SD* = 9.72	.03	.02										
4. Sex	26% female 74% male	−.08	−.08	.06									
5. Income	*Mdn* = 4.00 *IQR* = 4.00	−.00	−.13*	.16**	.17**								
6. Education	*Mdn* = 3.00 *IQR* = 2.00	.05	.04	−.09	−.09	.27***							
7. Mental accounting	*M* = 5.28 *SD* = 1.18	.04	.02	.06	-.04	-.02	.01						
8. Attitudes taxes	*M* = 4.87 *SD* = 1.13	.28***	.14**	.17**	-.08	.05	−.01	.16**					
9. Experience taxes	*Mdn* = 6.00 *IQR* = 2.00	−.04	−.11*	.15**	.03	.17**	.05	.15**	.12*				
10. Tax consultant	86% yes 14% no	.08	.05	.09	−.05	−.01	.05	.05	.08	.12*			
11. Number employees	*Mdn* = 3.00 *IQR* = 7.00	−.05	−.05	.03	.11	.16**	−.24***	−.08	−.05	.10	-.17**		
12. Business years	*M* = 14.95 *SD* = 9.61	.01	−.07	.63***	.08	.13*	−.21***	.01	.05	.19**	-.02	.27***	
13. Political orientation	*Mdn* = 5.00 *IQR* = 3.00	−.20***	−.17**	.10	.23***	.09	−.07	.01	−.22***	.06	.04	.13*	.14*

Note. N_{max} = 349. Depending on the level of measurement and distribution of each variable, we applied Pearson *r*, point-biserial r_b, Spearman r_s, or rank-biserial r_{rb} for the correlations. Sex was coded with 1 = *female* and 2 = *male*. Hiring a tax consultant was coded with 1 = *Yes* and 2 = *No*. Experience with taxes was measured on a 7-point scale ranging from 1 = *low* to 7 = *high*. Political orientation was assessed by applying a 10-point scale ranging from 1 = *left* to 10 = *right*. See http://osf.io/phnm5 for the translated questionnaire. *$p < .05$. **$p < .01$. ***$p < .001$.

We also separately investigated the stimulus-related correlations (i.e., correlations with polarity and neutrality) for the two between-subject groups. One key difference was found in the relationship between political orientation and the two indices. In the case of *income tax*, politically left-leaning participants generated more positive, $r_s = -.28$, $p < .001$ and more neutral associations, $r_s = -.27$, $p < .001$, which were already established as general effects. However, we could not observe this association in the case of *VAT*, $r_s = -.11$, $p = .143$ for polarity, and $r_s = -.08$, $p = .306$ for neutrality. Note that this effect was not driven by differences in political orientation between the two stimuli groups, which did not differ with regards to the means, $t(335) = -0.58$, $p = .564$, nor the variances as revealed in a Levene test, $F(1, 335) = 0.51$, $p = .476$. Furthermore, self-reported attitudes toward taxes in general were related to more neutral associations in the case of *income tax* only, with $r = .19$, $p = .013$, whereas this relationship was not observed for *VAT*, $r = .11$, $p = .161$. Finally, having more experience with taxes corresponded with less neutral content when associating about *VAT*, $r_s = -.21$, $p = .004$, but not in the case of *income tax*, $r_s = -.02$, $p = .851$.

In summary, we could observe more positive content among participants with generally positive attitudes toward taxes, and more negative content among those who self-reported a right political orientation, especially in the case of *income tax*. Participants with lower income levels, lower experience with taxes, and left-leaning political views, and female individuals, generated more neutral terms. The relationships of political orientation and attitudes with the neutrality index were only present for the stimulus *income tax*, whereas that between experience and neutrality was only observable in the case of *VAT*.

4. DISCUSSION

The main goal of the present study was to compare the social representations of income tax with those of VAT, thereby addressing the shortcoming in the psychological tax literature to almost exclusively focus on income tax research. In this comparison, we also addressed differences between employed and self-employed taxpayers. Our confirmatory findings suggest that income tax and VAT are both perceived negatively overall (H1), whereas the evaluations do not differ significantly from each other in the overall sample (H2). As a main effect of employment, we could confirm that self-employed participants regard taxes more negatively (H3), express more negative emotional reactions to tax stimuli (H4), and have greater knowledge about the respective taxes (H5).

While we could not confirm our hypothesis regarding general difference in polarity between the two types of taxes (H2), we find more negative associations for income tax than for VAT in our exploration of the three targeted subgroups of self-employed taxpayers. Given that the interaction effect on polarity is not significant in the first confirmatory MANOVA (see 3.1.1), we suspect that differences in evaluation of the different taxes could be branch-specific.

With regard to the content of the social representations, income tax is especially criticized for being too high. On the one hand, perceptions of inequity, taxes as a financial loss, negative emotions, and progressivity constitute further close constructs. On the other hand, VAT is most systematically linked to mentioning the tax rates and terms describing administrative tasks. Furthermore, negative content associated with VAT is related to tax evasion and influences on sales prices. Considering that, on the overall level, both taxes are evaluated as equally negative in terms of statistical significance, it seems that different motives drive this evaluation: monetary and system characteristics in the case of income tax, and administrative work and higher prices in the case of VAT.

These identified differences between the taxes and employment groups could influence compliance decisions. Future compliance studies on the individual level should thus address both direct and indirect taxes, as the decision to evade one of the taxes is usually associated with evading the other in the case of self-employed taxpayers. Moreover, the interaction between suppliers and consumers requires further investigation as their interaction at the point of sale can lead to collaborative tax evasion, wherein the consumer pays a lower price by evading VAT and the supplier evades the incidental income tax. Based on the results, suppliers would agree to collude in order to reduce their monetary income tax and administrative VAT burdens. In this case, consumers would benefit from paying lower prices.

Despite these tax-specific contents, some similarities exist between the two taxes. Namely, three negative categories stand out for both taxes, particularly among self-employed taxpayers: complexity, effort, and criticism of the state. In our view, complexity perceptions and effort express compliance costs for businesses that are clearly seen in a negative light. Studies in the field emphasize that compliance costs constitute a significant issue for businesses (e.g., Cuccia & Carnes, 2001; Lignier, Evans, & Tran-Nam, 2014), and that a reduction of complexity could be a solution (e.g., James & Edwards, 2008; Slemrod & Venkatesh, 2002).

Prior findings suggested that differences in mental accounting affect taxpayers' income tax compliance (Muehlbacher, Hartl, & Kirchler, 2015) and their perception of VAT (Webley & Ashby, 2010). Our findings could not confirm any relationship between mental accounting and the polarity nor neutrality of the tax stimuli (H6), but found small positive correlations with general attitudes and experience with taxes.

One key strength of the study is constituted by the large sample size and the associated statistical power. Hence, even small effects could be detected. In the context of taxes, effects of this size have practical impacts, as even small increases in tax compliance considerably influence the total tax revenue. Another strength is reflected by the between-subject design in investigating differences and similarities among multiple stimuli. In this way, we can rule out order effects as drivers of the responses, as could be the case in a within-subject study.

Our study also has some limitations. First, we do not know the extent to which the sub-samples are representative of their respective populations. Furthermore, we do not have information about whether the non-responses are a consequence of active nonresponse (i.e., people do not want to provide answers; Rogelberg et al., 2003) or merely of the contextual fact that self-employed taxpayers may have busy work routines and cannot find the time to fill in a questionnaire.

As a conclusion, we encourage authorities and educational institutions - especially vocational schools for young business owners - to communicate the public and personal benefits of an effective tax system, as the evaluations of both taxes are more often negative than positive. Furthermore, one challenge that should be addressed is the high burden associated with the administration of VAT for self-employed taxpayers.

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Readers are encouraged to visit http://osf.io/phnm5 to download the questionnaire and data file.

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CHALLENGES OF TAX ADMINISTRATION IN DEVELOPING COUNTRIES: INSIGHTS FROM THE 5TH ANNUAL TAX ADMINISTRATION RESEARCH CENTRE WORKSHOP, 2017.

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Abstract

Tax administration is a challenging task, but developing countries' tax administrations face greater challenges than their counterparts in advanced countries. As a result of these challenges, tax revenue generation in developing countries is unusually low. The issue has been at the forefront of academic and international development administration discourse since Nicholas Kaldor raised the red flag in 1963. Kaldor stated that developing countries raise about 8 to 15 percent of their Gross Domestic Product (GDP) as tax revenue, while the ratio for advanced countries is 25 to 30 percent. More than sixty years after this issue came to the fore, and after more than thirty years of tax administration reforms in developing countries, it remains largely unresolved. The 5th Annual Tax Administration Research Centre (TARC) Workshop provided delegates with an opportunity to further discuss the issue. This paper presents insights from that workshop. Our analysis of insights from the workshop provides a fresh perspective on the challenges of tax administration in developing countries. Most importantly, we argue that the challenges of tax administration in developing countries are complex and involve deep-rooted, systemic problems that cannot be tackled by tax administration alone. Some of the problems are linked to acts of omission and commission by political leadership. This may account for the continued low levels of tax collection in developing countries despite the fact that series of tax administration reforms have taken place.

1. INTRODUCTION

Tax revenue generation presents a daunting challenge to governments of developing countries. This problem has been a long-standing one, as it was brought to the forefront of academic discourse as far back as 1963, by Nicholas Kaldor. Kaldor (1963) stated that developing countries generate between 8 to 15 percent of their GDP as tax revenue, in sharp contrast to the advanced countries' tax to GDP ratios of 25 to 30 percent. Kaldor maintained that the developmental aspiration of developing countries will not be realized unless they generate 15 percent and above of their GDP as tax revenue. The tax to GDP ratio is considered a simple metric for assessing adequacy of tax revenue generation (Mascagni, Moore & McCluskey, 2014). It has been adopted by the International Monetary Fund (IMF) as a determinant of tax revenue adequacy, in line with Kaldor (1963). The IMF considers a 15 percent tax to GDP ratio to be the threshold of tax revenue adequacy and considers countries with ratios below this threshold to be high risk (IMF, 2011). For its own part, the United Nations (UN) set the minimum tax to GDP threshold for developing countries to attain the 2015 Millennium Development Goals (MDGs) at 20 percent.

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Realizing the strategic role of tax revenue adequacy in the developmental aspirations of developing countries, the UN, IMF, Organisation for Economic Co-operation and Development (OECD), Department for International Development (DFID), and other international organizations have been at the forefront of driving tax policy and administration reforms in these countries. Initially, the emphasis was on tax structure and policy. Developing countries were dependent on taxes on imports and exports (trade taxes), and the IMF introduced a major policy instrument, Value Added Tax (VAT) (International Monetary Fund, 2011). Despite policy reforms, the challenges of tax revenue generation persisted and this led to the realization that much more than policy reforms would be needed to improve tax revenue generation in developing countries. As noted by Casanegra de Jantscher and Bird (1992), policy reforms need to be accompanied by tax administration reforms. Furthermore, Richard Bird, a staunch advocate of tax administration reforms, stated that "policy change without administrative change is nothing" (1991, p. 39). Bird's position was in line with the thinking of fiscal experts at the IMF. For instance, Milka Casanegra de Jantscher, who was a deputy director of the IMF's Fiscal Affairs Department in the 1980s and 1990s, stated: "tax administration is tax policy" (1990, p.179).

As a result of the advocacy of fiscal experts and the IMF, tax administration reforms were initiated in many developing countries. The highlights of these reforms included the construction of robust taxpayer databases, in which all taxpayers were identified with a unique taxpayer identification number (Thirsk, 1997). Other elements of the reforms involved simplifying tax laws, harmonizing tax rates, granting autonomy to tax revenue authorities, computerization, and implementing staff training (Di John, 2006; Silvani & Baer, 1997). As expected, the implementation of tax administration reforms in developing countries resulted in considerable successes. Silvani and Radano (1992), who reviewed tax administration reforms in Bolivia and Uruguay, stated that tax revenue appreciated phenomenally, from 1 percent of GDP in 1985 to 7.4 percent in 1990. Similarly, Bahl and Martinez-Vazques (1992) credited tax administration reforms with improving tax revenue generation in Jamaica and Guatemala, although the improvements were not as drastic as those seen in Bolivia and Uruguay. McLure and Pardo (1992) credited tax administration reforms for increased income tax receipts in Colombia, while Due and Greany (1992) stated that tax administration reforms led to enhanced VAT generation in Trinidad and Tobago.

The success of tax administration reforms was acknowledged in Asian countries, as well as in the above-mentioned Latin American countries. For example, Gillis (1989) stated that Indonesia was one of the typical developing countries relying on natural resource exports, but the reform of its tax administration increased its tax to GDP ratio to about 50 percent, a phenomenal improvement. Similarly, Sewel and Thirsk (1997), and Bulutoglu and Thirsk (1997) credited tax administration reforms for the improvement of tax revenue in Morocco and Turkey respectively. More recently, the International Tax Compact (ITC) and OECD reviewed tax administration reforms in seven countries across four continents: Bangladesh, Vietnam, Afghanistan, Bosnia-Herzegovina, Georgia, Paraguay, and Rwanda (ITC & OECD, 2015). The study credited tax administration reforms for an improvement in tax revenue generation in these countries. Surprisingly, fragile and post-conflict states, such as Afghanistan and Rwanda, also saw improvements in their tax revenue as a result of tax reforms.

Despite these successes, however, tax revenue generation in developing countries remains far from adequate. Although there have been more than thirty years of tax administration reforms in developing countries, these nations' tax to GDP ratios remain far below the IMF and UN threshold, and this has continued to attract scholarly attention (Burgess & Stern, 1993; Moore,

2013; Mascagni, Moore, & McCluskey, 2014; Besley & Persson, 2014). Recently, the OECD (2014) classified 51 developing countries as "fragile" – i.e. states prone to failure. The OECD stated that these countries' fragility arises from their inability to generate adequate tax revenue in the face of falling prices of natural commodities exports and dwindling receipts from aids. This shows that tax administrations in developing countries are still unable to generate adequate tax revenues, despite having undergone reforms. The IMF and other multilateral organizations have continued to work on the challenges of tax revenue generation in these countries. Recently, Richard Bird, arguably one of the most prolific experts on tax administrations in developing countries, has acknowledged the persistence of the problem of tax revenue generation despite years of reforms (Bird, 2015).

The underlying question in this discussion is: what are the challenges facing tax administrations in developing countries, which have resulted in huge gaps in revenue generation? While this question has been explored by scholars and practitioners alike, the 5th Annual Tax Administration Research Center (TARC) Workshop provided researchers with a unique opportunity to further explore this question. This workshop was unique in the sense that it brought together scholars and practitioners working in developing countries, thus providing a rich blend of theory and practice. Scholars from universities in Malaysia, South Africa and Nigeria were present, as well as practitioners from the revenue authorities of Nigeria, Kenya and Indonesia. Moreover, there was a presentation by a member of staff of the Fiscal Affairs Department of the IMF, who is a Tax Administration Diagnostic Assessment Tool (TADAT) expert, with wide-ranging field experience in developing countries. TADAT is an assessment tool developed by the IMF to evaluate and improve tax administration especially in developing countries.

As to be expected from such a diverse group, discussions at the workshop were enriched by papers from multidisciplinary backgrounds and practitioners' field experiences. This discussion paper provides an analytical synthesis of the various papers presented at the workshop, thus providing useful insights and takeaways from the workshop. While the workshop presenters discussed a wide range of factors that constitute challenges to tax revenue generation in developing countries, our analysis shows that these factors fall into two broad categories: factors within the control of tax administration and factors outside the control of tax administration. The discussion proceeds as follows: section two discusses the challenges facing tax administrations as described by presenters at the workshop. Section three discusses findings from the workshop papers relating to analytical insights about factors within the control of tax administrations and those outside of their control. It also discusses how the contribution of the workshop advances knowledge of the challenges of tax administrations in developing countries. Section four concludes the discussion.

2. INSIGHTS FROM THE 5TH ANNUAL TARC WORKSHOP (2017)

As stated in the introduction, the 5th Annual TARC Workshop brought together a mix of scholars from multidisciplinary backgrounds, and practitioners from national and international agencies. Scholars from universities across five continents participated. Interestingly, practitioners were also from diverse jurisdictions across the continents and included an IMF expert on tax administration evaluation who has field experience across many developing countries. In response to the workshop's theme, which placed emphasis on tax administrations in developing countries, there were many presentations made by scholars and practitioners from these countries. The presentations were enriched by their multidisciplinary flavor, and the

mix of theoretical and practitioners' perspectives. This section of the discussion presents the preliminary findings from papers presented at the workshop. Additionally, in presenting the findings, we analyze them in relation to previous studies. Our findings are categorized into five themes: inadequate and ineffective databases; complexity of the tax system; audit effectiveness; trust in authorities, perceived corruption and the supply of public goods; and strained power, and the fiscal relationship between central and subnational governments.

2.1. Inadequate and ineffective databases

Papers at the workshop found the existence of inadequate and ineffective taxpayer databases to be a key challenge for tax administrations in developing countries. The paper presented by Adegboye (2017), who carried out fieldwork in Southern Nigeria, found that, in the absence of a reliable database to support tax administration, tax agencies resort to presumptive taxes and contracting out tax collection to consultants. Similar field work in northern Nigeria, conducted by Ndajiwo (2017), found that tax administrators were working with a poor database, which hampered their revenue generation efforts. In response to the presentations, practitioners with extensive field experience, especially in Africa, agreed that the existence of inadequate taxpayer databases poses a huge challenge in that part of the world, due to entrenched informality. As noted in the TADAT Program Document (2013, p.5):

> without complete and accurate information about the taxpayers registered with the tax administration, and an understanding the profile of those who chose to remain outside, it is not possible to provide effective and efficient service to support voluntary compliance and to take action against noncompliance.

It is glaringly obvious from this statement that there are different issues which need to be considered when tackling the challenges of maintaining an effective taxpayer database. Firstly, the information held about the registered taxpayers needs to be accurate. If it is not, the tax authority would be operating on erroneous assumptions, and this could negatively affect tax revenue generation. Secondly, it is important to hold useful information about those who are outside of the tax net, as such information is needed in order to bring them into the tax system or to introduce policies that could help to do this. Tax administrations in developing countries currently face challenges in both areas identified above. While tax administration reforms have been carried out in most developing countries in the past thirty years, and have usually involved updating taxpayer databases, these reforms largely appear to have been about computerization (Di John, 2006). While computerization is desirable in order to speed up information processing, enhance efficiency, and increase the capacity to store huge volumes of information, building an effective database of taxpayers goes beyond this. As noted by Casanegra de Jantscher and Bird (1992), the computerization of taxpayer databases in the 21st century is too important to be left to computer specialists alone. Administrators and researchers must be involved in the development of the tax management information system. The tax management information system must include details of the uses to which tax administration resources are put and outputs generated from such uses, as well as information on actual and potential tax bases.

The findings presented at the 5th Annual TARC Workshop suggest that tax administrations in developing countries are still struggling to catch up with this trend in 21st century tax management information system development. Computerization for its own sake would not be enough.

2.2. Complexity of the tax system

Tax system complexity has been an issue of concern for stakeholders in developing and advanced countries over the years, and it was a recurring theme in the findings of papers presented at the 5th Annual TARC Workshop (Adegboye, 2017; Ndajiwo, 2017). The authors found that taxpayers face a mix of taxes that are not only confusing, but also challenging in terms of their compliance costs. In addition to maintaining effective taxpayer databases, as discussed earlier, simplifying the tax system has been a goal of tax administration reforms in developing countries. There was a consensus among researchers at the workshop that enlightenment campaigns and awareness are being intensified across developing countries. According to PricewaterhouseCoopers (PwC) and the World Bank (2017), average tax compliance times are decreasing in developing countries, although much still needs to be done. They attributed the improvement to the growing adoption of e-filing.

It is puzzling, however, that despite the increasing simplification of tax compliance procedures and creation of intensified awareness across developing countries, tax compliance has yet to improve commensurately. According to Maimbo Nyanga, the IMF’s TADAT expert at the 5th Annual TARC Workshop, there are country cases in which knowledge was passed to taxpayers and awareness was created, but taxpayers failed to be impressed. Insights from the workshop indicate that simplifying tax systems and continuing to improve awareness may increase tax collection in developing countries, but these methods appear to be inadequate when tackling the issue of non-compliance to a large extent. Perhaps, as suggested by a participant, what is needed is taxpayer engagement. Taxpayer engagement goes beyond simplifying the tax system and creating awareness. Engagement involves taxpayer participation at the agenda-setting, policymaking and implementation stages (Umar, 2017).

2.3. Audit effectiveness

One of the key insights gained at the 2017 TARC Workshop was from the presentation on audit effectiveness by Umar (2017). While previous research on the relationship between audit enforcement and tax compliance has traditionally focused on the effects of audit probability, detection probability and sanctions, Umar argued that the dynamics of audits in developing countries do not necessarily follow the assumptions made in advanced countries. He argued that, despite the new wave of socio-psychological variables in the aftermath of Allingham and Sandmo (1972), audit could still play a key role in tackling the large-scale tax non-compliance in developing countries. However, there is a huge gap in our understanding of the concept of audit. Existing research findings about the topic are fragmented in terms of audit probability, detection probability, fines, and sanction severity. Many studies treat these concepts in isolation and the few that combine them neither combine them all nor treat them as dimensions of the same construct. Umar stated that segregating these concepts leads to a problem of construct validity. Instead, he advocates a construct of ‘audit effectiveness’, which subsumes audit probability, detection probability, and sanction effectiveness.

This argument is underpinned by system theory, which postulates that phenomena should be understood in the context of the systems in which they operate. For instance, the probability of audit determines whether or not a taxpayer will be audited. However, in developing countries, unlike in advanced countries, the audit rate or probability does not translate to automatic detection, because detection is influenced by other variables, such as the experience and integrity of the auditors. Even if non-compliance is detected, in a developing country, there is

no automatic guarantee that the taxpayer will be fined or prosecuted, because the tax administration could be frustrated by other agencies involved in the system. Even if audit probability and detection probability both work, a failed sanction will render them useless. For audit to perform its role as a deterrent, it must be taken as a holistic system in which all parts support one another. Umar's study presented an audit effectiveness model and explained its components, their individual roles, and how they interlink to constitute a holistic and systemic construct of audit effectiveness. While the theory should hold in every context, it is particularly useful in developing countries where the system is ineffective and vulnerable to leakages in all areas. The study concludes that understanding audit effectiveness as a composite construct comprising of audit probability, detection probability, and sanction effectiveness holds the key to understanding the challenges of tax administration in developing countries.

2.4. Trust in authorities, perceived corruption, and the supply of public goods

Trust in authorities has been a recurring issue in the efforts made by researchers to investigate the determinants of tax compliance (Kirchler, 2007). While trust in authorities is an issue in both advanced and developing countries, it constitutes a greater problem in developing countries, where governance is predatory and corruption is rife (Moore, 2004; 2013). In the midst of the unhealthy relationship between authorities and citizens in developing countries, tax compliance rates are very low (Fjeldstad & Rakner, 2003), thus affecting the capacity of these states to generate revenue in order to provide essential services. To worsen matters, the leaders of some of the developing countries prefer to source revenue from exports of natural resources and foreign aid. By prioritizing these revenue sources, they become less reliant on taxes and, consequently, less accountable to the taxpayers (Brautigam, 2008). However, this situation results in a vicious cycle of low revenues, non-accountability, non-provision of public goods, and mistrust of authorities which ultimately leads back to low revenue.

Corruption and trust in authorities came up in the discussions at the 5th Annual TARC Workshop. Palil and Faizal (2017), who conducted an extensive survey of taxpayers in Malaysia, found that trust in authorities plays a key role in the relationship between authorities and taxpayers. For their own part, Rosid, Evans, and Tran-Nam (2017) investigated the effects of perceived corruption on tax compliance in Indonesia. They found that the phenomenon is perceived to be widespread in the country, and that it significantly affects taxpayers' trust in authorities and, consequently, their willingness to comply. Interestingly, perceived corruption and distrust in authorities are, in both studies, like Siamese twins. Where taxpayers perceive corruption to be prevalent, they distrust authorities. Both factors work to affect tax compliance negatively. The links between perceived corruption, distrust of authorities, and supply of public goods are also evident in previous literature. Kraay, Kaufmann, and Matstruzzi (2010) define corruption as the conversion of public resources to private use. Consequently, fewer public goods are available for the welfare of citizens and this goes on to cause tax non-compliance.

2.5. Strained power, and the fiscal relationship between central and subnational governments

The idea of fiscal federalism is gaining momentum worldwide. As Oates (1999, p.1120) puts it, "fiscal federalism is in vogue". It is being embraced in both advanced and developing countries. The philosophy behind fiscal federalism is that local or subnational governments are closer to the citizens and, hence, are better able to identify and meet those citizens' needs.

However, such responsibilities should co-exist with the power to impose certain taxes within the jurisdictions of subnational governments. Bahl and Bird (2008) identified personal income tax surcharges, taxes on the use of motor vehicles, payroll taxes, and property taxes as some of the taxes usually imposed by subnational governments. The authors stated that proponents of fiscal decentralization argue that it is capable of resolving most of the challenges of economic development in developing countries by improving revenue mobilization and ensuring the accountability of elected officials through grassroots participation in governance. While the ideals of fiscal decentralization are lofty, Bahl and Bird (2008) also noted that they cannot be attained unless a democratic mechanism exists, through which the citizens (taxpayers) can exercise control. Information by which to evaluate the local government's performance must also be available. These essentials are missing in most developing countries.

As noted by Bird and Vaillancourt (1999), fiscal federalism could be a double-edged sword in developing countries. It could improve revenue generation, as argued earlier, but could also constitute a stumbling block to tax revenue generation. Prud'homme (1995) argued that it could increase costs, reduce efficiency in service delivery, and lead to macroeconomic instability. Findings presented by Chilenga and Guimares (2017) at the 5th Annual TARC Workshop appear to confirm the positions of Bird and Vaillancourt (1998) and Prud'homme (1995). Chilenga and Guimares (2017) interviewed stakeholders of subnational taxation across South Africa and Nigeria, and found that political or constitutional federalism does not effectively translate to fiscal federalism in practice. While the federal authorities are quick to offload responsibilities onto local governments, they are slow in ceding taxation powers to them, thereby stalling the performance of the local authorities. In many cases, power tussles ensued between the tiers of government and, in some instances, citizens face double taxation, as both tiers of governments flex their muscles. Taxpayers are always at the receiving end when such power tussles complicate tax systems. As could be expected in such circumstances, tax evasion and non-compliance become rife.

3. POLICY IMPLICATIONS OF FINDINGS FROM THE TARC WORKSHOP 2017

The findings from the 5th Annual TARC Workshop, as discussed in the preceding section, are presented in Table 1, along with a policy recommendation for each theme.

These insights are very interesting and have the potential to open new areas of discussion on the salient issue of low tax revenue generation in developing countries. The findings and discussions at the workshop provided fresh perspectives on the role played by tax administration in generating tax revenue in developing countries.

Activities and policies aimed at increasing tax revenue in developing countries have traditionally revolved around improving tax administration. As stated in the introduction to this paper, tax administration reforms have been taking place in developing countries for decades, with remarkable support from multilateral organizations and individual donor countries. Yet, despite some improvements, low tax revenue is a topical issue in developing countries today, just as it was more than sixty years ago, when Nicholas Kaldor (1963) drew scholarly attention to the issue.

Table 1: Thematic areas of findings presented at 5th Annual TARC Workshop and policy recommendations

Theme	Policy recommendation
Ineffective and incomplete databases of taxpayers and their financial activities.	Implementing more effective databases.
Tax system complexity, knowledge and awareness.	Simplifying the tax system, going beyond awareness to engage taxpayers in policy formulation and implementation.
Audit ineffectiveness.	Ensuring a more effective audit system encompassing audit, detection and sanctions.
Corruption, distrust in authorities, and inadequate supply of public goods.	Build trust in political leadership, reduce corruption, and improve supply of public goods.
Strained power, and the fiscal relationship between central and sub-national governments.	Resolve areas of conflict in the fiscal relationships between central governments, subnational governments and taxpayers.

At this point, it is necessary to ask whether or not tax administrations are capable of tackling all the challenges of tax revenue generation in developing countries. It is doubtful they can resolve all of the challenges. Based on insights from findings and discussions at the 5th Annual TARC Workshop, we argue that the problem of low tax revenue generation in developing countries has persisted because some of the challenges faced in these countries are beyond the control of tax administrations. While tax administrations can increase their effectiveness in order to tackle some of the challenges, they have little control over others. We continue our study by re-examining the five issues raised in Table 1, and discussing those that tax administrations can control and those that they cannot. The model in Figure 1 depicts the classification.

In other words, can tax administrations in developing countries implement all of the policy recommendations in Table 1? Figure 1 reveals an interesting paradox. Tax administrations are usually burdened with the responsibility of tackling the challenges of tax collection and keeping tax monies flowing into government coffers. In view of their enormous responsibilities, governments in developing countries and their international supporters have focused on reforming them. However, as shown in Figure 1, out of the five policy recommendations derived from the findings of papers at the TARC Workshop, two can be fully implemented by tax administrations (policy recommendations 1 and 2) while two cannot (policy recommendations 4 and 5). Policy recommendation 3 (audit effectiveness, comprising of audit and sanction) presents a peculiar problem. It can only partially be implemented by tax administrations, as will be discussed below. We now provide a brief outline of policy recommendations 1 to 5, and argue why tax administrations are able to implement recommendations 1 and 2, cannot implement recommendations 4 and 5, and can only partially implement recommendation 3.

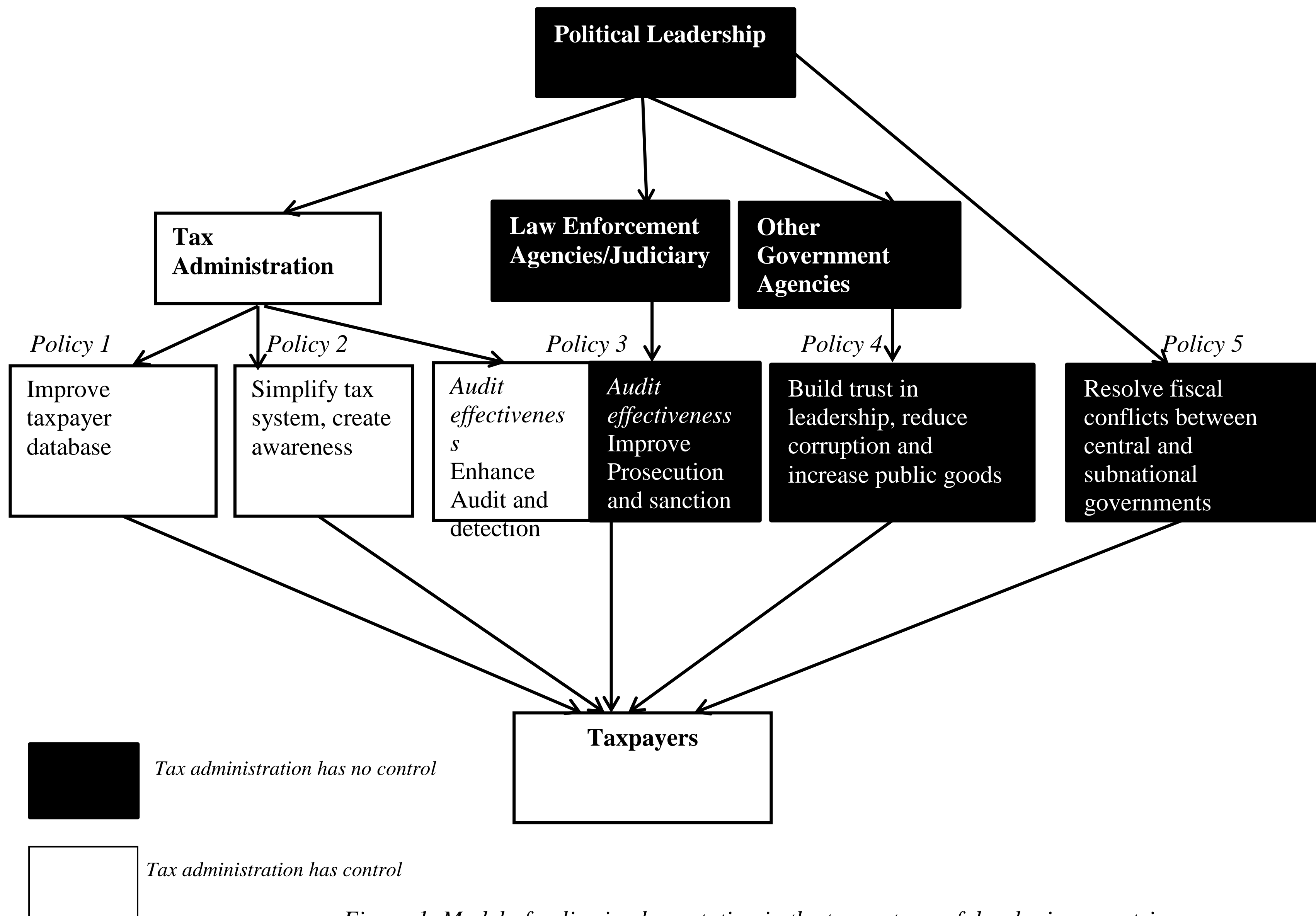

Figure 1: *Model of policy implementation in the tax systems of developing countries*

3.1. Policy recommendation 1: Implementing a more effective taxpayers' database

The findings from papers presented at the 5th Annual TARC Workshop on the inadequacy of taxpayer databases show that this issue can be remedied by improving existing databases, and incorporating information systems and data that were previously unavailable. As the IMF (2015, p.82) noted, "successful revenue administration depends on managing information effectively." The IMF further advised that an effective information system in a tax administration goes beyond costly investment in technology or excessive focus on the tools. Instead, the goal should be to ensure that relevant information is available at the right time. The issues involved in improving taxpayer databases and the management of information systems are well within the grasp of tax administrations in developing countries. The good news, according to IMF (2015), is that developing countries could leapfrog their way to technological advancement, as tax administrations in advanced countries are now battling with outdated systems. Tax administrations in developing countries are capable of taking advantage of modern information technologies. They could deploy more resources and management commitment to implementing modern information systems. As stated earlier, tax administrations in developing countries are fortunate to have willing and enthusiastic supporters in multilateral organizations and donor countries. Moreover, the Semi-Autonomous Revenue Authority Model is currently in vogue in most developing countries. Using this model makes tax administrations fairly independent of mainstream government bureaucracy. This means that they are able to set and manage their own priorities. They can choose to invest more in information technology.

3.2. Policy recommendation 2: Simplifying the tax system, creating adequate awareness and engaging taxpayers

Complexity of the tax system and the knowledge/information gap were some of the challenges identified from the findings shared at the 5th Annual TARC Workshop. The appropriate policy response should be a continuous simplification of the tax system. While ongoing efforts are being made to this effect, the ultimate goal should be to create taxpayer-friendly tax systems in which taxpayers can pay tax with ease and are happy to discharge their fiscal duties. Anything short of this is unacceptable and could lead to reluctance to comply. Developing countries' tax authorities urgently need to imbibe the spirit of the New Public Management, which means taxpayers should be seen as business customers worthy of being treated as kings. Current efforts aimed at creating knowledge/awareness appear to hinge on information campaigns. As noted by Maimbo Nyanga, the IMF's TADAT expert at the 5th Annual TARC Workshop, field experience shows that such campaigns do not work in all cases. The mere sharing of information about tax issues may not be adequate. As suggested by Umar (2017), what could work is a two-way interaction between tax authorities and the taxpayers, so that information does not just flow in one direction (from tax authorities to taxpayers). Input should be sought from the taxpayers, and there should be painstaking negotiation and consensus between tax authorities and taxpayers before policies are implemented. If taxpayers are involved in policy formulation, implementation becomes easy and this further saves tax authorities the cost of having to mount expensive information campaigns that may not get favorable responses from taxpayers. As with policy recommendation 1, the issues of tax system simplification and taxpayer engagement are well within the control of tax administrations. Again, the current semi-autonomous status of most tax administrations in developing countries affords them discretion as to how much to simplify the tax system and how far to engage with taxpayers.

3.3. Policy recommendation 3: Ensuring effective audits in terms of audit, detection and sanctions for evaders

Looking at Figure 1, the policy recommendation of ensuring effective audit appears to be caught in the middle of the two extremes. It is different in the sense that the implementation of this policy cannot be effected by tax administrations alone. While the tax administration controls some areas of the audit effectiveness policy (audit and detection), the other areas (prosecution and sanction), can only be effected with cooperation from other government agencies and the judiciary. According to Umar's (2017) presentation at the 5th Annual TARC Workshop, developing countries are peculiar and their peculiarity must be noted when tackling the issues involved in audit. He explained that audit, detection and sanction comprise a flow of activities working together in a sequence, and operate within a system to attain the objectives of deterrence and tax compliance. Hence, audit, detection and sanction conform to the system theory, which postulates that all parts work together to produce results. As such, neglecting any part of the system could result in disastrous consequences for the overall goal.

As noted earlier, the context of developing countries constitutes a systemic challenge for tax administrations. Even when they improve their audit processes and are able to detect evasion, evaders may escape via complicit law enforcement agents. Worse still, cases of evasion end up in courts where they drag on endlessly. For instance, Everest-Phillips (2010) found that tax evaders in Yemen are happy to go to court, as they are aware their cases will not be resolved for about seven years, during which time they are not liable to pay the amount in contention. As in the Yemen case, interviewees in Umar's (2017) study challenged the interviewers to mention any case of successful prosecution of tax evasion in Nigeria, but the interviewers could not do so. This shows that sanctions are not effective when dealing with tax evaders in many developing countries.

Unfortunately, as noted by Kirchler (2007), if tax evaders go unpunished, the entire tax system will, in time, be overwhelmed by evasion, as even hitherto compliant taxpayers may feel cheated and join the ranks of the evaders. Looking at the gap in prosecution/sanction in developing countries, it is clear that tax authorities' hands are tied. Looking at Figure 1, while tax administrations can implement policy recommendations 1 and 2 on their own, they cannot do so with policy recommendation 3. Tax administrations can only audit and detect evasion. The implementation of prosecution and sanctions depends on the effectiveness of a country's legal system. Therefore, efforts need to be made to tackle the challenge in all aspects of the system. A possible policy option could be creating special courts or tribunals for tax offences, and training special prosecutors and judges for tax-related cases. This will ensure that cases involving tax evasions are not bogged down in the bureaucratic bottlenecks and corruption currently associated with the conventional justice system. While this is desirable in the short-term, it would be better in the long run for political leadership in developing countries to ensure a systemic cleansing, as it would be difficult to maintain an island of effective tax administration amidst a sea of inefficiency and corruption.

3.4 Policy recommendation 4: Create trust in political leadership, reduce corruption, and improve the supply of public goods

Among the numerous factors that influence tax compliance, the interlinked effects of corruption, distrust for political leadership and inadequate supply of public goods appear to have the most influence. Findings from taxpayer surveys across advanced and developing countries are largely consistent on this issue, and results from surveys and experimental studies

have largely been consistent on the positive relationship between the availability of public goods and tax compliance (Alm, Jackson & McKee, 1992; Aiko & Logan, 2014; Bodea & LeBas, 2014). From the model in Figure 1, it is glaringly obvious that the tax administration does not play an active role in the supply of public goods and services. The job of a tax administration is to act as a mediator in the fiscal social contract between the citizens and the government by collecting taxes from the former and transferring those funds to the political leadership. How well the political leadership manages taxpayers' monies and how many public goods they choose to provide is not within the domain of tax administrations anywhere in the world. It should be noted that the tax administration itself is an agency of political leadership, and is only one of a number of agencies that act as interfaces between taxpayers and the political leadership.

While the supply of public goods, reducing corruption and building trust are the most important policy initiatives that could improve tax compliance, it is obvious that these matters are well beyond the scope of the tax administration's role. The tax monies collected by a tax administration are channeled to the government treasury, from where they are dispensed to various government agencies. The job of the tax administration stops at the point at which the funds get transmitted to government's coffers. Anything that happens beyond that point does not involve the tax administration. Developing countries are known for widespread corruption, which breeds distrust and tax non-compliance (Moore, 2004; 2013). As we have argued in this section, policy recommendations for building trust between taxpayers and the political leadership, fighting corruption, and improving public services must look beyond the tax administration. The political leadership and the myriad of government agencies that provide public services to the taxpayers should be the focus of policies aimed at building trust and fighting corruption.

3.5 Policy recommendation 5: Resolve the conflicting fiscal relationship between the federal and sub-national governments and the taxpayers

The 5th Annual TARC Workshop included discussions about the thorny issue of fiscal federalism in developing countries and its negative influence on tax compliance was brought to the fore. Taxpayers are enmeshed in a conflicting fiscal interrelationship with, on one hand, the sub-national government and, on the other hand, the central government. More often than not, taxes are duplicated and made more complex, thus leaving the taxpayers frustrated; in such circumstances, they are easily swayed towards non-compliance. The policy implication is to resolve areas of conflict between the central and sub-national governments. The taxpayers should not face ambiguity about their fiscal obligations to either tier of government. In each case, the fiscal responsibility of the taxpayer to pay tax must be matched by the corresponding service obligation of the tier of government that collects the tax. Again, as with policy recommendation 4, resolving the needlessly complicated relationships between the tiers of government and the taxpayers is not within the domain of the tax administration. Tax administrators are technocrats using their professional expertise to implement fiscal policies/directives from the political leadership. They are not politicians and cannot meddle in the fiscal turf war between politicians in the central and sub-national governments.

4. Conclusion

The issue of low tax revenue generation in developing countries has attracted global attention as far back as 1963, when Nicholas Kaldor brought it to the fore in his seminal paper. More than 60 years later, the issue remains unresolved, despite more than 30 years of tax

administration reforms supported by multilateral organizations and donor countries. In this paper, we discussed insights from the 5th Annual TARC Workshop (2017), which featured a special theme; the challenges of tax administration in developing countries. We discussed findings from the workshop, adding some useful analytical insights.

Findings and discussions at the workshop were incisive, given the rare blend of academic researchers from multidisciplinary background and field practitioners who attended the event. The findings and discussions were along five thematic areas, as follows:

- Inadequate and ineffective taxpayer databases.
- Complexity of the tax system and taxpayer apathy towards current knowledge/awareness creation.
- Ineffectiveness of the audit process.
- Systemic corruption and distrust of political leadership.
- Conflicting fiscal relationships between the central and sub-national governments and the taxpayers.

While these discussions have some precedence in the growing literature on taxation in developing countries, there is no doubt that fresh perspectives have emerged from the 5th Annual TARC Workshop. Our own analytical contribution in this discussion paper should open a new line of debate about the critical issue of low tax revenue generation in developing countries. For instance, there appears to be an excessive focus on tax administrations in developing countries in the quest to improve tax revenue generation. Consequently, extensive tax administration reforms have been carried out during the past thirty years and are ongoing. However, the analytical insights presented in this paper show that the challenges of raising tax revenue in developing countries cannot be tackled by tax administrations alone. While tax administrations can tackle some of the problems, they may not be in the position to deal with others. The policy implication is such that, while tax administration reform is commendable and should be sustained, the issues which cannot be resolved by tax administrations should simultaneously receive more attention.

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TAX AND CORRUPTION: A GLOBAL PERSPECTIVE

Chris Evans[1], Richard Krever[2] and James Alm[3]

No society is immune from corruption[4] and, within any society, taxation plays a pivotal role in relation to such activity – which can be both positive and negative. On the positive side, the tax system can provide the kind of regulatory framework and institutional foundations which can help to eradicate or constrain corrupt practices. On the negative side, corruption reduces tax compliance.[5] Even perceptions of corruption, whether 'grand' or 'petty', seriously undermine taxpayers' intentions to report actual income or sales.[6] The relationship between tax and corruption is therefore complex and critical.

Two events with the common theme of "Tax and Corruption", held in Australia in April 2017 and in South Africa in October 2017, explored this complex and critical relationship. In Sydney, in a symposium convened by UNSW Sydney, hosted by KPMG and sponsored by the Asia Development Bank Institute, the focus was on tax and corruption in the Asia-Pacific region. In Johannesburg, in a symposium sponsored by the South African Institute of Chartered Accountants and convened by the University of Pretoria, UNSW Sydney and the University of Western Australia, the focus shifted to Africa. Despite the regional variations, the two events canvassed many of the same themes and came to many of the same conclusions, affirming the view that, whilst there will always be country-specific aspects, the issues raised by the relationship between tax and corruption are, more often than not, global.

Each event was attended by between 30 and 40 invited delegates from all over the world, including representatives from academia, the tax profession, international organisations, the business community and civil society, as well as senior tax administrators and policymakers. The symposia, each of which lasted for two days, were designed to provide safe environments in which research, thoughts and ideas relating to the problems of tax and corruption, and possible solutions or ways forward to tackle some of the problems, could be freely debated. Both followed broadly similar formats.

After welcomes from senior representatives of the organising institutions, each symposium commenced with a keynote address designed to contextualise or set the scene for the papers and presentations to follow. In Sydney, the keynote address on the topic of "Corruption, Complexity and Tax Evasion" was delivered by the former Director of the Fiscal Affairs Department of the International Monetary Fund, Dr Vito Tanzi. The Johannesburg keynote address was provided by Professor James Alm of Tulane University, USA, who spoke to a similar title ("Corruption, Taxation and Tax Evasion"), but with entirely different content and emphasis. Dr Tanzi's address explored the thesis that tax evasion is facilitated by corruption and that corruption, in turn, is facilitated by tax complexity. His presentation argued, and provided evidence to support the argument, that tax systems have become far more complex than they need to be, with a resulting impact upon corruption and evasion. In contrast, Professor

[1] UNSW Sydney and University of Pretoria.
[2] University of Western Australia.
[3] Tulane University.
[4] Transparency International (2016).
[5] Alm, Martinez-Vazquez & McClellan (2016).
[6] Rosid, Evans & Tran-Nam (2016).

Alm's keynote examined three specific questions. Firstly, on a general level, what are the causes and consequences of corruption? Secondly, on a more specific level, what is the relationship between corruption and taxation? Thirdly, on an even more specific level, what is the relationship between corruption, taxation and tax evasion? He concluded with a discussion of how this evidence can be used to control corruption, making use of a different, if related, body of work on tax evasion.

Early sessions at both events explored the relationship between tax and corruption from the broader macro-economic and social perspectives. They considered issues such as the complex relationships between corruption, inequality and economic growth, as well as the economic and social costs of corruption and how those could be mitigated. In addition, they provided a general overview and analysis of the problems of corruption in the Asian-Pacific and African tax environments, and considered international and national legislative and strategic frameworks governing corruption. The sessions also analysed the state of the current literature and research designs and methodologies adopted in academic publications on tax and corruption.

Both events featured sessions devoted to the challenges and possible solutions for specific countries in the two regions. Hence country-specific presentations were made about tax and corruption in Australia, Cambodia, China, Indonesia, Japan, Korea, Mongolia, New Zealand, Papua New Guinea, the Philippines and Thailand at the Sydney symposium, and in Ghana, Nigeria, South Africa, Tanzania and Uganda at the Johannesburg event.

The topic of corruption in revenue agencies was also a key sessional theme at both events. In Sydney, the session included a paper on best practice in Australia designed to detect and combat internal revenue officer fraud. Case studies relating to East Timor, Indonesia, the Philippines and Vietnam were used to illustrate the potential for, and threat of, corrupt activity at all levels of officialdom in revenue agencies in both developed and emerging economies. The Johannesburg symposium featured a presentation on integrity as the keystone to good tax, which was delivered by a former Australian Commissioner of Taxation. Other presenters separately explored the principles and practice of tackling corruption in developing countries, and how petty tax corruption of revenue officials impacted upon manufacturing innovation.

Later sessions focussed on responses to combat corruption, ranging from transparency ("Is sunlight the best disinfectant" was the compelling title of one presentation) and disclosure (including whistle-blowing) through to the many aspects of policy, legislative and administrative or institutional reform and governance designed to tackle corruption in the tax environment.

Despite a total of 26 presentations being made in the Sydney symposium and 21 in Johannesburg, plenty of room was left for discussion and debate in all sessions; an opportunity not missed by the participants.

A large number and variety of themes emerged from the two symposia. Inter alia, it was noted that corruption has many faces and definitions, and that significant work was being done on the drivers and the effects of corruption in the tax world. However, it was recognised that, despite the increasing amount of research into corruption, this research is difficult to carry out, largely due to data and measurement issues. Moreover, a lot of the research was very case, context or country-specific, with the result that any solutions were also often likely to be case, context or country-specific.

One valuable outcome of the symposia was the critical questioning of current responses. A senior tax administrator, for example, pointed out that the practice of "rotating" staff to disrupt any ties that might be built between taxpayers and tax officers has the negative effect of preventing the organisation from building up higher levels of expertise in particular areas or losing the value of that expertise where it already exists. Also, the problem it seeks to address is actually symptomatic of a broader, structural, tax administration issue. Ties between taxpayers and tax officials only pose a risk if the tax assessment and appeal processes rely on individual contact between taxpayers and tax officials. Having a modern administration system employing rigorously applied processes that separate assessments, collections and appeals from individual contacts in place can remove the need for rotations.

There were a number of other lessons that emerged from the papers and presentations. For example, it was clear that corruption is widespread, linked to tax evasion, and often driven by greed, but also by poor governance/institutions and monopoly power in such institutions. Other factors included: a lack of transparency; complicated and/or discretionary tax systems; poor enforcement; perceptions of unfairness in taxation and services; poor government services; low government wages; and a lack of integrity/ethics/morality. The point was also strongly made that responsibility did not simply lie with public officials: business was not blameless, since corruption is generally a two-sided transaction. Corruption was shown to have clear (and usually detrimental) effects on innovation, fiscal citizenship and tax compliance.

Much of the content of the presentations and papers, and the discussions they prompted, focussed on potential means by which corruption in the tax environment could be addressed. Corruption can, very clearly, be reduced by a host of possible strategies. Some which emerged were: increasing enforcement; instilling integrity/ethics/morality in government officials (and their business counterparts); increasing transparency, along with the power to act on transparency; establishing anti-corruption bodies and laws; changing human resource management practices; reducing tax compliance costs; eliminating or restricting discretionary practices in taxation (ensuring revenue authorities were precise on what is allowed and what is not allowed, even if this increases tax complexity); focussing on "basic" implementation of taxes on domestic taxpayers; educating the "next generation" of citizens and tax administrators (accepting that many of the current generation may be lost); improving institutions and building capacity; having the political will to address corruption; and protecting the "whistle-blower".

Although it was obvious from the array of high-quality research papers and discussions that much more is now known about corruption than when the explosion of corruption research began in the 1990s, there was, nonetheless, a feeling that the papers, presentations and discussions often merely confirmed what participants knew (or thought they knew) when they walked into the events. Arguably, it is more important to establish the new things that participants learned and to establish the areas on which participants changed their minds. It is also critical that further research is undertaken to address some of the "unknowns" that emerged from the proceedings. For example:

- there is a widespread perception that corruption is widespread, but exactly how much corruption is there? That is, can country-level estimates of the extent of corruption be calculated?
- there is a widespread perception that corruption has many (harmful) effects, but exactly how large are these effects?

- there have been many suggested anti-corruption policies, but do any or all of the many proposed and enacted anti-corruption strategies actually work?
- the focus is typically on anti-corruption policies in the public sector, but what about policies that might work via the private sector?
- many have said that it is essential to instill "integrity/ethics/morality" to reduce corruption, but what are the specific actions that can be taken to do this, so that people will "do the right thing"?
- we want to think that there are "best practices" that should be enacted, but can we always expect policies that work in one country to work elsewhere?

This was, perhaps, the most valuable outcome of the two symposia: the identification of areas where much more research is needed. Such research also clearly needs to provide the empirical data upon which future evidence-based strategies can be developed, potentially involving a host of methodologies, including the judicious use of field experiments, laboratory experiments, administrative data and other approaches.

A selection of papers from the two events have been refereed and will be published in December 2017, in a Special Issue on Tax and Corruption of the *e-Journal of Tax Research*.

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BOOK REVIEW: BROWN, KAREN B. (ED.) (2012). *A COMPARATIVE LOOK AT REGULATION OF CORPORATE TAX AVOIDANCE*. DORDRECHT: SPRINGER.

Yuliya Epifantseva and Nigar Hashimzade[1]

This is an impressive collection of 16 country reports, written by legal scholars, on measures taken towards countering tax avoidance. The countries represent Western and Central Europe, North America, Asia, and Australasia, and each country report chapter details various similarities and differences in national approaches to an international problem.

In the preface and introduction, Karen B. Brown, the editor of the volume, describes tax avoidance as a legal but unacceptable activity, which involves taking advantage of ambiguous language of statutes to gain benefits not enjoyed by others, and not intended or anticipated by legislators. In characterising tax avoidance, Brown emphasises the importance of equity and of paying one's fair share of tax: thus, tax avoidance is unacceptable because it shifts the burden of tax onto others. Furthermore, tax avoidance is viewed as a threat to the sovereign right to govern citizens, because it undermines a sovereign intent to treat all taxpayers equally in accordance with the society's values. This perspective on tax avoidance references the recent "sustained decline of world economies" and the need to ensure revenue-raising capacity.

Tax avoidance is contrasted with tax evasion, and with acceptable tax mitigation where the tax advantage is taken as intended by legislators. Further reading reveals that in many countries there are no statutory definitions of tax avoidance and tax mitigation, even though these terms are widely used in practice, whereas the definition of tax evasion refers to the practice being illegal and involving the 'deliberate deceit' of the tax authority. The term "tax mitigation" is not recognised in China (p. 112), while in Germany "only the disguising of tax avoidance is punishable" (p. 166). At the same time, in the UK, the distinction between acceptable mitigation and unacceptable avoidance "is not fixed and legislation is sometimes introduced to stop tax planning devices which had been thought to be acceptable" (p. 319).

Each country report chapter describes: the country's legal system; the main features of tax law; the distinctions made between tax evasion, tax avoidance, and tax mitigation; and the measures taken to counter tax avoidance. They are not, however, entirely uniform, perhaps revealing the differences in intellectual approaches to tax avoidance in these jurisdictions. The chapter on France is, rather bewilderingly, in French, thus depriving the non-francophone readership of undoubtedly one of the most fascinating accounts of tax avoidance in this volume. The chapter on Germany states at the outset that "a description of the German legal system would be incomplete if it did not take into account that Germany is an integral member of the European Union" (p. 152) and includes subsections with descriptions of EU law and European tax law. The only other reference to the unified Europe is in the chapter on Poland, which begrudgingly mentions the country's specific anti-avoidance measures based on EC law (for corporate income tax, but not for taxation applicable to interest and royalty payments). Chapters on anglophone countries pay special attention to the tax intermediaries: the chapters on Australia and Canada discuss penalties for "promoters", where the term may also apply to tax advisors, whereas the chapters on the UK and the United States each have a section on professional conduct and ethics of tax professionals. Somewhat disappointingly, there are no chapters on

[1] Views and opinions expressed herein are not intended to reflect views, positions or policy of any employer, organisation or entity with which either of us is, or has ever been, affiliated.

African countries, contrary to the description on the back cover. An appendix helpfully summarises the anti-avoidance measures taken in all 16 countries included in this volume.

While this might not have been the main subject, one cannot help but reflect on two issues threading throughout the book. Firstly, why is there a need for the governments to prevent and punish tax avoidance if it is legal? Secondly, what is the future of anti-avoidance measures? According to Brown, in addition to the violation of fairness and the waste of resources (by taxpayers and promoters in setting up and using avoidance devices, and the cost to the tax authorities in having to tackle the vice), the damage caused by tax avoidance is a result of the undermining of "the ability of the tax authority to predict the amount of revenue to be raised by a given tax provision" (p.1). Meanwhile, nothing in the book addresses these issues as applied to the ability of taxpayers to predict their tax liabilities when entering transactions in an environment where the distinction between acceptable and unacceptable is not fixed. One argument against the uncertainty in law is that it undermines the ability of citizens to predict the implications of their choices and thus leads to a choice distortion. However, uncertainty in tax law might be a special case - indeed, its desirability at individual and social levels is a subject of debate in the tax law literature.

Another interesting issue worth discussing is the dynamics of the changes in legal treatment of, and societal attitudes to, tax avoidance. The question that remains unanswered here is what drives these dynamics. One explanation is that an economic decline leads to a fall in revenue and rise in social welfare expenditure, and thus prompts a closer scrutiny of tax saving schemes. Perhaps measures against corporate tax avoidance are especially attractive in light of fairness and social justice when the majority of electorate - the 'ordinary taxpayers'- suffer during an economic downturn, which may cause gradual shrinking of the range of 'acceptable' tax-saving behaviours. However, countries are now recovering from the most recent economic and financial crisis (excluding the Brexit shock, the negative effect of which on the UK economy, in addition to the earlier financial crisis, may or may not be long-lasting). With less pressure to raise revenue, will the stringent anti-avoidance framework be relaxed, or are we going to see a hysteresis effect or perhaps even a permanent shift? It remains to be seen whether the explosion of national and transnational anti-avoidance measures presented in the book will survive an economic upturn.

REVIEW OF RECENT LITERATURE

Nigar Hashimzade[1], Antoine Malézieux[2], Lynne Oats[3]

A selection of recently published papers is reviewed below. The aim is to bring together tax administration-related papers from the diverse range of outlets in which they are published. The review is necessarily selective, and the Journal welcomes suggestions for inclusion of papers in subsequent reviews.

TAX EVASION

Abraham, M., Lorek, K., Richter, F., & Wrede, M. (2017). Collusive tax evasion and social norms. *International Tax and Public Finance*, *24*(2), 179-197.

In this paper, the authors focus on collusive tax evasion, e.g. collusion between employer and employee on paying a part of income off the books. The hypothesis here is that social norms drive collusive, rather than independent, tax evasion. Employer and employee should collude if it is the socially accepted behaviour in the society. In a model where deviating from the social norm is costly, the authors show that taxpayers indeed coordinate on comparable declaration rates. The predictions of the model are tested in a laboratory experiment, where participants are exposed, in groups or alone, to strict or relaxed norms. The results demonstrate that under strict social norms, participants in groups of two cheated less than participants working alone. Norms did not affect the participants alone. The authors conclude that it is necessary to take prevalent tax compliance norms into account, before trying to fight tax evasion via setting, e.g. third-party reporting.

Kundt, T.C., Misch, F. & Nerré, B. (2017) Re-assessing the merits of measuring tax evasion through business surveys: an application of the crosswise model. *International Tax and Public Finance*, *24*(2), 112-133.

The starting point of this article is that people are reluctant to reveal their own tax evasion in surveys. The authors try to tackle this issue by introducing a new questioning method: the crosswise model (CM). The CM allows us to estimate the prevalence of tax evasion more precisely, by "bundling" sensitive questions with neutral ones. However, it does not allow us to identify individuals who engage in tax evasion. The authors test this method while interviewing firm managers in Serbia. A CM treatment is compared to a conventional survey method. Underreported sales are 10% higher in the CM treatment. This new method improves truthful declarations of evasion, but has no effect on wage underreporting or social security contributions.

Paetzold, J., & Winner, H. (2016). Taking the high road? Compliance with commuter tax allowances and the role of evasion spillovers. *Journal of Public Economics*, *143*, 1-14.

In this article, the authors study tax evasion through the commuter tax allowance in Austria. In the Austrian tax system, employees can deduct their travel-to-work expenses from their taxable income. These tax deductions are very rarely checked by the employer or the tax administration, leading to a (quasi-) self-report. Thanks to a new database, authors are able to compare the claimed and real travel expenses of each taxpayer for up to 10 years. The results

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show that 30% of all allowance claims are overstated (with a sharp increase when taxpayers reside close to a threshold giving them the right to a higher amount). They also found spillovers of such behaviour: an individual's evasion behaviour strongly correlates with the evasion behaviour of his or her co-workers. This causality is substantiated in another analysis: job changers moving to firms with numerous over claimers tend to over claim. This phenomenon is asymmetric: job changers moving from companies with numerous employees who were over claiming to companies with fewer over claimers kept on evading as much as they did in their previous job.

COMPLIANCE BEHAVIOUR

McKee, M., Siladke, C. A., & Vossler, C. A. Behavioral dynamics of tax compliance when taxpayer assistance services are available. *International Tax and Public Finance.* https://doi.org/10.1007/s10797-017-9466-z

This paper is an experimental analysis that addresses the effect of three issues: firstly, the provision of a liability information service by the tax administration; secondly, the taxpayers' incentives to use this service; and thirdly, the "bomb-crater" effect in this context ("bomb-crater" means that some previously audited taxpayers believe that they cannot be audited again). The lab experiment (a classical Tax Evasion Game) has five different treatments varying the presence of a liability information service, its quality and the cost of obtaining this information. The results show that, firstly, when this service is provided, evasion is reduced. However, the quality of the service does not matter. Secondly, taxpayers' propensity to use this service does not increase with its quality, but decreases with its cost. Thirdly, participants demonstrating "bomb-crater" behaviour are less prone to use this service.

Choi, S. (2017). Does past experience affect future behavior? Evidence from estate tax avoidance behaviour. *International Tax and Public Finance*, *24*, 416-31.

The paper presents an empirical study of the estate tax avoidance strategies of individuals in the United States who have received inheritance from their parents in the past. In the U.S., only estates exceeding a certain threshold are subject to tax, and this can be avoided using inter-vivos transfers. The author finds that those individuals in the sample who have paid estate tax on the inheritance from their parents in the past were more likely to make inter-vivos transfers, such as gifts of cash, to their own children. The effect, estimated using regression discontinuity design, is significant at the extensive margin (the probability of inter-vivos transfers), but not on the intensive margin (the amount of transfers).

Huang, J., & Rios, J. (2016). Optimal tax mix with income tax non-compliance. *Journal of Public Economics*, *44*, 52-63.

The authors develop an optimal mix of a non-linear income tax, that has equality-enhancing redistributive properties but is vulnerable to evasion, and a linear consumption tax, which is non-evadable but is typically regressive. This is motivated by the reliance of many developing countries, with weak enforcement institutions, on consumption tax for raising revenue, which exacerbates inequality and hits poorer households the hardest. For an empirical application, to demonstrate the relevance of the results, the authors calibrate the model to the Russian economy and show that, as the redistributive motive of the social planner becomes stronger, the non-linear income tax becomes more progressive, but the linear consumption tax rate does not increase.

CORPORATE TAXES

Gribnau, H. J. L. M. & Jallai, A.-G. (2017) Good Governance: A Matter of Moral Responsibility and Transparency. *Nordic Tax Journal*, *1*, 70-88.

The authors offer an ethical reflection on the current debate in relation to allegations that multinationals are not paying their fair share of taxes. In that debate, aggressive tax planning is not discussed in terms of a legal/illegal dichotomy, but is discussed in moral terms. To contribute to our understanding of this shift, the authors offer an overview of theoretical literature on morality, before offering normative observations about the role of corporate social responsibility and inviting further research into this area.

Brooks, C., Godfrey, C., Hillenbrand, C., & Money, K. (2016). Do investors care about corporate taxes? *Journal of Corporate Finance*, *38*, 218-48.

The paper investigates the link between the corporate taxes paid by UK businesses and their financial performance. The underlying idea is that companies seeking to reduce their tax bill, albeit within what is allowed by legislation, have been receiving bad publicity which may have turned off the investors. Conversely, companies paying their 'fair share of tax' could be viewed by investors as more socially responsible and so more attractive. An empirical investigation has shown no correlation between stock returns and various measures of tax paid by companies. Given the lack of evidence of the markets punishing alleged tax avoidance behaviour, the authors conclude that it therefore falls on the government to change the rules if the other stakeholders' perception is that the companies pay an insufficient amount of corporate tax.

Berg, C. & Davidson, S. (2017) "Stop this greed": The Tax-Avoidance Political Campaign in the OECD and Australia. *Econ Journal Watch*, *14*(1), 77-102.

This paper is a cogent reminder that politics pervades tax policy choices. The authors trace the arguments from the 1981 Gordon Report forward, via the harmful tax competition work to the BEPS project, before focussing on the Australian position in relation to the public shaming of multinationals and calling into question estimates of profit-shifting. They present the government discourse about corporate tax avoidance and conclude that, in their analysis, governments have chosen to exploit the confusion that exists in relation to corporate taxation in the international arena.

TAX COMPLEXITY

Lawsky, S. B. (2017). Formalizing the Code. *70 Tax Law Review 377 (2017)*;
***Northwestern Public Law Research Paper No. 17-14*.**

In this paper, the author presents a case for formalising the US tax code, which is notoriously complex, using the concept of 'definitional scope', which arises when the code uses a term but the structure of the code does not make clear to what the term refers. The study presented provides an extended view of the notion of ambiguity, examining structural ambiguity rather than semantic ambiguity which is the usual object of study. Unintentional ambiguity can increase compliance costs, as well as administrative costs, for the tax authority. The author suggests drafting changes as a means of resolving ambiguities, particularly the use of logical symbols by drafters as a mechanism for checking the structure of the language. This process of formalisation lays bare careless or unintentional ambiguities.

DISPUTE RESOLUTION

Jone, M. (2017). What can the United Kingdom's tax dispute resolution system learn from Australia? An evaluation and recommendations from a dispute systems design perspective. *Australian Tax Forum*, *32*(1), 59-94.

Both Australia and the UK have recently adopted in-house, alternative dispute resolution programmes. In this paper, the author draws on dispute system design principles devised by Ury, Brett and Goldberg in 1988 to evaluate the two systems. While the UK system is found to follow many of the best practice principles derived from this literature, it also contains some deficiencies, most notably the absence of a policy champion, to ensure buy-in from the wider organisation at a cultural level. The dispute resolution process does not appear to be prominent in HMRC's modernisation programme and training/awareness appears to be lacking in comparison with the Australian Taxation Office.

Govind, S and Turcan, L. (2017). The Changing Contours of Dispute Resolution in the International Tax World: Comparing the OECD Multilateral Instrument and the Proposed EU Arbitration Directive. *Bulletin for International Taxation*, *71*(3/4).

In this paper, the authors note the increased importance of international dispute resolution mechanisms as their effectiveness links directly with both the protection of the revenue base and the need for continued attraction of foreign investment. The authors carefully analyse the arbitration option in the Multilateral Instrument and compare it with the proposed EU arbitration directive, highlighting procedural differences. They conclude that, while both are commendable, bolder, global solutions are required, and call on the UN Tax Committee to move towards more ambitious solutions.

TAX ADMINISTRATION ANALYTICS

Pijnenburg, M., Kowalczyk, W., & van der Hel-van Dijk. (2017). A Roadmap for Analytics in Taxpayer Supervision. *The Electronic Journal of e-Government*, *15*(1), 19-32. Available online at www.ejeg.com.

The paper presents an investigation of how analytics, or an intelligent use of data, can contribute to the Compliance Risk Management (CRM) approach of a tax administration. The CRM approach combines the traditionally used deterrence (detection and punishment) strategies with the more recently introduced 'advice and persuasion' strategies that take into account behavioural responses of taxpayers to regulations and put emphasis on the improvement of service to reduce unintended errors. The authors show, in a useful table, how specific analytics techniques can be matched in the best way to various activities of taxpayer supervision. For example, cluster analysis can help improve the segmentation of the taxpayer population and the real-time checking of tax returns, whereas time series analysis is a better match for tax gap estimation and trend analysis. As an illustration, the authors present a case study of the selection of VAT refunds using analytics by the Netherlands Tax and Customs Administration.

Björklund Larsen, L. (2017). Mind the (tax) gap: an ethnography of a number. ***Journal of Cultural Economy*, *10*(5), 419-433. DOI: 10.1080/17530350.2017.1323228**

This thought-provoking paper examines the tax gap as represented by the Swedish Tax Agency and, in doing so, reveals the challenges associated with its calculation, representation and interpretation. The author observes the appropriation of the tax gap number in Sweden by media and lobby groups to pursue social and political agendas. The number is also used for (inappropriate) international comparisons and to hold the tax agency to account. This paper is interesting, not so much because it provides information about the Swedish tax gap, but because it acts as a cogent reminder that these numbers are fragile ('guesstimates'), they are misused, caveats are forgotten, and they are used by different actors for different purposes. The author suggests that we should perhaps scrap the tax gap number and turn our attention to what the tax gap contains instead.

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