

Fiscal Tribology

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“In the eleven years that have passed since the creation of the term tribology¹ in 1966, the huge number of some 55,000 papers have been published in the field of tribology.... Due to the multidisciplinary nature of tribology, the papers scatter broadly in purpose and content. Therefore, although some progress in the different specialized subtopics of tribology were obtained, suitable tools are needed in order to link these and to prepare the way for cooperation between people of widely different disciplines” (Czichos, 1978, p.12)

Abstract

The paper examines the weaknesses in the models which currently inform research which uses HMRC microdata, in particular the corporation tax and income tax self-assessment datasets. It attributes much of the problem to failures of communication between disciplines; an issue which tribology identified and addressed in the 1960s. The paper describes the existing use of tribological phenomena as metaphors in both the economics and US legal literatures and proposes that these should be extended to provide a common language across tax research specialisms. It also identifies potential lessons from the ways in which tribology established itself as a unified discipline

1. Background

My review of research outputs linked to the HMRC Datalab² has revealed:

- an unfortunate communication problem between disciplines
- a dangerously naïve approach to theory and model building,

Together these distort the questions which are being addressed; the research methods adopted; the interpretation of results; the influence on policy and practice; and the awarding of research funding.

The shortcomings in the current research will be set out in more detail (though not yet comprehensively) in a separate paper (Massey, 2018)³ at next week’s TARC conference

¹ “The science and technology of interacting surfaces in relative motion and of related subjects and practices” (Czichos, 1978, p.11)

² *“The HMRC Datalab allows approved researchers to access de-identified HMRC data in a government accredited secure environment. The aim of the Datalab is to produce high quality analysis that benefits both HMRC and the wider research community”*
<https://www.gov.uk/government/organisations/hm-revenue-customs/about/research#the-hmrc-datalab>

My research draws mainly on the outputs making use of data from the CT600 (corporation tax) returns and VAT returns from the 2000s. A full list of the datasets currently available can be found at: <https://www.gov.uk/guidance/hmrc-datalab-datasets-available>

³ A draft will be available by 16 April.

hosted by Exeter University. The Exeter paper will address the empirical problems of analysing and interpreting tax administration datasets. This paper will concentrate on the underlying models that currently inform this area of tax research. But for the purposes of illustration of the nature of the problem, here are two straightforward examples that require no detailed understanding of UK tax return data:

- *“Tax-accounting sales turnover is calculated using the cash-based method, which focuses on actual cash receipts rather than their related sale transactions. Financial-accounting turnover is calculated using the accrual method, which records sale revenues when they are earned, regardless of whether cash from sales has been collected.”*

(Dechezleprêtre et al, 2018, p.10, fn.22)

That “[t]he profits of a trade must be calculated in accordance with generally accepted accounting practice...”⁴ is one of the first things any accounting student learns about the taxation of companies (Melville, 2008, Ch.22 *Introduction to corporation tax*, p.364). UK GAAP does not permit the calculation of sales on a cash basis.

- *“A second anticipation effect could be that firms foresaw the increase in thresholds and the precise timing of the UK government's response, following the European Commission's earlier announcement in May 2003. This also seems very unlikely in practice. The European announcement was a technical change, and it was unclear how or whether the UK would react, let alone the precise rules and timing that would be implemented. We have been unable to find any evidence in UK media that even tax professionals expected the announcement on December 10.”* (Maffini et al., 2017, p.11)

This refers to an increase in the turnover and asset thresholds used to define a medium-sized company⁵. Companies coming within the new definition would qualify for more generous capital allowances.⁶ The levels of investment in plant & machinery before and after the change was the focus of the paper.

However, the Government's intention was signalled, at the latest, in April 2003 Budget, well before the Commission's final announcement.

“The Budget 2003 builds on this support with a package of deregulatory reforms to ease burdens on SMEs, including raising the company law definitions of small- and medium-sized companies to the maximum possible under EU regulations. Legislation to establish the new definitions will be introduced as soon as the new EU maxima come into force. As a result of this...firms falling under the revised medium-sized company threshold will be eligible for the 40 per cent plant and machinery allowance...”

(HM Treasury, Budget Report, 9 April 2003, para 3.31. Formatting changed)

⁴ CTA 2009, Section 46(1); formerly Finance Act 1998, Section 42(1)

⁵ The Companies Act 1985 (Accounts of Small and Medium-Sized Enterprises and Audit Exemption) (Amendment) Regulations 2004, SI 2004/16

⁶ CAA 2001, Sections 44 and 48. Repealed by Finance Act 2008.

If academics are unaware of what, to practitioners, are basic tax rules and fundamental primary sources, then we have a problem. And this problem is not with individual authors. The research outputs quoted above and in the rest of this paper have been well-circulated within their own discipline, peer-reviewed, or examined as part of a PhD thesis (in some cases all three).

This paper explores whether tribology – the study of friction, lubrication and wear – may help provide us with a solution.

- Tribology, like taxation, is a practice as old as civilization. Its study was traditionally split across many disciplines. However, unlike taxation, it seems to have found a way to bring those disciplines together without any of them losing their distinctive approaches or researchers being alienated from their original field.
- Tribological concepts are already used as metaphors in the taxation literature. The concept of “frictions” appeared originally, and is used most widely, in economics: see, for example, McCloskey (1983, p.501); Scholes *et al* (2005, Chapter 5); or Kleven (2016). From there it has spread to US legal scholars: Schizer (2001); Osofsky (2013); and even been picked up, if only in passing, by fans of Bourdieu: Mulligan & Oats (2009, p.688). Can we make wider use of the phenomena of tribology to create a common language across our different disciplines?

2. Tribology

H. Peter Jost is the individual most closely identified with the establishment of tribology as a distinct discipline. Jost himself, however, acknowledged the pioneering work of Professors Bowden and Tabor at the Cavendish Laboratory, here in Cambridge, and recognised them as the “forefathers of tribology” (1976, p.98)

In reference to another Cambridge scholar, and to illustrate that there was nothing new about the principles of tribology, Jost is said to have observed that:

“If in the days of Newton, bananas had been available and Newton had slipped on one of them, the laws of tribology would have been enunciated by him there and then [...] Instead, it is said that an apple fell on him while he was asleep under the tree, and the laws of gravity resulted from there.” (Telegraph, 2016)

The stimulus to integrate the discipline came in the 1960s and the ‘White Heat of Technology’⁷ programme. In 1964, Jost had been invited by the Government to form and chair the Lubrication Engineering (Education and Research) Working Group.

⁷ For details of, and reflections on, Harold Wilson’s 1962 “White Heat” speech, see the blog of the School of Politics & International Relations, University of Nottingham www.nottspolitics.org/2013/10/10/special-edition-harold-wilsons-white-heat-speech-fifty-years-on/

In the course of the Group's work:

"...it was found the English language, or any other language, had no existing word for the concept of 'interacting surfaces in relative motion' and its technical and economic consequences." (Jost, 1990, p.1)

So the word "tribology" was specially invented in consultation with the editor of the Oxford English Dictionary. It is based on the Greek "τρίβος" [rubbing]. The word first appeared in the Group's report. This was published in 1966 as "Lubrication (Tribology) Education and Research – A Report on the Present Position and Industry's Needs". (Dowson, 1998, pp. 546-7). Unsurprisingly, it is more usually referred to much more tersely as the "Jost Report".

Although the Jost Report was born out of a desire for "white hot technology" what the Group quickly identified was "... not even a 'red-hot' technology, but a very practical and down-to earth technology". There was already a great understanding of friction, lubrication and wear but the knowledge and experience was spread across disciplines.

The Report estimated that over £500m (at 1965 prices) could be saved by British industry simply by the application of the then current knowledge, but it first needed to be transferred across academic disciplines and to/from industrial practice

What they had, observed Jost 10 years later, *"...was a 'language' translation problem."*

*"... at least **three disciplines are involved**: engineering, chemistry and metallurgy. Their languages are different ones. For instance, for engineering it is mathematics; for chemistry it is formulae; for metallurgy it is diagrammatic descriptions of the state of materials. No mathematics/chemistry or mathematics/metallurgy dictionaries exist. Thus the interconnection of subjects remained largely "untranslated..." (1976, p.98)*

The early tribologists may only have had to translate across three major disciplines. Taxation has many more subjects that ideally ought to be able to understand one another: law; economics; history; accounting; politics; anthropology; psychology; sociology; and more.

Creating individual dictionaries to translate directly from one of the tax disciplines to each of the others may be too great a challenge but the tribological concepts of friction, lubrication and wear may be a metaphor through which we can pool the insights of each of our specialisms. We need only translate our own work into the language of tribology to make it available to other scholars, and if they do the same, we can appreciate their insights without having to master their specialist language.

3. “You keep using that word. I do not think it means what you think it means.” (*The Princess Bride*, 1987)

“A further general point which emerged with some force was that the word ‘lubrication’ meant different things to different people. It was generally used in a narrow technical sense which totally belied its economic and technical significance” (Dowson, 1998)

Jost and his colleagues found they had a difficulty with “lubrication”. Taxation’s equivalent is probably “avoidance”. One need look no further than “The Routledge Companion to Tax Avoidance Research” (Hashimzade & Epifantseva, 2018) to see the competing meanings adopted by many of the contributors.

It is the ‘narrow technical sense’ in which economic model builders use the term ‘tax avoidance’ which I believe lies at root of a major weakness in the current HMRC Datalab research.

The model that appears to inform this research is one summarised by Professor Osofsky of the Miami School of Law:

“The economics literature sometimes distinguishes between different types of behavioral responses designed to reduce tax liability:

- **real shifts** in underlying behavior in response to tax (such as a switch from work to leisure);
- **avoidance** activity (or investing time and resources in order to find legal ways, other than through changes in underlying behavior, to reduce tax liability); and
- **evasion** activity.”

(Osofsky, 2013, p.1062, fn.12, layout amended)

Prof. Osofsky refers to a 1996 IMF staff paper by Slemrod & Yitzhaki, but the more usual authority relied on by researchers is the version in chapter in the 2002 “Handbook of Public Economics, Volume 3” which sets out the same framework.

To be fair to Slemrod & Yitzhaki, they make it very clear that “avoidance” in their framework “covers a broad range of behaviours” including simply paying “a tax professional to alert one to the tax deductibility of activities already undertaken”, and they alert readers to the existence of alternative definitions. (Slemrod & Yitzhaki, 2002, p.1428)

However, I believe that Slemrod & Yitzhaki may lead users of the Handbook astray when, having listed examples of tax avoidance, they go on to suggest that:

“Fine distinction among the types of behavioral response to taxation is not possible and is for many issues not crucial. In general, changes in the tax structure will induce all the different kinds of response. Indeed, one of the goals of this chapter is to emphasize the common analytical aspects of issues that have traditionally been kept distinct.” (p. 1429)

The attempt to identify commonality between analyses is to be commended. But fine distinctions between behavioural responses are indeed both ‘possible’ and ‘crucial’.

The models developed to analyse administrative microdata may not be able to make these fine distinctions or identify when they may matter. But rather than recognising these limitations and diffidently reporting – ‘We think we may have found something in the data can anyone explain this please?’ – modellers have been far too quick to assert that they have established the existence of avoidance/evasion and to recommend policy changes.

All that they have, in fact, potentially identified are features that cannot be explained by “real shifts in behaviour”. The model is too crude to allow for conclusions beyond that. It has no categories other than avoidance or evasion with which to describe non-real behaviours. This may be adequate for conversations within the discipline where everyone ought to understand that ‘avoidance’ is a term-of-art. The problems arise when claims are made about the discovery of avoidance to the outside world without alerting the audience to the specialist definition.

Sometimes an economist may have attempted to look further and explore the literature of other disciplines. But if they search there for ‘tax avoidance’ they will only have identified a very narrow range of behaviours. Though non-economists may draw the avoidance line in many different places, none of us are as broad as economists with our favoured definitions. Many of the features in the HMRC data which are not explained by real shifts in behaviour can in fact be accounted for by what the rest of us would identify as mundane tax compliance.

For example, Brockmeyer (2014) examined corporation tax return data⁸ from the 2000s. In the first half of this decade the UK had a starting rate of corporation tax of 10% and then 0% on taxable profits up to £10,000⁹ with profits immediately above that charged at a marginal rate of 22.5% or 23.75%. Unsurprisingly, the research identified a bunching of capital allowance claims at the £10,000 threshold. Brockmeyer suggests that part of this is attributable to avoidance or evasion. If what is meant is simply that the level of claims in the data did not represent changes in actual expenditure on plant & machinery then this is very probably true. But rather than describing these other explanations as simply “not real”, the model has led the author to label the alternatives as “avoidance or evasion”. In searching for illustrations of potential avoidance and evasion the paper has restricted itself to such things as misrepresentation of private expenditure or fake invoices; examples that all other disciplines will have been labelling as avoidance/evasion.

However, the “avoidance” which probably explains most of the bunching is simply the routine working of the system. The CT600 data used in the study is taken from the boxes showing the amount of capital allowances **claimed** for the accounting period rather than the entries quantifying the **qualifying expenditure** incurred. Capital allowances are not deducted automatically in the calculation of taxable profits; they have to be claimed¹⁰. There is no requirement for a taxpayer to claim the maximum amount available. The claim for capital allowances is usually the very last stage in the computation of taxable trading profits and is therefore one of the easiest parts of the tax return to adjust. If the full claim

⁸ More particularly numerical data from the CT600 Tax Return Form. Often overlooked by those using the HMRC datasets is the fact that the CT600 forms only part of the return. As the CT600 itself advises “A return includes a Company Tax Return form, any supplementary pages, accounts, computations and any relevant information.

⁹ FA 1999, Sections 27-29

¹⁰ CAA 2001, Section 3

for capital allowances would have taken the taxable total profits below that £10,000 threshold (and been totally wasted at a 0% tax rate), then most companies, or their advisers, would have restricted the claim and preserved that expenditure. The changes in claims at and around this threshold were largely nothing to do with changes in the companies' qualifying expenditure but, rather, were a function of the exact amount that needed to be claimed to secure the 0% tax rate.

Adjusting claims to capital allowances certainly does not represent a real shift in behaviour, but it is not helpful to have a model that does not distinguish between tax compliance (including the sort of automatic decisions that would be programmed into even the most basic tax software) on the one hand, and more creative uses of the tax environment on the other.

4. Accounting researchers could have done more

Accounting researchers must take a share of responsibility for this. In 2002, Slemrod reflected back on over a dozen years' worth of symposia bringing together accounting and economics academics. He observed that:

"In 1990 I was preoccupied with the idea that all behavioral responses to taxation could be classified into three types:

- 1. real responses like saving, investment, and labor supply,*
- 2. responses that reshuffle, re-label, or re-characterize the real activities of the taxpayer, and*
- 3. timing responses that take advantage of changing tax rules or rates.*

I thought, and still think, that this taxonomy nicely clarifies the relationship between the traditional economics focus on real behavior and the tax accounting literature on the structuring and, well, accounting for, transactions and operations of corporations."

(Slemrod, 2003, p. 147)

No doubt Slemrod was correct in believing that his classification could effectively bring together traditional economics and the tax accounting *literature*. But it can only have been successful because of the lack of sophistication in that tax accounting literature. If the literature had captured the full range of behaviours, I am sure he would have refined his list.

On the other hand, perhaps the taxonomy was adequate for classifying the behaviour of American corporations in the 1990s. But even if it was appropriate there and then, it is not sufficiently sophisticated, to cope with individuals and small enterprises in the UK decades later. It appears, though, from the UK literature that his taxonomy has been adopted here with very little evidence of reflection on its validity.

5. Examples from Gift Aid¹¹.

If I were act on last month's advice from HM Treasury and HMRC and "Tick the Gift Aid box" where would my behaviour fit into the model?



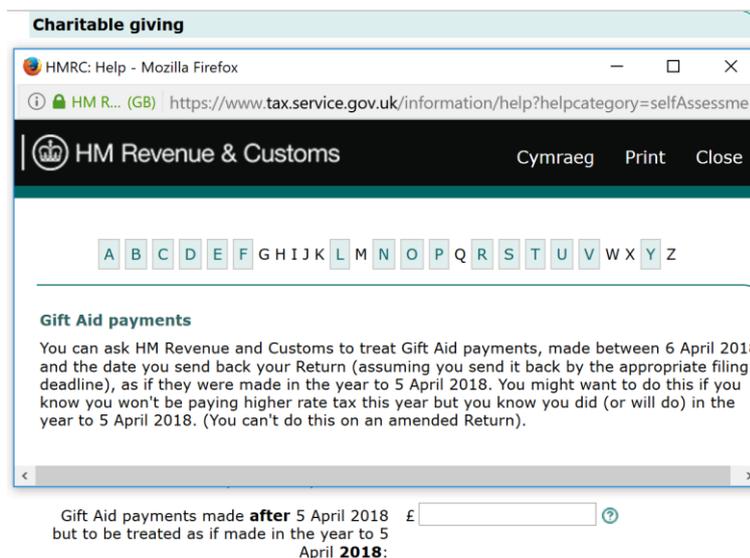
(GOV.UK, 2018)

Clearly it is not a real response as I am not donating anything extra.

Clearly not evasion as the tax authorities are positively encouraging me to do it.

I am, though, re-characterising my donation. I am changing it from a simple gift of cash which is ignored by the tax system, to a "qualifying donation"¹². But is it helpful to describe this as "avoidance"?

When I complete my self-assessment return online, the Help message encourages me to



reduce my tax liabilities by treating Gift Aid payments I have made since 6 April as made in the previous year¹³.

If I act on this suggestion, my response is neither evasion nor a real effect, but what is the most useful label to attach to it?

Note the warning that "(You can't do this on an amended Return)". Mr Cameron discovered this to his considerable cost¹⁴.

¹¹ ITA 2007, Part 8, Chapter 2

¹² ITA 2007, Section 416

¹³ ITA 2007, Section 426

¹⁴ Cameron v HMRC [2010] UKFTT 104 (TC)

Mr Cameron established charitable trusts in January 2007 on the understanding he could carry back donations of almost £1 million pounds to the 2005-06 tax year – a year during which he had realised substantial capital gains. Unfortunately, Mr Cameron had been too compliant a taxpayer and had submitted his self-assessment return back in September 2006 rather than waiting until the deadline of 31 January 2007. HMRC denied the carry-back claim which Mr Cameron made in an amended return.

As the first-tier tribunal judge, Charles Hellier, noted in the very first paragraph of his judgement:

“This is a case where common sense and fairness appear to be on the taxpayer’s side. If I were permitted to use only those concepts as my guides I would find for the taxpayer.”

Here we have a real response to the Gift Aid rules but with a tax effect very different from that expected. Without a model that recognises such phenomena, those using administrative data may not be alert to the existence of responses which are not reflected in it. If HMRC have corrected their computer records to reflect the judgment then Mr Cameron’s donations will be reported in 2006-07 only. It would be easy to mistake features like this in the data and to draw incorrect inferences from it, either in relation to other entries in the return or to changes in the tax system.

The Cup Trust¹⁵ is another case that does not fit neatly in the models. If successful, the Cup Trust arrangements would have generated tax reliefs of £55m in terms of higher-rate income tax relief to the 300-400 ‘donors’ and £46m repayment of basic rate tax to the ‘charity’. The donors contributed £155,000 so there had been a real shift in behaviour (though barely 0.1% of the tax saving.)

The only place for this in Slemrod’s framework is as a ‘real response’. The Scheme did not display a timing response nor did it involve a ‘reshuffle, re-label, or re-characterize the real activities of the taxpayer’; the scheme was constructed always to be labelled and characterized as qualifying for Gift Aid and the real activities were only undertaken on that basis.

With a scheme as extreme as this, we might be tempted to ignore the actual charitable donations and say that it fits squarely within ‘avoidance’ in the Slemrod & Yitzhaki model. But what if the real response and the avoidance activity were more evenly balanced? It would be helpful to have a model that was more nuanced in its categorisation of behaviour.

While I do argue below that the model/framework needs to be more sophisticated to capture the full range of behaviours (even in response to something as straightforward as Gift Aid), at least research underpinned by this model is stronger than work that appears to have no theoretical foundation to inform its study of taxpayer responses.

¹⁵ Charity Commission for England and Wales v Mountstar (PTC) Ltd and others - [2016] EWHC 876 (Ch), [2016] WLR(D) 201, [2016] Ch 612, [2016] 3 WLR 218

The 'donations' in the Trust Cup scheme were made between January and December 2010¹⁶.

Research into charitable giving using income tax return data from the HMRC Datalab has been conducted which:

“exploit[s] the 2010 income tax reform in the UK, which raised the top tax rate from 40% to 50% for incomes above £150,000, and also created a short bracket with a 60% rate above £100,000” (Almunia et al. 2018, p.3).

The authors report that *“high-income individuals respond more on the intensive margin”* (p.1) and will donate more following an increase in the tax rate (price elasticity of -0.25). However, the paper appears to assume that the increase in Gift Aid claims represents a simple increase in funds available to charities. No attention seems to have been paid to how much of the change might be attributable to schemes such as the Trust Cup. None of the words: “real”, “avoidance” or “Slemrod” appear in a word search within the paper¹⁷

This lack of a theory which incorporates tax avoidance (however defined) is particularly worrying in this instance.

The last named and corresponding author was held out by her institution, University of Warwick, as being an expert on Gift Aid in one of its REF2014 impact case studies for UOA18 – Economics and Econometrics:

“HMRC and HM Treasury officials invited sector representatives to participate in an open forum (HM Treasury (2010)), and the final report of this forum drew on the 2009 report to outline proposals for Gift Aid reform (Fanning (2010)). More recently, Scharf’s research underpins the entire section of “Coalition Government proposals to encourage philanthropy” in their plans regarding Gift Aid reform (House of Commons (2012a)).

Scharf’s research also triggered a spirited public discussion about the role of charitable donations in public life and their tax treatment. This came to a head in late Spring 2012 when the Government proposed to cap tax relief for deductions, including charitable deductions.

The uproar from charities and their donors was immediate. 19 charities cited Scharf and Smith (2009) in making public statements or policy proposals since 2008 about Gift Aid or the cap on charitable deductions. Scharf provided non-academic presentations and blog posts, several of which were prominently reported in the media. The Guardian editorial of 17 April 2012 concluded Scharf and Smith (2009) offered the “best evidence” on tax incentives

¹⁶ [2016] Ch 618D

¹⁷ At least the latest version of this discussion paper is not as reckless as earlier ones. These claimed to have found *“a substantial extensive-margin elasticity of -0.8”* (now reduced to -0.25), with a final conclusion that *“...the elasticity estimates we obtain can be taken as an indication that the incentives for charitable giving in the UK should, if anything, be extended rather than reduced.”* This has been replaced by references only to warm-glow opportunities. (Almunia et al., 2017)

(Guardian (2012)) and both authors discussed their research on the Today programme (BBC Radio 4). In response to the uproar, the Government did a quick U-turn: while the cap on deductions was indeed introduced in April 2013, charitable deductions are excluded from this limit (House of Commons (2012b))."

(REF2014, 2104)

I have not reviewed any of the references cited in the Warwick submission. They may well have properly considered potential abuses of the Gift Aid system, but, from the evidence of the Datalab paper, it would be reckless to assume that the recommendations flowing from earlier research have been based on a model which incorporates non-real responses. While we cannot rely on the opinion in Guardian editorials, how far might "best evidence" have been based on naïve assumptions and potentially undermined a worthwhile reform of the income tax regime?

How much stronger could this sort of research be, if the default approach by economists were to consider what legal or practitioner scholarship may have to say about the possibility or prevalence of avoidance? Or if they triangulated their initial findings against the results of qualitative researchers investigating high-worth individuals? Equally, what if their work were shared more widely at an early stage, rather than restricted to fora where only other economists usually venture?

And what if all disciplines took a little time and space to present their work in a way more comprehensible to those from other fields?

6. Bridging the gap

Apart from some of the most egregious schemes of avoidance (on anyone's definition), there is little secret about what accountants and other tax advisers do. Many of our behaviours are boringly predictable. Yet for some reason they remain hidden from academic researchers.

As a tax professional, how do I translate what I do into terms academics (from any discipline) can understand? How can researchers translate their questions and findings into terms that I can readily comprehend?

Some of the problem may simply be a question of terminology.

I am going to find it difficult to think of that old £10,000 corporation tax threshold as a "... *threshold at which the marginal tax rate changes discontinuously*" (Brockmeyer, 2014, p.479) or a "*discontinuit[y] in the slope of choice sets*" (Kleven, 2016, p.435). It's just not the way I'd talk with other practitioners or clients.

But if economists want to label it a "kink point" and then give me a couple more examples of what they mean by "kinks", I'll soon get the idea.

Similarly, references to "extensive margin" (are more clients doing Z?) and "intensive margin" (are clients doing more of Z?) should be readily translatable. It does not matter if Z is investment in plant & machinery (Brockmeyer, 2014); Charitable giving (Almunia et al.

2017 and 2018); or, in a US context, working to increase entitlement to Earned Income Tax Credits (Saez, 2010), I will quickly get the meaning.

Once I am aware of the specialist terminology I can tag my outputs appropriately so that they will show up in literature searches. Or I can take a little space to explain in an accessible way how my work may be of use to researchers in other disciplines, in language that is readily accessible to them. I can cast what I do and what I find in those terms and provide the fine, qualitative, details that could help inform questions to be asked of the microdata or to interpret the results.

Once we make a little effort to understand what our opposite numbers are interested in and how we each label (or not) identical concepts, it could be comparatively straightforward to construct a dictionary to translate between two disciplines. But such an approach becomes unwieldy if we want to communicate with the whole community of tax researchers, as it would not accommodate differences in underlying approaches (rather than merely vocabulary). A simple dictionary will not be effective either where disciplines have very different epistemologies or ontologies.

Tribology may provide the metaphors through which we can share a way of describing the phenomena we all encounter. It could provide a structure within which we could classify features of interest to us as lubricants and frictions which drive (or attenuate) the responses of individuals and companies to the tax system no matter which discipline we may come from.

7. Friction, lubrication and wear

The approach in economics starts with a model which identifies a theoretical optimal tax position and then needs to explain why the data does not correspond to the prediction.

One of the broad lessons that Kleven derives from his review of the “bunching” literature is that while the bunching approach might provide compelling evidence of behavioural responses it has not been easy to move from the observations to predictions in policy changes. He observes that:

“This is particularly true in the context of labor supply—the context for which the bunching approach was initially developed—due to a range of optimization frictions that attenuate bunching and are difficult to observe and model. These frictions include aspects such as hours constraints, search costs, inattention, and uncertainty. Such frictions imply that any evidence of sharp bunching in earnings likely results from tax evasion or tax avoidance rather than real labor supply responses.” (2016, p. 436)

Again, the simplicity of the modellers’ framework, obliges Kleven to label all non-real responses as “tax avoidance or tax evasion”.

I will leave the question of whether these ‘optimization frictions’ are difficult to model to the specialist modellers, but I would suggest that they are certainly not difficult to observe. They are phenomena that tax practitioners see every day. Tax advisers earn their living by taking the time to determine the intimate details of the frictions that keep each client away

from the ideal tax position, and by mastering the range of lubricants available to them to ease the client to a better place on a tax schedule. But because advisers do not speak in those terms, what they know and do may remain hidden to those outside their domain. Often the kink points and the lubricants used are so much part of day-to-day compliance activities, that they may not even be considered worth writing about.

If the intention of modellers is to determine parameters to guide policy (rather than being prompted merely out of intellectual curiosity) then we all have an interest (if only as taxpayers) in ensuring these numbers are as reliable as possible and that the level of uncertainty is clearly identified.

Legal scholars in the US have already suggested thinking carefully about frictions when considering anti-avoidance legislation.

Prof Schizer of Columbia Law School in his paper “Frictions as a constraint on tax planning” specifically borrows Scholes & Wolfson’s definition:

“By tax friction we mean transaction costs incurred in the marketplace that make implementation of certain tax planning strategies costly” (Schizer, 2001, p.135. Scholes & Wolfson, 2005, p.9)¹⁸

Schizer provides a methodology (along with detailed worked examples) for determining whether these frictions can be effective in blocking avoidance. He also makes the point that “If a friction blocks a transaction than the tax law does not have to block it to”.

If we had been more aware in the UK of the effect of these sorts of frictions then we might have had now a much more effective tax system for small businesses. For example, much of the literature looking at changes to the tax system in the 2000s (and which seems to inform our current thinking) has concentrated simply on changes to the law, such as the introduction of the 0% corporation tax rate, and tries to explain behaviours in those terms. What appears to have been overlooked is the erosion of all those frictions that had previously stood in the way of incorporation – audit requirements; disclosures and inefficiencies at Companies House; stamp duty on goodwill; the reporting requirements imposed by advanced corporation tax; or tax return requirements (changes to the CGT pages of the self-assessment return meant that payments for goodwill of up to £30,000 (no matter how dubious) could be omitted altogether), etc. It was these sorts of frictions that had previously blocked “abuses” of incorporation – not specific anti-avoidance provisions or the precise tax rate.

Schizer looked in detail at the role of frictions in limiting avoidance in dealings in securities, but he was able to draw a more universal conclusion

“More generally, to rely on frictions, reformers need information about them: how much they matter to taxpayers, whether they can be avoided through restructuring, and other pragmatic issues. These facts usually are not publicly reported, and hard data is seldom available. As a result, reformers need assistance in learning about frictions. The factual intricacies of sophisticated commercial transactions, however, are not commonly detailed in law reviews. More attention to these matters is warranted, and legal academics should offer

¹⁸ Schizer quotes from the first (1992) edition. The definition is unchanged in the third (2005) edition.

greater assistance. Without a grounding in frictions, transactional reforms are unlikely to play a constructive role.” (p. 1396)

I think we could usefully take his conclusion further and propose that tax policy makers generally need assistance in learning about frictions and that all academics, not just legal ones, should offer greater assistance. This applies to all elements of the tax system and not just sophisticated commercial transactions.

Osofsky (2013) provides a useful review of the development of the legal friction literature. She brings together tax law and optimal tax theory in a way that I think will be accessible to both lawyers and economists who may be unfamiliar with each other’s disciplines.

For those of you forming policy or drafting legislation (whether inside or outside the tax field), she also offers guidance on how to create effective frictions. For the present purposes, though, I just want to take on Schizer’s challenge to make the “factual intricacies” of the tax system visible across disciplines.

8. A framework and a pilot study

I believe tribology may allow us to side-step the struggle, as identified by Oats & Morris (2018, p.1), for control over the definition of terms such as ‘tax avoidance’. Let’s see if it can provide us with more neutral categories. Each discipline, when talking to itself, can lump together the phenomena in whichever way is most useful for its own purposes: acceptable/unacceptable; avoidance/planning; responsible/unethical. But let’s try to find a way of working together without having to argue about definitions, or constantly check what exactly is meant.

Hasseldine and Morris (2018, p.3) have already proposed *“that rather than focus on the ‘true meaning’ of a particular term what is more important is an understanding of the characteristics or qualities of actual tax-related behaviour undertaken and an appreciation of the context within which the behaviour is to be understood.”*

They have proposed a temporal framework – appraisal, implementation, compliance – within which to place taxpayer behaviour. This seems useful structure within which to begin to build a catalogue of behaviours and to identify the particular frictions/lubrications associated with each of them.

A topic urgently in need of treatment is the behaviours around the VAT registration threshold. HM Treasury (2018) last month put out “A call for evidence to explore whether the design of the VAT threshold could better incentivise growth.” (Closes 5 June)

In the Foreword Mel Stride, Financial Secretary to the Treasury, has put his name to an assertion that:

“... there is growing anecdotal, academic and data-based evidence that the cliff-edge nature of the VAT threshold acts as a disincentive for small business owners who want to expand.”

Unfortunately, my impression of the evidence put forward in the Call is that the anecdotes are exactly the same as they have been for decades and the academics don’t understand what they are doing with the data. My evidence for this is spread across disciplines and needs to be brought together.

The poor treatment of the data could be put down, from the perspective of a practitioner, to the arrogance of economists. This is something that a dictionary won't solve, but tribology may still have something to teach us.

9. "You can't afford to ignore X"

The reason practitioners and modellers might fall out can be seen in the papers reporting on research into the corporation tax dataset

Corporation tax is charged on "profits" but they are not the same "profits" which determine the tax rate. And the list of rates and thresholds that appear in our Tax Tables are just the starting point for the computation.

Tax advisers are used to working to a code of ethics which includes obligations in respect of "professional competence and due care". In particular a tax adviser

"... must carry out his work with a proper regard for the technical and professional standards expected. In particular, a member must not undertake professional work which he is not competent to perform unless he obtains appropriate assistance from a suitably qualified specialist."

(Chartered Institute of Taxation, 2016, para 2.11)

Not every discipline may demonstrate the same level of self-awareness regarding the limits of their competence.

It is easy for advisers to take it for granted that our professional audiences fully appreciate the niceties of the former Section 13 ICTA88 ...

13

Small companies' relief

- (1) Where in any accounting period the profits of a company resident in the United Kingdom do not exceed the lower relevant maximum amount, the company may claim that the corporation tax charged on its basic profits for that period shall be calculated as if the rate of corporation tax (instead of being the rate fixed for companies generally) were such lower rate (to be known as the "small companies' rate") as Parliament may from time to time determine.
- (2) Where in any accounting period the profits of any such company exceed the lower relevant maximum amount but do not exceed the upper relevant maximum amount, the company may claim that the corporation tax charged on its basic profits for that period shall be reduced by a sum equal to such fraction as Parliament may from time to time determine of the following amount—

$$(M - P) \times \frac{I}{P}$$

where—

M is the upper relevant maximum amount;

P is the amount of the profits; and

I is the amount of the basic profits.

- (3) The lower and upper relevant maximum amounts mentioned above shall be determined as follows—
 - (a) where the company has no associated company in the accounting period, those amounts are £100,000 and £500,000 respectively;
 - (b) where the company has one or more associated companies in the accounting period, the lower relevant maximum amount is £100,000 divided by one plus the number of those associated companies, and the upper relevant maximum amount is £500,000 divided by one plus the number of those associated companies.

ICTA 1988, Section 13 (as originally enacted)

... before attempting to use tax return data to determine a company's marginal tax rate. Or that if they are not familiar with it, they will seek "appropriate assistance from a suitably qualified specialist" regarding the significance of "P" and of associated companies rather than just assuming that "I" is all they need.

Unfortunately, not every researcher does take that sensible precaution, for example: Brockmeyer (2014), Devereux et al. (2014), Maffini et al. (2016), Guceri & Liu (2017), Devereux et al. (2018). This is particularly unfortunate where the ability to use tax return data to determine precisely a company's marginal tax rate appears to be one of the main claims made to justify the research.

The lack of diffidence within economics will come as no surprise to many researchers; see for example, Fourcade et al. (2015) on the superiority of economists. The history of tribology as a combined discipline may, though, offer us a model to address this.

The suggestion which follows is not based on a rigorous study of that history, but rather a snatched conversation¹⁹ with the honorary professor in UCLan's Jost Institute of Tribotechnology, Ted Smith. I trust I am not misrepresenting him here.

Prof Smith gained his MSc in Tribology from Leeds University in 1972 (University of Central Lancashire, 2018). He was one of the first graduates of the Masters degrees established as a result of recommendations from the Jost Report (Dowson, 1998, p. 547). Prof Smith's top-of-the-head response to my question as to how tribology had brought the disparate disciplines together was the creation of those Masters programmes. The courses provided students with a solid grounding in all the contributing fields. The graduates would go on to specialise but they came away with a lasting message from every discipline that **"You can't afford to ignore X"** – whatever X might be for that particular subject.

Establishing effective Masters programmes (to include solid contributions from all areas of academic research and professional scholarship – not just two or three) may not be possible in the short-term and will only benefit fully the next generation of taxation researchers.

For the benefit of those of us who may now be firmly set in our ways, we could, perhaps, each try to work out what the X is for our respective disciplines. What is the essential insight from our theory, model or empirical data that all other tax researchers should keep in mind? Can we capture that in a single paper, chapter, or one side of A4, and explain it in a way that is accessible to everyone?

I am not yet certain what the X is that the tax profession has to offer but I will put forward some initial thoughts at the conference.

¹⁹ In a short email correspondence following our meeting, Prof Smith suggested that we "could perhaps extend the analogy and consider wasted time and effort as energy loss!". Without trying to push the metaphors too far, it may be that tribological phenomena offer assistance beyond simply friction and lubrication.

10. Concluding thoughts

The Jost report had estimated annual savings in the UK of over £500m (at 1965 prices) through the adoption of better tribological practices - savings that did not require new research but only the application of current knowledge. The breakdown of the prospective savings are shown in the diagram on the right (Halling, 1975, pp. 10-11).

I have not yet attempted to list, still less quantify, all the potential benefits of applying fully our collective understanding of taxation, but the experience of the Behavioural Insights Team (BIT) may offer an indication.

To set their work in context BIT drew on a 2012 Cabinet Office report and suggested that:

"Fraud, error and debt cost the UK economy billions of pounds each year – £21 billion is lost to fraud in the public sector, a further £9.6 billion is lost to errors, while £7–8 billion is lost in uncollected debt." (2014, p.3).

They make the common error of confusing the Government with the economy but it gives an idea of the sums at stake. And they are before we even being to think about compliance costs of individuals and businesses or inefficiencies within HMRC.

BIT themselves recognise that many of their insights are "relatively intuitive". Front-line tax collectors and inspectors would probably put it more strongly. I would suggest that these insights seem to reflect little more than daily and local practice in the days before the fine details of HMRC/Inland Revenue communications and processes were homogenised without first capturing that collective wisdom. We would not have needed to wait decades for the "Behavioural Sciences" to be discovered if we had found a way to transfer our then current knowledge between and amongst areas of practice and academic disciplines.

Looking back over 10 years of tribology, Jost pointed to savings in manufacturing alone of £300m a year (at 1976 prices) for a total expenditure of under £1.5 million incurred in establishing the unified discipline.

He concluded his reminiscence with an exhortation to other fields.

"WEALTH THROUGH KNOWLEDGE is one of the means—the cheapest of them all—of creating increased national wealth. Let us therefore look at tribology, and its worldwide success, and let us look round and we will see that there are other spheres in which with a similar comparatively small effort, spectacular results can be obtained for the nation."

(Jost, 1976, p.100)

We may be forty years late, and we may now think more internationally, but perhaps taxation is one of those other spheres where we might gain some spectacular results for comparatively small effort.

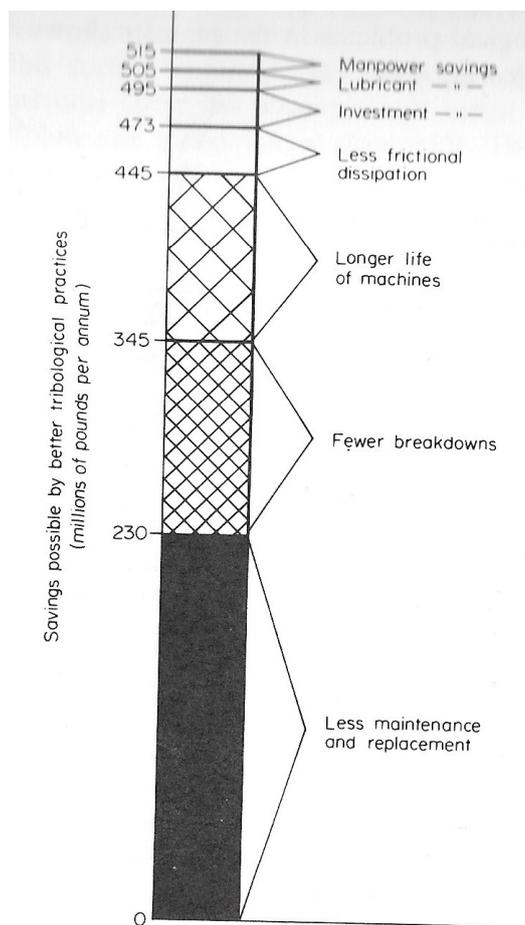


Figure 1.5 Savings indicated by the Jost Report⁹

References

- Almunia, M., Lockwood, B., & Scharf, K. (2017). *More giving or more givers? The effects of tax incentives on charitable donations in the UK*. Retrieved from: <https://warwick.ac.uk/fac/soc/economics/staff/blockwood/giving-givers-130717.pdf>
- Almunia, M., Lockwood, B., & Scharf, K. (2018). *More giving or more givers? The effects of tax incentives on charitable giving in the UK - CEPR discussion paper 12191*. CEPR. Retrieved from: https://www.dropbox.com/s/4fs2mu2osr3wwat/giftaid_paper.pdf?dl=0
- Behavioural Insights Team (2012). *Applying behavioural insights to reduce fraud, error and debt*. London: Cabinet Office. Retrieved from: <https://www.gov.uk/government/publications/fraud-error-and-debt-behavioural-insights-team-paper>
- Brockmeyer, A. (2014). The investment effect of taxation: Evidence from a corporate tax kink. *Fiscal Studies*, 35(4), 477-509. 10.1111/j.1475-5890.2014.12039.x Retrieved from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1475-5890.2014.12039.x/abstract>
- Chartered Institute of Taxation. (2016). Professional conduct in relation to taxation. Retrieved from <https://www.tax.org.uk/professional-standards/professional-rules/professional-conduct-relation-taxation>
- Czichos, H. (1978). *Tribology: A systems approach to the science and technology of friction, lubrication and wear*. Amsterdam: Elsevier Scientific.
- Dechezleprêtre, A., Einio, E., Martin, R., Nguyen, K., & Van Reenen, J. (2016). *Do tax incentives for research increase firm innovation?*. Centre for Climate Change Economics and Policy Working Paper No.260, Grantham Research Institute on Climate Change and the Environment Working Paper No. 230. Retrieved from <http://www.cerna.mines-paristech.fr/Donnees/data12/1206-Dechezlepretre.pdf>
- Devereux, M. P., Liu, L., & Loretz, S. (2014). The elasticity of corporate taxable income. *American Economic Journal: Economic Policy*, 6(2), 19-53.
- Devereux, M. P., Maffini, G., & Xing, J. (2018). Corporate tax incentives and capital structure: New evidence from UK firm-level tax returns. *Journal of Banking & Finance*, 88, 250-266. 10.1016/j.jbankfin.2017.12.004 Retrieved from: <http://www.sciencedirect.com/science/article/pii/S0378426617302923>
- Dowson, D. (1998). *History of tribology* (2nd ed.). London: Professional Engineering Publishing
- Fourcade, M., Ollion, E., & Algan, Y. (2015). The superiority of economists. *Journal of Economic Perspectives*, 29(1), 89-114.
- GOV.UK. (2018). Tick the gift aid box on donations so charities don't miss out on £600m extra funding. Retrieved from <https://www.gov.uk/government/news/tick-the-gift-aid-box-on-donations-so-charities-dont-miss-out-on-600m-extra-funding>
- Guceri, I., & Liu, L. (2017). *Effectiveness of fiscal incentives for R&D: Quasi-experimental evidence*. IMF Working Paper: WP/17/84. IMF. Retrieved from: <https://www.imf.org/~media/Files/Publications/WP/2017/wp1784.ashx>

Halling, J. (Ed.). (1975) *Principles of Tribology*. London: The Macmillan Press

Hashimzade, N., & Epifantseva, Y. (Eds.). (2018). *The Routledge companion to tax avoidance research*. Abingdon: Routledge. Retrieved from <https://www.routledge.com/The-Routledge-Companion-to-Tax-Avoidance-Research/Hashimzade-Epifantseva/p/book/9781138941342>

Hasseldine, J., & Morris, G. (2018). Chapter 27, Unacceptable tax behaviour and corporate responsibility. In Hashimzade & Epifantseva (2018).

HM Treasury (2003). Budget Report. Retrieved from: http://webarchive.nationalarchives.gov.uk/20070701095745/http://www.hm-treasury.gov.uk/budget/bud_bud03/budget_report/bud_bud03_repindex.cfm

HM Treasury (2018) VAT registration threshold: call for evidence. Retrieved from: <https://www.gov.uk/government/consultations/vat-registration-threshold-call-for-evidence>

Jost, H. P. (1976). Ten years of tribology: The story of the birth and growth of a new and vital science in just one decade. *Industrial Lubrication and Tribology*., 28(3), 98-100. 10.1108/eb053113

Jost, H. P. (1990). Tribology — origin and future. *Wear*, 136(1), 1-17. 10.1016/0043-1648(90)90068-L. Retrieved from <http://www.sciencedirect.com/science/article/pii/004316489090068L>

Kleven, H. J. (2016). Bunching. *Annual Review of Economics*, 8(1), 435-464. 10.1146/annurev-economics-080315-015234 . Retrieved from: <https://search.proquest.com/docview/1844211107>

Maffini, G., Xing, J., & Devereux M.P. (2016). *The impact of investment incentives: Evidence from UK corporation tax returns WP16/01*. Oxford: Oxford University Centre for Business Taxation. Retrieved from: <https://www.sbs.ox.ac.uk/faculty-research/tax/publications/working-papers-0/impact-investment-incentives-evidence-uk-corporation-tax-returns-0>

Massey, D. (2018). How “The Kinks” can enlighten us about bunching at the kinks. What do taxpayers, tax advisers and front-line tax administrators really get up to at those kink points?. Paper to be presented at the *6th Annual Tax Administration Research Centre Conference*.

McCloskey, D. N. (1983) The Rhetoric of Economics, *Journal of Economic Literature*, 21(2), 481-517. Retrieved from <http://www.jstor.org/stable/2724987>

Melville, A. (2008). *Taxation - Finance Act 2007* (13th ed.). Harlow: Pearson Education Ltd.

Mulligan, E., & Oats, L. (2009). Tax risk management: Evidence from the United States. *British Tax Review*, 2009(6), 680. Retrieved from <https://search.proquest.com/docview/231765155>

Oats, L., & Morris, G. (2018). Chapter 22, Tax avoidance, power and politics. In Hashimzade & Epifantseva (2018).

Osofsky, L. (2013). Who's naughty and who's nice - frictions, screening, and tax law design. *Buffalo Law Review*, 61, 1057-1118. Retrieved from:

<http://heinonline.org/HOL/Page?handle=hein.journals/buflr61&id=1097&div=&collection=>
also available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239689

REF2014. (2014). UOA18 economics and econometrics: University of warwick: Impact
Retrieved from: <http://results.ref.ac.uk/Submissions/Impact/1419>

The Princess Bride. Reiner, R. (Director). (1987).[Video/DVD] Shepperton: Act III
Communications.

Saez, E. (2010). Do taxpayers bunch at kink points? *American Economic Journal: Economic Policy*, 2(3), 180-212. 10.1257/pol.2.3.180 Retrieved from:
<https://www.aeaweb.org/articles?id=10.1257/pol.2.3.180>

Schizer, D. M. (2001). Frictions as a constraint on tax planning. *Columbia Law Review*, 101(6), 1312-1409. Retrieved from: <http://www.jstor.org/stable/1123747>

Scholes, M. S., Wolfson, M. A., Erickson, M., Maydew, E. L., & Shevlin, T. (2005). *Taxes and business strategy: a planning approach* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Slemrod, J. (2003). Tax from any angle: Reflections on Multi-Disciplinary tax research. *National Tax Journal*, 56(1), 145-151. 10.17310/ntj.2003.1S.01 Retrieved from:
<http://www.jstor.org/stable/41789661>

Slemrod, J. (2013). Buenas notches: Lines and notches in tax system design. *eJournal of Tax Research*, 11(3), 259-283.: Retrieved from
<https://search.proquest.com/docview/1536044776>

Slemrod, J., & Yitzhaki, S. (2002b). Chapter 22 Tax avoidance, evasion, and administration. In A. J. Auerbach, & M. Feldstein (Eds.), *Handbook of public economics, volume 3* (pp. 1423-1470) Elsevier B.V.10.1016/S1573-4420(02)80026-X . Retrieved from:
<https://www.sciencedirect.com/science/article/pii/S157344200280026X>

Telegraph. (2016). Peter Jost, mechanical engineer – obituary. *The Telegraph* 15 June 2016.
Retrieved from: <https://www.telegraph.co.uk/obituaries/2016/06/15/peter-jost-mechanical-engineer--obituary/>

University of Central Lancashire. (2018). Prof. Ted Smith. Retrieved from
http://www.uclan.ac.uk/staff_profiles/ted_smith.php