



City Research Online

City, University of London Institutional Repository

Citation: Murphy, R. (2019). Tax and modern monetary theory. *Real World Economic Review*, 89(89), pp. 138-147.

This is the published version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/23060/>

Link to published version:

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Tax and modern monetary theory

Richard Murphy¹ [City University London, UK]

Copyright: Richard Murphy 2019

You may post comments on this paper at

<https://rwer.wordpress.com/comments-on-rwer-issue-no-89/>

Abstract

Modern monetary theory (MMT) has played an important role in advancing understanding of the economic function of taxation, including by showing how it acts to “cancel” government spending as part of a spend-tax cycle. To date however, MMT has not fully explored the implication of these insights for how tax can also achieve social, economic and fiscal goals, as well as macroeconomic ones. This omission is addressed in this paper by suggesting that cash paid in tax is a residual figure arising from a plethora of decisions on tax bases, reliefs and allowances, as well as tax gaps that result from non-compliant taxpayer behaviour. The impact of this range of decisions and practices can be interpreted as a form of social policy with distributional and economic consequences. Such decisions and practices require systematic estimation and appraisal, as well as conscious management of their consequences, if effective control of the economy is to be maintained. It is suggested that this process can be supported by a modern theory of taxation (MTT) that, building on the understanding derived from MMT that tax is not a tool for government revenue maximisation, and can deliver new perspectives on the use of tax as a critical instrument in economic and social policy management.

Key words tax, modern monetary theory, tax gaps, tax spillover, social policy, fiscal policy

Introduction

The Australian modern monetary theorist Steven Hail has suggested that “proponents of modern monetary theory... claim [that a] government need not balance its budget and are instead calling for the government to balance the economy, which they argue is a different thing entirely” (Hail, 2017). Paul Krugman has offered a not dissimilar view, from a critics perspective, suggesting that what MMT argues is that if a state has a fiat currency and only borrows in its own currency then they do not face debt constraints but do instead suffer an inflation constraint that they have to manage through the control of aggregate demand. As he put it “the budget deficit should be big enough to produce full employment, but not so big as to produce inflationary overheating” (Krugman, 2019). In summary, MMT might be suggested to describe a process for the management of aggregate demand within an economy with its own fiat currency.

One of the consequent curiosities of MMT is its indifference towards describing at least some of the aspects of the role of tax within such an economy. It is stressed that this omission is partial: as several MMT authors (Mitchell et al., 2019; Wray, 2012) make clear, the relationship between modern monetary theory and tax is intimate in a number of areas. For example, it is argued that tax drives the value of money (Wray, 2012, p. 47). This is because it is the promise that a government makes to only accept the currency it creates in settlement of the tax liabilities that it issues that in turn creates demand for its currency. Currency itself consequently has a fiscal nature and underpinning. And as Murphy (2015) argues, if the proportion of anyone’s income demanded in tax within the economy is significant then there is

¹ Richard Murphy’s work this article was funded by the European Union’s Horizon 2020 research and innovation programme under grant agreement No 727145–Combating Financial Fraud and Empowering Regulators (COFFERS). Richard Murphy is grateful to Andrew Baker of the University of Sheffield for comments on drafts of this paper.

no incentive to use anything but the locally created fiat currency for the settlement of transactions arising within that economy: the risk of exchange gain or loss arising at the time of settlement of tax liabilities in that circumstance discourages anything else. The relationship between tax and the currency does as a result afford a government considerable control over its economy in that situation. In addition, the idea implicit throughout MMT that a government need not tax before spending, but actually must first create the money required before tax payment can take place has become a central insight integral to the relevance of MMT (Bell 1998). But despite this it is suggested that the role of tax within some aspects of MMT remains underdeveloped.

The primary reason for this would appear to be that most discussion of tax within the context of MMT is primarily, and perhaps unsurprisingly given MMT's focus on aggregate demand management, macroeconomic. For example, it has been argued that within MMT the primary role of tax is to offset demand (Fullwiler et al., 2019). This suggestion builds on the idea that a government that demands more in tax than it injects into the economy through spending necessarily creates unemployment as a consequence (Mitchell and Mosler, 2001). Tax in this view has a very clear macroeconomic role. The overall argument in relation to this has a longer history. Chartalism maintained that tax had a critical role in "withdrawing" money from circulation within the economy, and therefore assisted with the control of inflation (Lerner, 1947). Some suggest that this insight should continue to inform MMT (Murphy, 2015). For others using tax to control inflation after it has broken out is an inappropriate use of its insights: it is instead suggested that MMT requires planning to prevent inflation occurring in the first place (Fullwiler et al., 2019).

However viewed, this debate is macroeconomically focused. It is suggested that this is unfortunate in that it restricts the contribution that MMT might make to understanding the role of tax within an economy once the insights it has to offer are accepted because it ignores the crucial question of how the design of taxation systems can also serve microeconomic (or regulatory) and social policy objectives, as well as macroeconomic ones. There is a perception that proponents of MMT have not embraced this issue (Roth, 2019). For example, MMT's relative indifference to taxing those with wealth (Kelton, 2019), is in part a function of MMT's suggestion that redistribution can be achieved without taxation, by using government created credit. Such positions can obscure public understanding of the potential role of taxation within MMT.

It is this potential role that the rest of this paper seeks to explore. In the process a number of issues are addressed. Firstly, it is shown that cash tax collected, which might be considered a balancing figure in MMT's explanation of the funding of government spending, is a residual figure settled only after a whole range of decisions by government and taxpayers are taken into account. It is suggested that this requires that MMT consider how to manage the tax system as a whole if it is to fulfill its objectives, effectively requiring the creation of a modern taxation theory (MTT). Secondly, the liberating effect of understanding tax as cancellation of money creation is considered. It is suggested that this provides the understanding on which MTT can be based. Thirdly, the consequence of this understanding for managing the role of tax within the economy is explored. The principle that taxes should not cause harm, implicit in recent work on tax spillovers is then explored as a characteristic of MTT before conclusions are drawn.

The limitations to MMT's macroeconomic perception of tax

As Mitchell et al. (2019, p. 333) suggest, within MMT the macroeconomic identity describing the monetary funding of government expenditure (G) can be summarised as follows, presuming T is the sum total of taxes raised in cash during a period, B is government borrowing and M is government created money, with Δ representing the change in a total during a period:

$$G = \Delta B + \Delta M + T$$

The concern in the context of this paper is with the interpretation of T, i.e. cash raised in taxes, within this equation and within wider society. The reality is that T in this formulation is a residual figure i.e. the tax paid in cash is only settled after a whole range of other issues have been addressed and their value has been assessed. So, as is noted below, T is influenced by decisions on the tax bases that should actually be subjected to taxation, decisions on rates and allowances to be provided, and taxpayer decisions on the degree to which they will be compliant with the demands made of them. It is not, then, the case, that a decision can be taken in isolation on the sum of tax to be collected: these other factors have to be taken into account in forecasting the sum likely to be recovered from the economy. If, as Fullwiler et al. (2019) argue, MMT is a tool to be used for policy formulation, and total cash tax paid plays a particular role in this process by assisting determination of the planned inflation rate, then this understanding is particularly significant: it requires a reconsideration of the significance of tax within MMT, and as a related issue of importance in its own right.

In this context an appreciation of the tax gap is important. Both the IMF (2013) and the European Commission (TAXUD, 2018) argue that net tax collection arises after the deduction of two broadly stated tax gaps that reduce total potential gross tax yields i.e.

$$T = T_t - T_f - T_c$$

where T_t is the total potential tax due on the tax base, T_f is the net tax foregone as a result of policy decisions and T_c is the tax compliance gap. Both terms require expansion. In the normative typology of the tax base that the IMF (2013) suggests be used for estimation of tax policy gaps:

$$T_t = (T_b \times T_r)$$

where T_b is the tax base for a particular tax and T_r the standard tax rate for that tax base, and:

$$T_f = T_p + T_s$$

where T_p represents the value of tax bases not taxed as a consequence of a policy decision (e.g. wealth) and T_s represents the value of allowances, reliefs and varying tax rates granted within bases that are taxed to encourage varying taxpayer behaviours by way of tax spends, whilst:

$$T_c = T_e + T_a + T_u$$

where T_e is the part of the tax compliance gap resulting from illegal tax evasion; T_a is the part resulting from the avoidance of those tax obligations that a legislature thinks fall on taxpayers

and T_u is the part of the tax compliance gap resulting from non-payment of tax debts, or unpaid taxes.

Substituting this understanding in the equation for G:

$$G = \Delta B + \Delta M + ((T_b \times T_r) - T_p - T_s - T_e - T_a - T_u)$$

This version of the identity previously noted suggests that the task of using tax to manage inflation, whether before or after it emerges into an economy in the fashion that MMT suggests possible is more complex than the basic identity implies. This is because what this identity makes clear is that the variable T – the tax settled in cash during a period - is the residual of a whole range of other decisions within the economy. The new identity that is noted implies that there are at least five tax gaps that have impact on this total:

1. The tax policy gap, which refers to the cost of potential tax bases not taxed by choice e.g. wealth, which is untaxed in many economies;
2. The tax spend gap, which refers to the costs (both positive and negative) of granting higher and lower rates of tax that vary from the norm or standard rate as well as the cost of all allowances and reliefs granted to taxpayers, for whatever reason;
3. The cost of tax evasion;
4. The cost of tax avoidance;
5. The cost of tax bad debt i.e. declared sums owing but not actually paid.

Policy is required on each of these issues to manage cash tax collected. Crucially however, MMT thinking has potential implications for the context in which this management should take place. In effect what this implies is required is a new theory of taxation that does not focus on cash tax collected as such, but does instead focus upon the role of tax in cancelling the credit created by government spending within the economy whilst simultaneously delivering the social and economic policies of a government that drive decision making on the tax policy and tax spend gaps.

Tax as cancellation

Within the context of this suggestion that a modern taxation theory might be required, one of MMT's primary and most useful insights is its explanation that there is not a "tax and spend cycle" but a "spend and tax cycle". This logically follows from the MMT position that all government spending is initially funded by a credit creation process managed by a government and its central bank. The importance of the logic is that this means that the primary role of tax is to cancel that credit (which takes the form of new money), created by government as a result of its spending. In this role tax plays the same role in cancelling credit, as bank loan repayment does with regard to commercial bank created credit (McLeay et al., 2014). This logic, when placed within the context of the accounting identity for government expenditure discussed in the previous section, necessarily transforms thinking about tax. When tax is not required to fund government spending, which is the necessary and inevitable consequence of this logic, it can and should be designed to perform other pressing public policy roles within the economy. Other such roles can be identified (for example, these from Murphy, 2015):

- 1) Ratify the value of the currency by demanding payment of tax in the currency a government has created, thereby establishing the value of that currency for use in other transactions in the jurisdiction for which it is responsible;
- 2) Reclaim the money a government has spent into the economy as a result of the credit creation it undertakes in fulfilment of its democratic mandate;
- 3) Redistribute income and wealth;
- 4) Reprice goods and services;
- 5) Reorganise the economy i.e. to facilitate fiscal policy.

To date MMT has focused almost entirely on the first and second these, yet the others are as potentially important. Others, such as Avi-Yonah (2011) have made the same point. The variation on the accounting identity noted previously also makes clear that tax has political, political economy and social policy implications. It is suggested that MTT should explicitly accept these objectives for taxation. As a result, a modern taxation theory would implicitly reject the orthodox economic view of taxation as a funding mechanism in which the microeconomic objective of revenue maximisation is paramount (as elaborated, for example, in IFS, 2011). Instead a more holistic view of tax that draws on the one developed by John Kay (1986) can usefully be adopted on the basis of, and combined with, MMT insights. In this conception, government is an economic agent in its own right and is a major supplier of public services that reallocate resources within society whilst using tax as a mechanism to facilitate this process.

A broader view of tax management within the context of MMT

This argument suggests that an alternative view of taxation derived from fundamental MMT insights can be developed. To reconcile with the MMT view of tax being a tool to assist a government to fulfill its mandate to manage aggregate demand within the economy a MTT must suggest that a government must manage its tax gaps, of the types previously noted. This is where common ground must be created or the macro and microeconomic objectives of any government cannot be reconciled.

Unfortunately, few tax authorities do at present prepare tax gaps (Murphy, 2019; OECD, 2017, p. 182). One that does so annually is the UK's HM Revenue & Customs (HMRC 2019b). It defines the tax gap as "the difference between the amount of tax that should, in theory, be collected by HMRC, against what is actually collected" (HMRC, 2016, p. 3). The US's Internal Revenue Service ("IRS") offers a variation on this when suggesting that the tax gap is "the difference between the tax that taxpayers should pay and what they actually pay on a timely basis" (IRS, 2016). Their emphasis on "timely payment" adds a nuance absent from the HMRC definition. Both, however, focus on the tax compliance gap (T_c in the notation used previously) and ignore tax forgone (T_f).

In the context of both MMT, with its focus on aggregate demand, and MTT, with a focus on the social and economic objectives of taxation, to ignore tax foregone is a mistake: tax foregone is that tax that a government chooses not to collect for policy reasons. It as such equates to the tax policy gap, but by describing the sum as tax foregone it is made clear that this is a decision not to tax. The International Monetary Fund's (IMF) addresses this issue of tax foregone, first by suggesting that the appraisal of the tax compliance gap (T_c) has to be undertaken within "the current policy framework" (IMF, 2013, p. 11) and secondly by explicitly recognising that there is a tax foregone, or policy, tax gap arising as a result of the choices

made by legislators that necessarily reduces available tax revenues. They refer to this sum, which is referred to as tax foregone in the notation used previously, as a “policy gap”, which they suggest refers to tax laws granting exemptions, tax liability deferrals or preferential tax rates (IMF, 2013, p. 11). These decisions have substantial impact on the chances of achieving the goals that it is suggested should be implicit in a MTT, but at the same time so do they with regard to MMT’s aim of managing aggregate demand.

The European Commission Taxation and Customs Union (TAXUD), which publishes an annual study of the European Union’s VAT gap (TAXUD, 2018), also embraces this idea of a “tax policy gap”, noting that:

“[T]he Policy Gap captures the effects of applying multiple rates and exemptions on the theoretical revenue that could be levied in a given VAT system. In other words, the Policy Gap is an indicator of the additional VAT revenue that a Member State could theoretically, i.e. in case of perfect tax compliance, generate if it applied a uniform VAT rate on all goods and services” (TAXUD, 2016, p. 51).

It should be noted that these two international agencies apart, the significance of this gap is ignored and it would appear that few governments put much effort into appraising the scale of the cost of the tax policy gap. Again, it could be argued that the UK is an exception, but the data it has to offer to appraise this gap is incomplete (HMRC, 2019a). That authority’s focus is on the tax compliance gap (e.g. HMRC, 2019b).

When considering tax compliance gaps it is apparent that there are a range of methods that might be used to prepare such estimates. It has been argued that all are unreliable (Gemell and Hasseldine, 2013). The IMF (2013) has effectively endorsed two approaches as being of merit. One is described as a “top-down” approach. This uses macroeconomic data to estimate the potential tax base within an economy. Taking value added tax (VAT) as an example, on this basis the likely VAT due on each part of consumption within national income is estimated as if no allowances or reliefs are supplied to taxpayers (T_t). Allowance is then made for the items exempted from charge as a result of policy decisions (T_p). In addition the cost of those allowances and reliefs granted either for reasons of administrative ease or to influence taxpayer behaviour is also estimated (T_s). These last two estimates constitute the VAT policy gap (T_f). The estimated tax due net of the VAT policy gap is then compared with the actual yield to suggest a compliance tax gap in a “top down” approach. The compliance gap represents tax lost as a result of taxpayer behaviour. As the IMF have noted, an analysis of this sort is dependent upon the existence of statistics of sufficient quality on the size of the tax base derived from sources other than taxpayer records (IMF, 2017, p. 33).

In contrast to this top down approach, a “bottom-up” approach uses an audit sample of submitted tax returns to estimate errors found within them and then extrapolates this error rate across the whole population of submitted returns (HMRC, 2019c, p. 4). The method does however leave this approach very vulnerable to estimates of tax not declared at all on tax returns not submitted by persons whose identity may not even be known. The methodology is also not good at capturing tax not paid by relatively small groups in society, such as the very wealthy. As Zucman et al., (2017) have noted, if such groups are predisposed to evasion then resulting tax gap estimates may be very vulnerable to error.

If MMT is to succeed in the objective of collecting specified sums in tax to ensure the cancellation function of tax has macroeconomic integrity, then it is apparent that those tax gaps need to be estimated. Moreover, they will need to be better estimated than at present, or the MMT objective of eliminating inflation through ex ante planning will be flawed and questionable. Put another way, if tax is to adequately fulfil its “cancellation function,” it will need to draw on tax gap estimates to come to a more precise appreciation of the extent to which “cancellation” is in fact taking place through current tax policy, and how future policy might be adjusted to better fulfil this function.

There is another dimension to this management of taxation from an MMT perspective. The job guarantee in pursuit of full employment (Mitchell et al., 2019, p. 301ff), is partially a normative position. This minimally normative approach to economic policy implicit in the job guarantee could also be extended to other areas of taxation management to fulfil, most particularly the third, fourth and fifth objectives for taxation (Murphy, 2015). MMT’s description of a spend and tax cycle also opens up the possibility of tax policy being directed towards other social and economic objectives, while also allowing better performance of its macroeconomic cancellation function.

Such an approach permits reframing of the way in which orthodox economics might view the expression of the total tax due on the tax base (T_t), noted above. In an orthodox view the single standard rate of tax with minimal allowances that is implicit in that formulation would be the optimum ordering of the tax system (see, for example, commentary by Sijbren Cnossen, IFS, 2011, p. 370). However, in a tax system that is not revenue maximising, and is instead seeking to promote social and economic policy, it follows that there would be good reason why tax rates would vary from the standard rate, even if it remained appropriate to indicate that such a rate existed. Progressive taxation will require this variation even if it challenges the orthodox view of efficient taxation. Likewise, some allowances and reliefs could be created to quite specifically induce changes in behaviour, which would again not fit a model of efficient taxation commonly described in orthodox economic literature (for example, Mankiw et al., 2009; Jorgensen and Yun, 2013). MTT will, therefore, building on the logic of MMT produce outcomes in tax policy quite different to those implicit in orthodox economic literature on this issue. Such variations in rates, reliefs and allowances will however, create the potential for tax spillovers, which appraise the impact one part of a tax system might have on the effectiveness or otherwise of other parts of the tax system of the same country in which they arise, or the impact that the system being considered might have on other country’s capacity to pursue fiscal autonomy. An awareness of tax spillovers is, then, essential in any system considering how MMT might achieve its taxation goals, which also means that reviewing them is a necessary part of MTT.

Managing the risk within an MMT tax regime – the role of tax spillover analysis

Tax spillovers were first widely discussed as a result of a seminal paper by the IMF (2014) that established that the corporation tax system of one country could have “spillover” effects on the corporate tax yield of another country. This idea has been expanded upon by Baker and Murphy (2019). They suggest the use of a minimally normative assumption when undertaking tax spillover appraisal, which assumption is that spillover appraisal should consider whether or not any one aspect of a tax system causes harm to the same tax in the same tax jurisdiction, another tax in the same jurisdiction or any aspect of tax in another jurisdiction. In this context causing harm means that the stated object of the tax in question

has been undermined. So, and to use a commonplace example, if the corporate income tax of a jurisdiction was to be charged at a lower rate than the personal income tax and it was readily possible to reassign income streams otherwise attributable to personal tax payers to corporations it is apparent that the corporate income tax harms the personal income tax in the jurisdiction in question. Such practices can hamper tax's overall ability to perform a withdrawal function, as well as exacerbating wealth and income inequality.

In the appraisal system that Baker and Murphy propose four taxes (personal income tax, corporate income tax, social security and capital gains tax as a proxy for wealth taxes) are appraised for their spillover consequences both on each other and against four aspects of tax administration, including the prevailing tax politics of the jurisdiction (which considers whether a climate conducive to tax compliance by taxpayers is promoted, or not); the efficiency of the tax administration; the efficiency of the company and trust administration and the impact of international agreements on each of these other aspects of the tax system. The result is a multidimensional tax spillover analysis that considers both domestic and international tax spillover risk. The aim is to identify where that risk exists. This would appear to be of great significance for MMT: unless a government can predict with confidence that it can collect a targeted sum in tax then it follows that its ability to forecast the likely level of aggregate demand it can deliver within the economy without inflation arising will be severely curtailed. Tax spillovers undermine that prospect of forecasting accurately: tax spillover analysis suggests how that process can be improved. MTT extends the idea to make sure that the social objectives within the tax system achieve the social and economic goals noted previously without undermining each other.

MMT and tax – conclusions

MMT has had a substantial impact on much economic debate in recent years. Amongst its contributions has been the suggestion that there is not a “tax and spend cycle”, but a “spend and tax cycle”. This is liberating and allows for a re-conceptualisation of the role of tax within the economy. Rather than balancing a government's fiscal equation, with indifference as to how the cash sum that achieves this goal is raised, tax can be an instrument of social, economic and fiscal (regulatory) policy. The idea that tax is a sum to be forecast when planning desired levels of inflation, as MMT considers necessary, is only possible if tax collected is seen as a residual of many other decisions implicit within that process. Various social and economic drivers of net tax owing require explicit consideration, as too do the various component elements of the tax gap. That consideration will extend to the requirement that all these sums be actively managed.

If the thinking implicit within modern monetary theory is to ever underpin the economic strategy of a government, assessing the identified five tiers of tax gap, will be critical to its success in imposing control on the economy for which it has responsibility. Tax spillover analysis in both domestic and international arenas is also key to this process of designing tax systems that do not undermine themselves, while achieving social goals and simultaneously assisting control of aggregate demand. Any government embracing MMT will, then, need to adopt this methodology. Tax is key to the success or otherwise of modern monetary theory in practice. To date its importance has been underplayed and under appreciated. If modern monetary theory is to succeed therefore, it has to be paralleled by a more expansive form of modern taxation theory, as explained, aided by tools such as tax gap appraisal and tax spillover assessments.

References

- Avi-Yonah, R. (2011) "Taxation as Regulation: Carbon Tax, Health Care Tax, Bank Tax and Other Regulatory Taxes." *Acct. Econ. & L.* 1, no. 1 (2011): Article 6.
- Baker, A., & Murphy, R. (2019) "The Political Economy of 'Tax Spillover': A New Multilateral Framework." *Global Policy*, 10(2), pp. 178-192.
- Bell, S. (1998) "Can Taxes and Bonds Finance Government Spending?" Annandale-on-Hudson, NY: Bard College Working Paper 244 <http://www.levyinstitute.org/publications/can-taxes-and-bonds-finance-government-spending>
- Blyth, M. (2013) *Austerity: The History of a Dangerous Idea*. Oxford: Oxford University Press.
- Dowler, E., & Lambie-Mumford, H. (2015) "How can households eat in austerity? Challenges for social policy in the UK." *Social Policy and Society*, 14(3), pp. 417-428.
- Edmiston, D. (2014) "The age of austerity: contesting the ethical basis and financial sustainability of welfare reform in Europe." *Journal of Contemporary European Studies*, 22(2), pp. 118-131.
- Fullwiler, S., Grey, R. and Tankus, N. (2019) "An MMT response on what causes inflation." *The Financial Times*, March 1.
<https://ftalphaville.ft.com/2019/03/01/1551434402000/An-MMT-response-on-what-causes-inflation/>.
- Gemmell, N and Hasseldine, J. (2012) "The Tax Gap: A Methodological Review." In Toby Stock (ed.) *Advances in Taxation*, Volume 20. Emerald Group Publishing Limited, pp. 203-231.
- Hail, S. (2017) "Explainer: what is modern monetary theory?" *The Conversation*, 31 January 2. <https://theconversation.com/explainer-what-is-modern-monetary-theory-72095> accessed 21 September 2019.
- HM Revenue & Customs (2019a) *Estimated cost of principal tax reliefs (January)*. London: HMRC.
- HM Revenue & Customs (2019b) *Measuring tax gaps 2019 edition: Methodological annex*. London: HM Revenue & Customs
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810116/Measuring_tax_gaps_2019_edition_-_methodological_annex.pdf.
- HM Revenue & Customs (2019c) *Measuring tax gaps 2019 edition: Methodological annex*. London: HM Revenue & Customs
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810116/Measuring_tax_gaps_2019_edition_-_methodological_annex.pdf.
- IFS (2011) *Tax by design: The Mirrlees Review*. London: Institute for Fiscal Studies.
- IMF (2013) *Assessment of HMRC's Tax Gap Analysis*, Washington DC: The International Monetary Fund <https://www.imf.org/external/pubs/ft/scr/2013/cr13314.pdf>.
- IMF (2014) "Spillovers in international corporate taxation." IMF Policy Paper 9. Available from: <https://www.imf.org/external/np/pp/eng/2014/050914.pdf>.
- IMF (2017) *Fiscal Monitor: Tackling Inequality*. October, Washington DC: The International Monetary Fund, available at: <https://www.imf.org/en/Publications/FM/Issues/2017/10/05/fiscal-monitor-october-2017>.
- Jorgenson, D. and Yun, K. (2013) "Taxation, Efficiency and Economic Growth." In *Handbook of Computable General Equilibrium Modeling*. Science Direct, p. 659.
- Kay, J. (1986) "The Rationale of Taxation." *Oxford Review of Economic Policy* (0266-903X), 2 (2), p. 1.
- Kelton, S. (2019) "Should we treat the super-rich as our piggy bank?" New York: *Investment News*. February 1.
- Krugman, P. (2019) "What's Wrong with Functional Finance? (Wonkish)." *New York Times*, Feb. 12.
- Lerner, A. (1947) "Money as a Creature of the State." *The American Economic Review*, 37(2), pp. 312-317. Retrieved from <http://www.jstor.org/stable/1821139>.

Mankiw, N. Gregory, Matthew Weinzierl, and Danny Yagan (2009) "Optimal Taxation in Theory and Practice." *Journal of Economic Perspectives*, 23 (4), pp. 147-74.

Matsaganis, M., & Leventi, C. (2014) "The distributional impact of austerity and the recession in Southern Europe." *South European Society and Politics*, 19(3), pp. 393-412.

McLeay, M., Radia, A., Thomas, R. (2014) "Money creation in the modern economy." *Bank of England Quarterly Bulletin*, Spring.

Mitchell, W.; Wray, L. R., and Watts, M. (2019) *Macroeconomics*. London: Red Globe Press.

Mitchell, W and Mosler, W. (2001) "Fiscal policy and the job guarantee." Australian National University Research Paper <https://openresearch-repository.anu.edu.au/handle/1885/40582> accessed 12 September 2019

Murphy, R. (2015) *The Joy of Tax*. London, Transworld Publishers.

Murphy, R. (2019) *The European Tax Gap: A report for the Socialists and Democrats Group in the European Parliament*. Brussels: Socialists and Democrats Group in the European Parliament. https://www.socialistsanddemocrats.eu/sites/default/files/2019-01/the_european_tax_gap_en_190123.pdf.

OECD (2017) *Tax Administration 2017 Comparative Information on OECD and Other Advanced and Emerging Economies*. Paris: Organisation for Economic Cooperation and Development.

Roth, S. (2019) "The #MMT Case for Progressive Taxes." *Naked Capitalism*: <https://www.nakedcapitalism.com/2019/03/the-mmt-case-for-progressive-taxes.html> accessed 12 September 2019.

TAXUD (2016) *Study and Reports on the VAT Gap in the EU-28 Member States: 2016 Final Report*. Brussels: European Commission TAXUD/2015/CC/131.

TAXUD (2018) *Study and Reports on the VAT Gap in the EU-28 Member States: 2018 Final Report*. Brussels: European Commission https://ec.europa.eu/taxation_customs/sites/taxation/files/2018_vat_gap_report_en.pdf.

Taylor-Gooby, P. (2012) "Root and branch restructuring to achieve major cuts: The social policy programme of the 2010 UK coalition government." *Social Policy & Administration*, 46(1), pp. 61-82.

Wray, L. R. (2012) *Modern monetary theory: a primer on macroeconomics for sovereign money systems*. London: Palgrave Macmillan

Zucman, G., Alstadsæter, A. and Johannesen, N. (2017) "Tax Evasion and Inequality." Working Paper. <https://gabriel-zucman.eu/files/AJZ2017.pdf>.

Author contact: richard.murphy@city.ac.uk

SUGGESTED CITATION:

Murphy, Richard (2019) "Tax and modern monetary theory." *real-world economics review*, issue no. 89, 1 October, pp. 138-147, <http://www.paecon.net/PAERreview/issue89/Murphy89.pdf>

You may post and read comments on this paper at <https://rwer.wordpress.com/comments-on-rwer-issue-no-89/>