

The European Tax Gap

**A report for the Socialists and Democrats Group in the European
Parliament**

Richard Murphy

Director of Tax Research LLPⁱ

**Professor of Practice in International Political Economy, City, University
of London**

January 2019

1. Executive summary

A decade after the collapse of 2008 the European Union is only slowly getting back to economic recovery. Across the member states, whether within or outside the Eurozone, the constraints of tight fiscal rules, austerity and a shortage of tax revenues continue to limit the scope for action by governments needing to stimulate their economies. Many are frustrated at the consequent constraints on innovation, including those necessary to tackle climate change. The announced and long awaited economic recovery risks benefiting only the most powerful; while the distribution of the potential economic growth will be critically monitored by EU citizens.

In the same decade that these issues have changed the nature of European politics awareness of tax injustice has grown, considerably. Much of this attention has rightly focussed on the actions of the multinational corporations that have used international tax rules to avoid their obligations to many of the countries that host their operations. Another tax issue has received less attention but is of large-scale and great impact on European Union member states. This is the tax loss – or tax gap – arising from the non-payment of tax within the domestic economies of EU member states. This illegal tax evasion is the focus of this report.

The evidence now available suggests that the EU tax gap resulting from largely domestic tax evasion might be €825 billion a year, based on data for 2015. It is harder to estimate

corporate tax avoidance in the EU, but available evidence suggests different amounts, from €50bn a year to €190bn a year according to previous European Parliament studies.¹

The good news is that these estimates are smaller than in 2009, which was the base year for the last EU wide tax gap estimate of this sort. The reduction in the tax gap, when allowing for inflation, is at least 11.8% over that period. That suggests that tax authorities have become more effective in tackling tax abuse since the 2008 downturn began. The size of the shadow economy in the European Union has fallen according to all available evidence. Effort expended has clearly worked.

That said, the remaining tax gap is large. Percentage tax gaps, expressed as a proportion of expected tax revenue, vary from 7.98% in Luxembourg to 29.51% in Romania. In absolute amounts the biggest tax gaps are in Italy, France and Germany. In half of all EU member states have tax gaps that might exceed their healthcare spending, and often by considerable amounts.

This suggests that there is considerable scope for further action to tackle the tax gap. Taking that action is really important for three reasons.

Firstly, in the EU and across the world monetary policy is now ineffective: very low interest rates guarantee that. Fiscal management now has to rely on tax-based incentives but these only work if the tax gap is small. The only available economic weapon to tackle a future recession requires then that the tax gap be reduced as much as possible.

Secondly, the tax gap indicates the scale of inequality between those who do, and do not, pay tax. This is a social injustice that needs to be tackled as much as other forms of inequality need to be addressed.

Third, it is clear that when there are economic constraints collecting taxes owing makes sense, either to ensure expenditure is matched by appropriate funding or to deliver lower tax rates to those who are tax compliant.

The good news is that the evidence shows that action is possible, and benefits can accrue. But as this report shows, across the EU far too many governments are refusing to even measure their tax gaps, let alone take action to address them. Acknowledging the importance of the tax gap, and improving the ways to measure and tackle it as suggested in this report, is now essential to the future economic well-being of the European Union member states. In the face of increasingly difficult economic circumstances now is the time to act.

¹ Bringing transparency, coordination and convergence to corporate tax policies in the European Union, II - Evaluation of the European Added Value of the recommendations in the ECON legislative own-initiative draft report EPRS | European Parliamentary Research Service, European Added Value Unit, PE 558.776 - October 2015

2. Background

A shortage of tax revenue has been one of the most important factors in European politics over the last decade. Since 2010 most EU member states have in various ways and in varying degrees run economic policies best described by the term austerity.

The economics of austerity are microeconomic. Its logic suggests that, like households and businesses, a government must seek to balance its books. This requires that government spending be covered by taxation revenues. This, in turn, has been assumed to mean that if there is an imbalance and a government is running a deficit then either taxes must be increased or spending must be cut.

Whether this was an appropriate economic policy, or not, is not the subject of this paper. What is, instead, noted is that many European governments that have been committed to austerity policies have assumed that their opportunities to increase taxes are limited. Whether this was true or not is, again, not an issue discussed here. What is instead noted is that as a consequence many have chosen not to increase taxes to seek to meet this goal. That, then, left them with two options if the objective of balancing their books was to be achieved. The first was to seek to cut expenditure, which many sought to do. The second was to seek to reduce what is called their 'tax gap'.

The nature and scale of the tax gap is the subject of this paper. Its purpose is to suggest that there remains considerable scope for tackling this issue. In that case tackling the tax gap remains a viable alternative to austerity.

3. Summary of findings

This report suggests that the EU's member states have a total tax gap of not less than €750 billion. The figure might be as high as €900 billion. It is likely to be between the two. For the reasons noted in the report this is likely to be an underestimate.

Percentage tax gaps, as shown in Appendix 1 to this paper, vary from 7.98% in Luxembourg to 29.51% in Romania.

In absolute amounts the biggest tax gaps are in Italy, France and Germany.

Half of all EU member states have tax gaps that might exceed their healthcare spending, and often by considerable amounts.

As a result it is suggested that there remains considerable capacity within many EU member states to collect considerably more of the tax that is legally owing than is done at present.

Research undertaken by the author of this report and others suggests that:

- a. Too few EU member states prepare tax gap estimates. Only fifteen EU member states, at most, are engaged in this activity at present;
- b. Those EU member states that do publish tax gap estimates do so on too limited a basis. Seven only prepare such estimates for VAT. Only the United Kingdom attempts a reasonably comprehensive tax gap estimate;
- c. There is a 'cloak of secrecy' over much of the data that is required to establish best possible tax gap estimates, and this is hindering progress on this issue. This is most especially true with regard to the size of the shadow economy that states include in their estimates of their GDP. Whilst Eurostat are aware of the scale of these estimates they will not publish them. Available evidence suggests that the estimates used are much lower than the likely figures;
- d. The tax gap does not just relate to tax that is not paid. It should also include the amount of tax that is not paid as a result of a government decision not to tax certain tax bases or to grant exemptions, allowances and reliefs. This is referred to as the tax policy gap by the International Monetary Fund and others. Many of these tax reliefs increase inequality in EU member states. Others are given without any apparent economic justification. Although it is legal requirementⁱⁱ that EU member states estimate these costs of tax not paid as a result of allowances and reliefs the EU does not appear to collect data on this issue and as such the information is not currently available for review. There may be significant additional available capacity for tax collection from this source.

4. Summary of recommendations

- a. All EU member should prepare their own annual shadow economy and tax gap estimates;
- b. Tax gap estimates should cover all taxes;
- c. The EU should establish comprehensive methodologies on what are known as both top-down and bottom-up methods for estimating these tax gaps. Estimates should be published on both bases;
- d. Tax gap measures must cover all potential user needs and not just be tax authority efficiency measures;
- e. Jurisdictions should prepare annual estimates of both their tax policy gaps and their tax expenditures on allowances and reliefs and these should be published nationally and on a Europe-wide basis;
- f. Tax authorities should be required to undertake tax spillover assessments of the tax risks arising within their own tax systems and which are created by it internationally, as well as of those created for it by other states. These should include annually updated plans to tackle the identified tax risks;
- g. Each EU tax authority should explicitly report the bad tax debt that they suffer each year;
- h. Tax authorities should be funded to close tax gaps;
- i. There must be effective central public registers of companies and trusts in all EU member states that can provide the accounting and ownership data required by tax

authorities to close tax gaps as the secrecy provided by many such registers continues to be a major contributor to many EU tax gaps.

5. An immediate plan of action

The immediate actions that the members of the EU parliament could take to help identify the tax gap, and so indicate the possibility for action to address this issue include making enquiry of each member state to:

- a. Identify those states' own estimate of the size of their shadow economy included in their GDP, and the basis for its calculation;
- b. Identify those states' own estimate of the cost of all untaxed tax bases such as wealth, financial transaction taxes; carbon taxes, etc.;
- c. Identify those states' annual estimates of the value of all allowances, reliefs and exemptions granted for offset against all taxes that are in operation;
- d. Identify those states' tax bad debt as written off by its own tax authority in each year.

If this data were to be secured then it would be possible to identify both parts of the tax policy gap in each EU member state with greater accuracy than at present whilst one key component of the tax compliance gap, relating to tax bad debt, would also be explicitly known when this is not the case at present. This would represent a major advance in understanding of the tax gap.

If the EU parliament was to also request an annual statement from the Director General of Taxation for the EU on the rest of the tax gap on the basis outlined in the previous section of this report, this would help identify all other parts of the tax gap and focus real attention on this issue.

6. The use of tax gap data

Tax gap data has three primary uses. In the first instance it can be used to appraise the effectiveness and efficiency of a tax authority. This is the most common use at present.

Secondly, tax gap data can be used to measure inequality arising from the failure to apply tax law in an even-handed manner. This issue is little referred to but is of great importance.

It is vital that any state be seen to act in an even handed manner. That means tax law should be enforced and all should be required to pay what is owed by them. If that is not done actual inequality arises: those who pay their taxes are worse off than those who do not. Resentment builds amongst taxpayers and non-compliance increases. More worryingly still, honest business is undermined by dishonest business. This means that honest businesses are more likely to fail. As a result economic growth, financial stability, business investment, and employment prospects are all harmed. The cost of tax inequality is high, especially if it becomes endemic.

Thirdly, tax gap data can be used to measure the effectiveness, or otherwise, of the delivery of fiscal policy in a jurisdiction. At a time when monetary policy has largely ceased to be effective in the economic management of most EU member states this is a matter of considerable importance. Tax is a lever for the delivery of economic change when fiscal policy is used. If the tax system is widely abused than that economic policy is likely to be ineffective. Few states can now afford to be in this position and so effective tax gap measurement is a key tool for the appraisal of the effective of states' economic management of their economies.

7. What makes up the tax gap

The tax gap comes in two main parts. The first is the tax policy gap. The second is the tax compliance gap.

The tax policy gap is the tax not paid in a country as a result of the decision made by a government not to tax a potential tax base, such as wealth. Additionally it is the value of the tax reliefs, allowances and exemptions given by a government for offset against a source of income that might otherwise be taxable. This part of the tax gap is not the primary focus of this report. That being said, taking into account the aggregate tax rates of EU member states, and taking into account that all EU countries could collect as much tax yields as countries having higher tax yields, this tax policy gap might amount to as much a year within the European Union as the already noted tax gap that results from tax evasion.

It is an unfortunate fact that too little emphasis has been placed upon the tax policy gap. This has meant that the opportunity for reform in this area has been too often ignored when the undertaking of tax policy reform could represent a critical part of the desirable overall fiscal policy of many EU member states at a time when austerity is now creating significant political backlash in many member states. The tax policy gap deserves greater attention as a result and national tax administrations as well as EU institutions and statistical bodies should now do more to collect more information on what is not collected due to political decisions, especially on tax incentives and tax breaks.

The tax compliance gap is the more commonly recognised part of the tax gap. The tax compliance gap is usually defined as the difference between the amount of tax that would be collected by a jurisdiction if current legislation was enforced in the way that its tax authority considers appropriate, and the sum actually collected in tax.

There are three reasons why tax of the anticipated sum is not collected. The first, and most commonplace, is tax evasion. Tax evasion is a taxpayer chosen behaviour. It happens when a taxpayer decides to either not report a source of income to tax authorities on which a tax liability should arise, or because they claim allowances, expenses and reliefs for offset against their declared income to which they are not entitled in law.

The second reason for expected tax not being paid is tax avoidance. Again, this is taxpayer determined behaviour where the taxpayer decides to submit a tax return and declare their tax liabilities based on an interpretation of the applicable law of the jurisdiction that the taxpayer knows may be unacceptable to the tax authority of that country. They do so knowing that the risk of their potential misinterpretation of the law being discovered is limited and so the chance of appearing to reduce their liability in ways they claim to be legal, whether that is true or not, is sufficiently high for them to justify the risk of doing so. The scale of this issue is related to the complexity of the tax system and the degree of uncertainty that might exist as to the proper interpretation of the tax rules that it creates.

It is stressed that tax avoidance does not ever include making use of tax reliefs and allowances provided by the law of a country: the cost of these is included in the tax policy gap, previously noted.

Finally, the tax compliance gap includes tax liabilities that a taxpayer has declared but which are not actually paid, usually because of taxpayer insolvency before the money can be collected. Only a tax authority can, of course, be aware of what these sums might be. Few report them.

8. Measuring the tax gap

Each of these three dimensions of the tax compliance gap is important, and requires a different reaction from a tax authority to manage it. Vitaly, unless the scale of each of these tax gaps has been appropriately estimated then the chance that effective action can be taken to address each of these issues is low.

In saying this it is important to note that action to tackle the tax gap does not necessarily mean that more tax revenue must be raised by a country, although it might. Instead it could mean that compliant taxpayers, who pay all that tax that is expected of them, might see their tax rates decline as the yield from non-compliant taxpayers increases. This could be achieved by reducing the tax rate or tax base in some areas chosen by a government in ways designed to meet its social and other economic objectives. Tackling the tax gap can then be a policy intended to reduce economic inequality between those who are law-abiding and those who are not. This aspect of the tax gap and its relationship to inequality is one little explores to date, but which might be of considerable social and economic importance in many EU member states.

Given the apparent significance of this issue it is then surprising that it appears that no more than fifteen EU member states are at present undertaking any tax gap analysis on their own account. These countries are as follows, with an indication of the taxes for which they are preparing estimates.

Table 1 – EU Member states undertaking tax gap analyses

Member state	Taxes covered
Czech Republic	VAT
Denmark	Not known: the OECD suggest work is being done
Estonia	VAT, income tax and social security
Finland	VAT
France	VAT
Germany	VAT and corporation tax
Italy	VAT, income tax and corporation tax
Latvia	VAT, income tax and social security
Lithuania	Not known: the OECD suggest work is being done
Poland	VAT
Portugal	VAT
Slovakia	VAT
Slovenia	VAT
Sweden	Not known: the OECD suggest work is being done
UK	VAT, income tax, corporation tax, social security

Source: Fiscalis 2016 and OECD 2015

Not all these estimates are necessarily published. The United Kingdom is in an exceptional position, although it is also fair to note that a significant number of elements in its data are described as ‘illustrative estimates’ (HMRC 2018).

In addition to the above nationally generated data the EU does commission an annual estimate of the tax gap with regard to Value Added Tax each year. This now covers all member states. It is stressed that the EU VAT gap estimate does not indicate the whole tax gap, but it does imply the scale of the so-called ‘shadow’ or ‘non-observed’ economy in a jurisdiction. Using this estimate and that from two academic sources noted in Appendix 1 the following tax gap estimates for all EU member states can be estimated:

Table 2 – suggested size of the EU tax compliance gap

Member state	EU sourced GDP data 2015	EU reported tax yield as a proportion of stated GDP 2015	Tax gap estimate based on average grossed up GDP	Tax gap estimate based on reported GDP	Average tax gap estimate based on the two previous estimates
	€'bn	%	€'bn	€'bn	€'bn
Austria	344.5	43.20%	13.4	12.3	12.9
Belgium	410.3	45.20%	33	27.8	30.4
Bulgaria	45.3	29.10%	4.3	3.2	3.8
Croatia	44.5	37.10%	4	3	3.5
Cyprus	17.7	33.20%	1.8	1.3	1.6
Czech Republic	168.5	34.00%	9.5	8.1	8.8
Denmark	271.8	46.50%	18.7	16.2	17.5
Estonia	20.3	33.70%	1.5	1.2	1.4
Finland	209.6	43.90%	11.4	10	10.7
France	2194.2	45.60%	124.9	110.9	117.9
Germany	3043.7	38.40%	132.1	118.1	125.1
Greece	176.3	36.60%	22.9	16.8	19.9
Hungary	110.7	38.80%	10	8.1	9.1
Ireland	262	23.40%	7.3	6.5	6.9
Italy	1652.6	43.00%	216.3	165.5	190.9
Latvia	24.3	30.10%	1.9	1.5	1.7
Lithuania	37.4	28.90%	3.5	2.6	3.1
Luxembourg	52.1	37.20%	1.7	1.5	1.6
Malta	9.5	32.10%	1	0.8	0.9
Netherlands	683.5	37.40%	23.1	21.2	22.2
Poland	430.1	32.40%	38.9	30.2	34.6
Portugal	179.8	34.40%	12	10	11.0
Romania	160.3	28.00%	19.2	13.2	16.2
Slovak Republic	78.9	32.10%	6.1	4.7	5.4
Slovenia	38.8	36.60%	2.9	2.3	2.6
Spain	1080	33.70%	66.4	53.5	60.0
Sweden	449	43.10%	18.1	15.6	16.9
United Kingdom	2602.1	33.10%	91.9	83	87.5
	14798	36.10%	897.6	749.1	823.5

As is noted, the figures vary depending upon the way in which GDP is considered. If it is presumed that the shadow economy is included in GDP estimates already then the lower tax gap estimate is appropriate. If, however, only part of the shadow economy is included in GDP, as seems likely in most cases, then the higher figure might be a better indication. In practice, a figure in between the two is entirely possible. Eurostat does not publish data on how much of the estimated shadow economy of each country is included in its GDP. Appendix 3 explains the issue in more detail. As a consequence it is wise to assume that a mid point in the ranges noted is the best estimate of the European Union tax gap. It is suggested to be €825 billion (having rounded to prevent a suggestion of spurious accuracy) as a result.

It is stressed that these figures are estimates; they are at most mid-points in a range and could be improved if better data and increased cooperation from individual EU member state tax authorities was to be made available for the purposes of their estimation. The scale of them does however suggest that recommendations can be made on how this issue might be better addressed to achieve a fourfold goal of:

- a. improving the delivery of government fiscal policies;
- b. upholding the rule of tax law;
- c. delivering greater economic equality to those who are compliant with tax law and raising revenue (if that is thought appropriate); and
- d. delivering balanced budgets in ways that do not require austerity to defeat the objectives of much of political populism.

9. How the tax gap has changed over time

Appendix 1 to this report shows that the trend in the VAT gap reported by the European Commission Director General of Taxation has been downward since 2012 and has overall been so since estimates were first made since 2009.

The last EU tax gap estimate was prepared by Tax Research LLP for the Socialists and Democrats Group in the EU Parliament² in February 2012. The estimate then offered was that tax evasion was likely to amount to €860bn per annum and tax avoidance to a further €150 billion a year. It was stressed that the latter figure was harder to estimate. The combined figure was €1 trillion.

For reasons noted in Appendix 2, it remains hard to estimate tax avoidance. It is certain that the tax gap estimate of €825 billion suggested in this report is understated as a consequence but rather than present an estimate of the loss it is now considered more prudent to simply note that the problem exists. What Appendix 2 does make clear is that available data suggests that losses to tax evasion and the shadow economy are substantially greater than the losses arising to corporation tax avoidance by multinational corporations.

² <https://www.socialistsanddemocrats.eu/publications/closing-european-tax-gap-report-group-progressive-alliance-socialists-democrats>

The 2012 estimate of the tax gap was based on 2009 data. The figure used for the year in question came solely from a single peer reviewed source of shadow economy data. The only change in methodology in the current estimate is to use two sources of estimate for the shadow economy and the now regularly published European Commission VAT gap data as a third source. This should increase the robustness of the current estimate. That now published is based on 2015 data. The inflation rate over this six-year period³ was in total 8.67%. This would imply that the 2012 estimate would by now be €935 billion if nothing else had changed. The figure has, however, fallen to €825 billion. That is a decline of 11.8%. The European Commission's EU VAT gap data for the same period, if inflation adjusted, would show a fall of 16.1%. The difference arises because whilst estimates of the shadow economy in academic studies have also declined over this period they have not done so by as much as the estimate of the VAT gap has done. What is, however, clear, is that the trend in the tax gap, and in the size of the EU shadow economy, is downward.

10. More detailed recommendations

Recommendation 1 - All tax authorities should prepare shadow economy and tax gap estimates

We suggest that if tax authorities are to properly undertake the tasks expected of them by the governments, and so populations, on behalf of whom they act then it is vital that each of them prepares a tax gap estimate for each year to assist and guide their work as well as to measure its effectiveness.

Recommendation 2 - Tax gap estimates should be comprehensive

Most tax gap estimates are only prepared for Value Added Taxes at present. This is a good place to start: VAT is a tax on turnover in an economy and the VAT tax gap does, as a result, provide a good estimate of the shadow economy, which might in turn inform estimates to be made of other tax gaps. However, those other tax gaps are also important, not least because VAT is not the biggest revenue generator in most economies. That role falls to income taxes and social security charges in most cases, which share many of their tax bases in common. It is, then, essential that tax gap estimates be extended to these taxes. Thereafter, and because of the political economic significance of non-payment of corporation tax by multinational corporations, we suggest that the tax gap with regard to corporation tax be addressed next. If work was then to be taken further losses from excise duties, tariffs and related taxes are likely to have the next priority, at which point much of the tax gap of many countries will have been appraised, leaving other areas to be addressed as operating priorities and local situations deem appropriate.

³ <https://www.statbureau.org/en/eurozone/inflation-calculators?dateBack=2009-12-1&dateTo=2015-12-1&amount=1000>

Recommendation 3 - Tax gap methodologies must be comprehensive to ensure that all user needs are met

As has been noted, tax gap data has three primary uses. Because these needs differ tax gap estimates need to be prepared on two differing bases, both of which are already found in use, albeit not consistently.

The primary tax gap measure to appraise the efficiency of a tax authority is called a 'bottom up' measure. In this method three errors are measured. The first is the efficiency of the tax authority in collecting tax return data from those due to submit it. Clearly, if a tax return is not submitted to an authority when it should be there is prima facie tax evasion taking place, giving this measure particular significance. This requires significant sampling of populations not submitting tax returns to determine causes, and the likely losses arising.

Second, the error rate within submitted tax returns has to be estimated. These errors can arise from both tax evasion and tax avoidance. Since each requires a different management response estimates for each, by tax, need to be prepared.

Thirdly, bad debt has to be monitored i.e. the amount of tax declared but not collected has to be recorded and reported.

These three measures are all 'bottom up' measures because they are based on data generated within a tax administration. Most of the tax gap estimates reported by the UK's tax administration are of this type.

In contrast, 'top down' tax gap estimates provide the second and third type of tax gap estimates. These tax gap estimates use data within the national income accounts of a jurisdiction, that in turn inform GDP estimates, to establish the likely value of the tax bases that should be subject to tax. They then deduct from those estimates the consequence of tax expenditures (see Recommendation 4) and estimate a total estimated theoretical tax liability due as a consequence. This sum is then compared with tax actually paid to determine the scale of the 'top down' tax gap. This method is commonly used for VAT tax gaps at present but despite encouragement from organisations like the IMF this method is not at present commonly used for any other taxes. This means that few countries have much real idea of their fiscal capacity to recover additional tax revenues from existing tax bases and rates given current allowances and reliefs, and as such have little overall control over their economies.

Recommendation 4 - Estimates of tax expenditures

Tax expenditure is the term used to describe those parts of an available tax base (such as income from employment, or corporate profits) that a government decides not to collect by its own choice. They might do this because, for example, they think it appropriate to:

- offer low rates of tax for some groups in their populations to help tackle inequality;

- grants allowances, such as the annual tax free sum that most governments provide within their income tax systems to any individual resident in their country;
- provide incentives to encourage certain types of behaviour e.g. pension saving or some types of commercial investment.

The use of such allowances and reliefs is a normal part of the fiscal management of most countries, but can be of significant amount. For example, the major tax reliefs provided in the UK amounted to £406 billion in its 2016/17 tax year⁴, compared to total tax revenues of £672 billion in the same year⁵. Tax expenditures in the UK do, then, if properly recorded amount to 60% of tax collected.

The scale of these spends would appear to demand the effective management of these tax expenditures and yet, despite the passing of EU legislation requiring their annual appraisal the EU Commission Director General of Taxation does not collect data on their annual cost and nor, it seems, does anyone else. This means an essential element of the data required to properly appraise top down tax gaps is not readily available in most countries. As a result it is not available to politicians and others to appraise on a regular basis to inform their decision making. It would, in that case, appear desirable that the European Commission should ensure that this data is prepared by each member state on an appropriate and comparable basis each year, and that the results should be published by tax and by country each year.

Recommendation 5 - Effective funding of tax authorities

Recent research has indicated that there is at present little apparent correlation between the tax gaps of EU member states and the amount that they spend on their tax authorities as a proportion of either GDP or tax collected. In principle this finding is disappointing, but in practice what it implies is that there might be considerable scope for improving the effective allocation of resources within many tax authorities if only data to direct the allocation of such resources was available. It is likely that both well prepared bottom-up and top-down tax gap estimates would considerably assist this process. These tax gaps estimates might also better indicate the potential yield available from investing appropriately in tax collection in EU member states, and help determine the basis for such spending against expected yield outcomes. It is recommended that decision-making on tax authority expenditure be moved to this basis and that appropriate resources be provided to tax authorities able to make effective use of them if data suggests that might be appropriate.

4

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/737595/Dec17_Reliefs_Bulletin_Final.pdf

⁵ <https://obr.uk/download/economic-and-fiscal-outlook-november-2017/>

Recommendation 6 – Tax spillovers

Tax gap data is important, but all data has limitations and needs interpretation. It is suggested that tax spillover assessments can help tax authorities identify the causes of the tax gaps that they suffer.

A tax spillover assessment appraises the risks arising within a jurisdiction's own tax systems; those which are created by it internationally and those risks created for it by the tax systems of other states.

In 2014 the IMF used econometric equations to provide aggregate level estimates of total spillover effects worldwide, but acknowledged the difficulty in using this method to generate country level estimates. Until now we have not had a means, or method for undertaking country level spillover assessments. Professor Richard Murphy and Professor Andrew Baker have proposed an alternative, qualitative basis for tax spillover risk appraisalⁱⁱⁱ. Their tax spillover appraisal works on the basis of the single assumption that no part of a tax system should undermine or threaten another part of any tax system. It then appraises the risk that this might happen, taking into consideration four taxes (personal income taxes; corporate income taxes; social security and capital gains taxes) and four aspects of tax policy that can strengthen or undermine a tax system (the tax politics of a jurisdiction; the quality of the tax administration; the quality of the company and trust administration of a jurisdiction and international tax agreements). The inevitable result of such a tax spillover appraisal is that, if properly undertaken, it will identify the greatest risks that result in tax gaps arising within a tax system and so suggest the ways in which they might be addressed. For this reason it is suggested that all EU member states should undertake such an appraisal and then put in place an action plan to address the issues arising with the aim of reducing the tax gap.

Recommendation 7 - Creating effective registers of companies and trusts

Considerable attention has been given to the need to create effective registers of companies and trusts in recent years, and EU legislation in this area is developing rapidly. These moves are welcome, but need effective translation into local law across the EU member states. There are considerable difficulties in using data from such registers at present, either because many such registers do not exist as yet (at least in the case of trusts) or because the registers are dispersed, hard to access, and rarely interface readily with the tax system. Nor is there, in most cases, any third party verification of the data that these registers hold.

As a result it is suggested that all registers for a jurisdiction must be consistently prepared and be accessible through one portal.

In addition it is recommended that the requirement that banks hold data on the activities of their customers and their beneficial ownership be exploited to provide the data required to verify that the data held on public record for these entities is reliable. This can be done by requiring that a bank provide details annually to a domestic tax authority and company and

trust registry on all those who they think might have a beneficial claim upon that entity; who manages it, and what sum in the preceding year was deposited in the bank accounts that it maintains on its behalf, net of transfers. The first two types of data could very easily be matched with public records, and so provide evidence of the accuracy of registers. The last has a different purpose. There is evidence that corporate entities are used to undertake tax evasion activities and that those perpetrating this abuse can get away with their crimes because beneficial ownership data and accounts of companies are frequently so poorly recorded. If there was no filed data for an entity but a bank account has been advised to exist then it should be the legal duty of a jurisdiction's tax authority to assess that entity for the likely tax liability arising on that income, with the directors being made liable for the sum owing in the absence of payment by the company itself. Limited liability is a privilege that should not be used to evade tax owing.

Appendix 1⁶

Estimating the tax gap

The number of countries within the EU, or anywhere else, estimating tax gaps is very limited (Murphy & Petersen 2018, Fiscalis 2016). The majority of those that do so only publish data with regard to VAT (Fiscalis 2016). Only the UK undertakes an annual estimate across a range of taxes but all of the data reported is prepared on a bottom-up basis excluding VAT (HMRC 2018) and is therefore unlikely to be comparable with data from other EU member states. The only officially prepared estimates that might achieve this goal of comparability are the estimates of the VAT tax gap now prepared for all EU member states annually on behalf of the European Commission (EC DGT 2018). This estimate is based on observed national accounts data included in GDP (EC DGT 2018, 15).

The European Commission methodology does, in effect, estimate the amount of VAT that should be charged at prevailing rates applicable within a state on identified activity within GDP and then compares the total resulting theoretical tax yield with the actual tax collected. The result is an estimate of the 'tax compliance gap' i.e. the sum lost because of taxpayer non compliance whether due to criminality, tax evasion, tax avoidance or as a result of tax simply not collected because the taxpayer had become insolvent before the sum due could be collected. It is stressed that the method cannot differentiate the reasons for the loss. This might be a weakness in the methodology, but it has many other benefits. In particular, it provides an indication of the size of the shadow economy in EU member states.

This suggestion is possible because VAT is, by definition, a tax on final consumption, whether by consumers or other non-VAT registered entities. It is therefore a tax that is, at least in principle, charged on one of the key components of GDP. It is accepted when saying so that the VAT tax base is by no means comprehensive. As the European Commission notes in its report, just 55.2% of the theoretically chargeable VAT tax base was actually subject to tax at the full VAT rate in 2016 (EC DGT 2018, 51). This is because some elements of consumption are exempt from VAT charge in the EU e.g. healthcare and education are almost invariably treated as such. Other parts of consumption are also taxed at lower or even zero rate: clearly there can be no effective measure of the tax gap attributable to VAT in the latter case. These unpaid sums are as a result a part of the VAT policy gap, which is the proportion of the total potential tax revenue that could have been raised if all end consumption had been charged to VAT at the prevailing standard rate of tax applying in the jurisdiction for which the calculation is being undertaken that is not payable because of the decision of its government to grant allowances, reliefs, exemptions and reduced rates of tax.

⁶ Work in this appendix, in particular, is based on research undertaken by the author at City, University of London with Dr Hannah Petersen and Dr Andrei Guter-Sandu, whose contribution is acknowledged. That work was undertaken as part of the EU Horizon 2020 funded Combating Financial Fraud and Empowering Regulators (COFFERS) project under grant agreement No 727145.

The estimated VAT policy and compliance tax gaps as reported by the European Commission are as follows:

Table 3 EU VAT compliance gaps for 2015 and 2016 and VAT policy gap for 2016

MS	2015		2016		
	VAT Gap EUR millions	VAT Gap (%)	VAT Gap EUR millions	VAT Gap (%)	Policy Gap (%)
BE	3,329	10.77	3,079	9.68	52.47
BG	1,058	20.67	693	13.56	29.00
CZ	2,521	16.92	2,165	14.19	38.49
DK	3,054	10.70	2,466	8.51	42.92
DE	24,706	10.45	22,679	9.39	44.38
EE	127	6.33	144	6.78	34.98
IE	1,419	10.61	1,610	11.15	49.39
EL	5,358	29.37	5,916	29.22	47.55
ES	2,897	4.05	1,966	2.71	59.52
FR	19,867	11.58	20,896	11.92	52.43
HR	251	4.22	70	1.15	36.20
IT	35,753	26.13	35,988	25.90	53.78
CY	174	10.28	83	4.73	43.72
LV	389	17.17	258	11.27	41.70
LT	992	25.57	983	24.52	34.54
LU	80	2.28	29	0.85	40.50
HU	1,943	15.40	1,629	13.33	45.26
MT	24	3.42	20	2.71	42.86
NL	4,705	9.49	2,024	4.00	41.53
AT	2,282	8.00	2,149	7.30	46.15
PL	9,652	24.30	8,004	20.80	48.69
PT	2,272	12.88	1,784	10.16	51.54
RO	6,808	34.48	6,137	35.88	33.94
SI	289	8.24	290	8.04	45.91
SK	2,243	29.27	1,872	25.68	38.84
FI	1,405	6.89	1,707	7.98	49.60
SE	1,474	3.51	465	1.08	46.32
UK	22,600	11.04	22,040	11.67	53.06
Total EU-28	157,672	13.2	147,146	12.3	44.47
Median		10.7		9.9	

Source: EC DGT 2018

Trend data compiled for the purposes of this report from the same source as published over time suggests a downward trend in the VAT compliance gap:

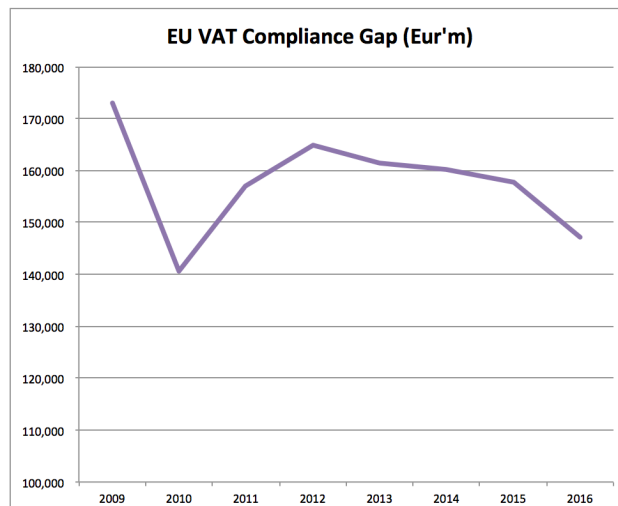
Table 4 - Trends in the EU VAT compliance gap, 2009 - 2016

Year	VAT Gap EUR millions	VAT Compliance Gap (%)	Median VAT Compliance Gap (%)
2009	172,954	18.17	14.30
2010	140,624	12.14	12.00
2011	157,117	14.82	13.15
2012	164,879	15.20	12.30
2013	161,442	14.75	13.81
2014	160,221	14.09	10.92
2015	157,672	13.20	10.70
2016	147,146	12.30	9.90

Source: EC DGT 2018 and earlier years summarised for the purposes of this report

As is apparent, the VAT compliance gap across EU member states is falling in absolute numerical terms:

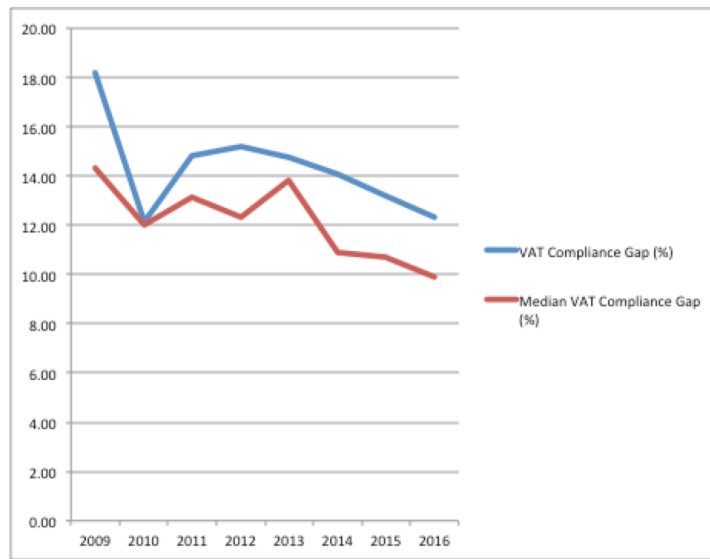
Figure 1 - EU VAT compliance gap



Source: EC DGT 2018 and prior year reports

In percentage terms the trend is also downwards:

Figure 2 – EU aggregate and median VAT compliance gaps stated as percentages of theoretical revenue lost



Source: EC DGT 2018 and prior year reports

The trend in the data is favourable. However, the volatility in the estimates, both in aggregate (where the results for 2010 and 2011 appear surprising and counterintuitive, since it is likely that tax abuse will grow during times of economic stress) and at individual country levels (where some results appear to change significantly from year-to-year) suggest that other sources of data are also worth considering when appraising the total EU tax gap.

There are a number of bases for estimating the size of the tax gap for the purpose of estimating tax gaps. The most common in current usage would appear to be the MIMIC method. MIMIC stands for 'multiple indicator; multiple causes'. This approach is most commonly associated with the work of Professor Friedrich Schneider (for example, in Medina and Schneider 2018). It is discussed in some detail by Schneider et al (2010), Raczkowski (2015) and Schneider et al (2015). In effect, the method uses a matrix of indicators that might motivate illicit behaviour by those with an inclination to tax evade. These are then variously weighted as to perceived significance and the resulting estimates are used to explain their potential impact on GDP. It is important to note in this regard that it is not suggested that tax evasion is the sole contributory motive for this unrecorded economic activity (Schneider et al 2010). The motives might be to evade any type of regulation, but it so happens that tax will almost invariably also be evaded as a result.

Importantly, this is also true of activity motivated by a desire to evade one tax e.g. VAT. For example, if VAT on turnover is evaded then other taxes such as personal and corporate income taxes as well as social security charges can no longer be recorded as being due because the turnover that might have been recorded to permit their payment cannot be reinjected into the income statement of the entity that has suppressed one part of its activity. The consequence is that whatever the motive, once income has moved into the

shadow economy all taxes due on it are lost. This has important consequences. The loss of one tax (most commonly, but not always, VAT) has spillover effects into all other taxes and as such aggregate tax rates across the economy as a whole can be used for assessing the scale of potential tax gap losses.

The most recent version of a MIMIC estimate that has passed substantial peer review is that by Medina and Schneider (2015), which was published by the International Monetary Fund. The estimates in this paper are noted below. An alternative recent MIMIC estimate is provided by Raczkowski (2015). These estimates relate to the year 2014. These two MIMIC estimates and the previously noted VAT compliance gaps for 2015 (EC DGT 2018) are compared as follows:

Table 5 – EU estimates of shadow economies and VAT gaps

Member state	Medina and Schneider estimate shadow economy 2015	EU VAT gap estimate 2015	Raczkowski 2014 estimate	Average gap
	%	%	%	%
Austria	9.01	8.24	7.50	8.25
Belgium	17.80	10.76	16.40	14.99
Bulgaria	20.83	20.58	31.20	24.20
Croatia	22.96	3.92	28.40	18.43
Cyprus	32.20	7.44	25.20	21.61
Czech Republic	10.47	16.48	15.50	14.15
Denmark	14.70	10.83	13.00	12.84
Estonia	18.49	4.88	27.60	16.99
Finland	13.30	6.45	13.00	10.92
France	11.65	11.71	9.90	11.09
Germany	7.75	9.56	13.00	10.10
Greece	26.45	28.27	23.60	26.11
Hungary	20.49	13.74	22.10	18.78
Ireland	9.58	9.94	12.20	10.57
Italy	22.97	25.78	21.10	23.28
Latvia	16.62	17.97	25.50	20.03
Lithuania	18.65	26.42	28.00	24.36
Luxembourg	10.38	5.56	8.00	7.98
Malta	29.43	22.54	24.30	25.42
Netherlands	7.83	7.94	9.10	8.29
Poland	16.67	24.51	23.80	21.66
Portugal	17.82	11.46	19.00	16.09

Romania	22.94	37.18	28.40	29.51
Slovak Republic	11.18	29.39	15.00	18.52
Slovenia	20.21	5.52	23.10	16.28
Spain	22.01	3.52	18.60	14.71
Sweden	11.74	-1.42	13.90	8.07
United Kingdom	8.32	10.88	9.70	9.63
	16.87	13.93	18.79	16.53

Sources: as noted in the text and authors' calculations

It is apparent that the estimates of the shadow economy that these sources supply do vary quite considerably in some cases. If, however, the estimates are applied to national GDP data and then aggregated for the EU as a whole a surprising degree of aggregated consistency is noted, whether or not it is assumed that the shadow economy is included in full in the reported estimate of GDP (Table 6) or GDP has to be grossed up to include that sum (Table 7):

Table 6 – Possible sizes of EU shadow economies if the shadow economy is included in published GDP estimates

Member state	Median and Schneider shadow economy €'bn	Rackowski shadow economy €'bn	EU VAT gap shadow economy €'bn	Average shadow economy €'bn
Austria	31.0	25.8	28.4	28.4
Belgium	73.0	67.3	44.1	61.5
Bulgaria	9.4	14.1	9.3	11.0
Croatia	10.2	12.6	1.7	8.2
Cyprus	5.7	4.5	1.3	3.8
Czech Republic	17.6	26.1	27.8	23.8
Denmark	40.0	35.3	29.4	34.9
Estonia	3.8	5.6	1.0	3.5
Finland	27.9	27.2	13.5	22.9
France	255.6	217.2	256.9	243.3
Germany	235.9	395.7	291.0	307.5
Greece	46.6	41.6	49.8	46.0
Hungary	22.7	24.5	15.2	20.8
Ireland	25.1	32.0	26.0	27.7
Italy	379.6	348.7	426.0	384.8
Latvia	4.0	6.2	4.4	4.9
Lithuania	7.0	10.5	9.9	9.1
Luxembourg	5.4	4.2	2.9	4.2

Malta	2.8	2.3	2.1	2.4
Netherlands	53.5	62.2	54.3	56.7
Poland	71.7	102.4	105.4	93.1
Portugal	32.0	34.2	20.6	28.9
Romania	36.8	45.5	59.6	47.3
Slovak Republic	8.8	11.8	23.2	14.6
Slovenia	7.8	9.0	2.1	6.3
Spain	237.7	200.9	38.0	158.9
Sweden	52.7	62.4	-6.4	36.3
United Kingdom	216.5	252.4	283.1	250.7
	1921.1	2082.2	1821.0	1941.4

Sources: As noted in the text and authors' calculations

Table 7 – Possible size of EU shadow economies if the shadow economy is not included in published GDP estimates which have to be grossed up to allow for it as a result:

	Median and Schneider shadow economy	Rackowski shadow economy	EU VAT gap shadow economy	Average shadow economy
	€'bn	€'bn	€'bn	€'bn
Austria	34.1	27.9	30.9	31.0
Belgium	88.8	80.5	49.5	72.9
Bulgaria	11.9	20.5	11.7	14.7
Croatia	13.3	17.7	1.8	10.9
Cyprus	8.4	6.0	1.4	5.3
Czech Republic	19.7	30.9	33.2	27.9
Denmark	46.8	40.6	33.0	40.2
Estonia	4.6	7.8	1.0	4.5
Finland	32.2	31.3	14.5	26.0
France	289.3	241.1	291.0	273.8
Germany	255.7	454.8	321.7	344.1
Greece	63.4	54.5	69.5	62.5
Hungary	28.5	31.4	17.6	25.9
Ireland	27.8	36.4	28.9	31.0
Italy	492.8	442.0	574.0	502.9
Latvia	4.8	8.3	5.3	6.2
Lithuania	8.6	14.6	13.4	12.2
Luxembourg	6.0	4.5	3.1	4.5
Malta	4.0	3.1	2.8	3.3
Netherlands	58.1	68.4	58.9	61.8
Poland	86.0	134.3	139.6	120.0
Portugal	39.0	42.2	23.3	34.8

Romania	47.7	63.6	94.9	68.7
Slovak Republic	9.9	13.9	32.8	18.9
Slovenia	9.8	11.7	2.3	7.9
Spain	304.8	246.8	39.4	197.0
Sweden	59.7	72.5	-6.3	42.0
United Kingdom	236.1	279.5	317.7	277.8
	2292.1	2486.7	2207.2	2328.7

Sources: As noted in the text and authors' calculations

On the basis of this consistency an aggregate estimate of the tax gap for each EU member state can be prepared, assuming that the average shadow economy noted in Tables 6 and 7 exists, with the estimate being made at the aggregate tax rate reported by Eurostat:

Table 8 – suggested size of the EU tax gap

Member state	EU sourced GDP data 2015	EU reported tax yield as a proportion of stated GDP 2015	Tax gap estimate based on average grossed up GDP	Tax gap estimate based on reported GDP
	€'bn	%	€'bn	€'bn
Austria	344.5	43.2%	13.4	12.3
Belgium	410.3	45.2%	33.0	27.8
Bulgaria	45.3	29.1%	4.3	3.2
Croatia	44.5	37.1%	4.0	3.0
Cyprus	17.7	33.2%	1.8	1.3
Czech Republic	168.5	34.0%	9.5	8.1
Denmark	271.8	46.5%	18.7	16.2
Estonia	20.3	33.7%	1.5	1.2
Finland	209.6	43.9%	11.4	10.0
France	2194.2	45.6%	124.9	110.9
Germany	3043.7	38.4%	132.1	118.1
Greece	176.3	36.6%	22.9	16.8
Hungary	110.7	38.8%	10.0	8.1
Ireland	262.0	23.4%	7.3	6.5
Italy	1652.6	43.0%	216.3	165.5
Latvia	24.3	30.1%	1.9	1.5
Lithuania	37.4	28.9%	3.5	2.6
Luxembourg	52.1	37.2%	1.7	1.5
Malta	9.5	32.1%	1.0	0.8
Netherlands	683.5	37.4%	23.1	21.2
Poland	430.1	32.4%	38.9	30.2

Portugal	179.8	34.4%	12.0	10.0
Romania	160.3	28.0%	19.2	13.2
Slovak Republic	78.9	32.1%	6.1	4.7
Slovenia	38.8	36.6%	2.9	2.3
Spain	1080.0	33.7%	66.4	53.5
Sweden	449.0	43.1%	18.1	15.6
United Kingdom	2602.1	33.1%	91.9	83.0
	14798.0	36.1%	897.6	749.1

Sources: As noted in the text and authors' calculations

The resulting tax gap is likely to be in a range between the figures noted. Doubt arises because, as previously noted and as noted in Appendix 3, the extent to which an estimated part of the shadow economy is included with GDP is not known.

If the tax gap is compared to data from Eurostat on member state health spending funded either by central government or by compulsory contributions from those in the jurisdiction then the following comparison can be made:

Table 9 – Comparison of the EU tax gap and health care spending

Member state	EU sourced GDP data 2015	EU reported tax yield as a proportion of stated GDP 2015	Tax gap estimate based on average grossed up GDP	EU state healthcare spending	Proportion of healthcare spending that the tax gap represents
	€'bn	%	€'bn	€'bn	
Austria	344.5	43.20%	13.4	26.4	48.7%
Belgium	410.3	45.20%	33	32.5	93.5%
Bulgaria	45.3	29.10%	4.3	1.9	197.6%
Croatia	44.5	37.10%	4	2.5	139.9%
Cyprus	17.7	33.20%	1.8	0.5	302.9%
Czech Republic	168.5	34.00%	9.5	10.1	87.6%
Denmark	271.8	46.50%	18.7	23.5	74.2%
Estonia	20.3	33.70%	1.5	1.0	135.4%
Finland	209.6	43.90%	11.4	15.3	69.8%
France	2194.2	45.60%	124.9	193.3	61.0%
Germany	3043.7	38.40%	132.1	284.3	44.0%
Greece	176.3	36.60%	22.9	8.4	235.7%
Hungary	110.7	38.80%	10	5.3	171.7%
Ireland	262	23.40%	7.3	13.9	49.7%

Italy	1652.6	43.00%	216.3	110.8	172.3%
Latvia	24.3	30.10%	1.9	0.8	214.6%
Lithuania	37.4	28.90%	3.5	1.6	187.4%
Luxembourg	52.1	37.20%	1.7	2.6	60.7%
Malta	9.5	32.10%	1	-	-
Netherlands	683.5	37.40%	23.1	57.6	38.5%
Poland	430.1	32.40%	38.9	19.1	181.0%
Portugal	179.8	34.40%	12	10.7	103.1%
Romania	160.3	28.00%	19.2	6.2	262.0%
Slovak Republic	78.9	32.10%	6.1	4.3	125.0%
Slovenia	38.8	36.60%	2.9	2.4	109.8%
Spain	1080	33.70%	66.4	70.2	85.4%
Sweden	449	43.10%	18.1	41.2	40.9%
United Kingdom	2602.1	33.10%	91.9	202.8	43.1%
	14798	36.10%	897.6	1149.0	71.7%

Sources: Average tax gap based on aggregating data in table 8. Health spending is government spending plus compulsory contribution spending in the EU per Eurostat at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=hlth_sha11_hf&lang=en

Fourteen member states have tax gaps that might exceed their health care spending.

Appendix 2

Why the estimate of the tax compliance gap in this report is likely to be understated

A number of additional issues need to be noted with regard to the tax gap estimates in Appendix 1.

The first is that they only relate to issues recorded within GDP. This leaves a significant range of transactions to which the estimated rate of loss has not been applied. So, and for example, it is likely that the corporate tax base shifted wholly out of an economy, whether artificially or not, is excluded from this estimate. So too are estimated tax losses arising because of capital gains, the abuse of wealth and gift taxes, and other such taxes. None of these will be reflected in GDP.

Tax avoidance is also not included in the estimate as such, except to the extent that it reduces overall tax yield within the reported economy. To the extent that tax avoidance might involve shifting out of the reported income included in GDP (e.g. income being reported as capital gains) then the tax gap will also be understated.

The same is true of bad debt, which cannot be separately identified using these methods, although it is likely to be included in the data in this case.

The indicated loss is, then, only for some of the likely tax compliance gap, albeit a sufficiently large part of it to suggest that it is useful for decision making purposes.

The method does not reflect any loss to the tax policy gap.

Note with regard to corporate tax avoidance

Two sources provide conflicting views on the potential scale of the loss to tax avoidance. Zucman et al (2018) provide the following data in their Table 2, with the data shown being that for EU member states alone. If data is not noted it is not in the original either:

Table 10 – Zucman et al tax loss estimates

	Reported pre-tax profits	Of which local firms	Of which foreign firms	Shifted profits	Effective corporation tax rate	Corp tax revenue gain / loss as a % of that collected	Likely gain / loss
	US\$'bn	US\$'bn	US\$'bn	US\$'bn			US\$'bn
Austria	48	37	11	4	18%	11%	0.7

Czech Republic	34	16	17	2	20%	5%	0.4
Denmark	52	47	5	3	15%	8%	0.5
Estonia	4	3	1	0	12%	10%	0.0
Finland	25	21	4	3	20%	11%	0.6
France	188	156	32	32	27%	21%	8.6
Germany	553	510	43	55	11%	28%	6.1
Greece	23	21	1	1	19%	7%	0.2
Hungary	21	11	10	2	11%	21%	0.2
Italy	212	199	13	23	18%	19%	4.1
Latvia	3	3	1	0	10%	7%	0.0
Poland	88	68	19	4	10%	8%	0.4
Portugal	27	22	5	3	23%	9%	0.7
Slovakia	12	6	5	1	25%	5%	0.3
Slovenia	3	2	1	0	18%	6%	0.0
Spain	159	138	21	14	18%	14%	2.5
Sweden	63	39	24	9	23%	13%	2.1
United Kingdom	425	353	72	61	17%	18%	10.4
Sub-total of losers							37.7
Belgium	80	48	32	-13	19%	16%	-2.5
Ireland	174	58	116	-106	4%	58%	-4.2
Luxembourg	91	40	51	-47	3%	50%	-1.4
Malta	14	1	13	-12	5%	90%	-0.6
Netherlands	195	106	89	-57	10%	32%	-5.7
Sub total of gainers							-14.4
Overall total							23.3
In euros:							€'bn
Sub-total of losers							34.0
Sub total of gainers							-13.0
Overall total							21.0

Note that the data is originally reported in US dollars: at the foot the data has been translated in total into euros at the European Central Bank average exchange rate for the year⁷ of €1 = \$1.1095.

It will be noted that the losses do not exceed €34 billion in total, and after netting off gains by some EU member states the net loss may be no more than €21 bn. In the 2012 estimate of the EU tax gap by Tax Research LLP it was assumed that the UK corporation tax loss (then assumed to be £12 billion) could be extrapolated across the European Union. This data suggests that this would not be appropriate as the UK loss is the biggest in the EU and the extrapolation does not take account of the gains.

Another paper by Alex Cobham and Petr Janský (2017) has suggested different figures for revenue losses for EU countries, this time relating to 2013. The following data (again, not

⁷

https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-usd.en.html

covering all EU member states) is taken from their appendix 2, which shows data from the IMF as well as reworked data by the authors using the same original sources, which provided slightly lower estimates:

Table 11 – Cobham and Jansky tax loss estimates

	IMF US\$ bn	Cobham / Jansky US\$ bn	IMF % GDP	Cobham / Jansky % GDP
Malta	0.49	0.43	5.30	4.59
France	29.08	19.78	1.06	0.72
Belgium	5.13	3.49	1.01	0.69
Portugal	1.63	1.11	0.74	0.51
Germany	22.09	15.02	0.61	0.42
Spain	8.11	5.52	0.60	0.41
Luxembourg	0.33	0.23	0.55	0.37
Italy	7.84	5.33	0.38	0.26
Greece	0.64	0.43	0.26	0.18
Denmark	0.62	0.42	0.19	0.13
Austria	0.80	0.54	0.19	0.13
Netherlands	1.53	1.04	0.19	0.13
Finland	0.41	0.28	0.16	0.11
Slovak Republic	0.06	0.04	0.06	0.04
United Kingdom	1.56	1.06	0.06	0.04
Sweden	0.03	0.02	0.01	0.00
Sub total losers	80.35	54.74		
Poland	--0.70	-0.47	-0.14	-0.09
Czech Republic	-0.27	-0.18	-0.14	-0.09
Hungary	-0.18	-0.12	-0.14	-0.09
Slovenia	--0.10	-0.07	--0.20	-0.14
Ireland	-0.66	-0.45	--0.30	--0.20
Croatia	-0.25	-0.21	-0.42	-0.37
Romania	-1.93	-1.67	-1.05	-0.91
Lithuania	-0.54	-0.47	-1.15	--1.00
Latvia	-0.35	--0.30	-1.15	--1.00
Bulgaria	-0.71	-0.62	-1.32	-1.15
Cyprus	--0.30	-0.26	-1.37	-1.19
Sub total gainers	-5.99	-4.82		
Net total	74.36	49.92		

Approximate net values in euros:			
Sub total losers	60.50	41.22	
Sub total gainers	-4.51	-3.63	
Net total	55.99	37.59	

The data has again been translated into euros using a European Central Bank rate for 2013.

It will be noted that there are significant differences in the suggested data, most especially perhaps with regard to the UK, Germany and France. To set this matter in context, the yields of the major taxes, and in total by country in 2015, sourced from Eurostat was as follows:

Table 12 – EU state tax collection data 2015

Country	Total taxes	Personal income taxes	Corporate income taxes	VAT	Excise duties	Social security
	€'bn	€'bn	€'bn	€'bn	€'bn	€'bn
Austria	148.8	37.2	7.9	26.2	23.4	50.0
Belgium	185.5	52.1	13.5	27.5	27.1	59.1
Bulgaria	13.2	1.4	1.0	4.1	3.0	3.6
Croatia	16.5	1.6	0.8	5.7	2.8	5.2
Cyprus	5.9	0.5	1.0	1.5	1.1	1.5
Czech Republic	57.3	6.1	5.7	12.3	8.6	24.3
Denmark	126.4	72.0	7.6	25.5	19.6	0.3
Estonia	6.9	1.2	0.4	1.9	1.1	2.3
Finland	92.0	27.9	4.6	19.1	11.1	26.6
France	1000.6	193.1	57.1	151.4	199.7	368.6
Germany	1168.8	277.0	73.0	213.1	121.7	459.6
Greece	64.5	10.0	3.9	12.9	15.5	18.9
Hungary	43.0	5.4	1.9	10.6	10.2	14.4
Ireland	61.3	19.7	6.8	12.1	10.7	10.2
Italy	710.6	201.6	33.1	100.8	150.4	214.8
Latvia	7.3	1.4	0.4	1.9	1.5	2.0
Lithuania	10.8	1.4	0.6	2.9	1.5	4.3
Luxembourg	19.4	4.7	2.3	3.4	2.8	5.6
Malta	3.1	0.6	0.6	0.7	0.6	0.5
Netherlands	255.6	51.9	18.5	45.1	33.5	96.4
Poland	139.3	20.2	7.7	30.1	25.8	53.8
Portugal	61.9	13.1	5.6	15.3	11.0	16.2
Romania	44.9	5.9	3.7	13.0	8.3	13.0
Slovakia	25.3	2.4	2.9	5.4	3.2	10.9
Slovenia	14.2	2.0	0.6	3.2	2.6	5.6
Spain	364.0	78.8	25.9	70.2	60.5	123.1
Sweden	193.5	67.8	13.0	40.4	57.5	12.6
United Kingdom	861.3	236.8	65.1	176.9	158.7	161.3
Total	5701.8	1394.0	365.2	1033.2	973.6	1764.6

Appendix 3

The extent to which the shadow economy is included in GDP

It is very difficult to secure data on the proportion of the shadow economy of a country included in its reported GDP. In the course of preparing this report enquiry was made of Eurostat on this issue. They have confirmed that the proportion is known to them but that the data is not published.

The best-known estimates are those published by the European Union in 2017 (European Commission 2017) that in turn refer to estimates by the Organisation for Economic Cooperation and Development (OECD 2012) and the United Nations (UN 2008). These estimates, and the year in which they were made, as well as the average shadow economy estimate noted in Appendix 1 are as follows:

Table 13 – The non-observed economy that might be included in GDP in EU members states

	None observed economy estimate in GDP	Year estimate made	Average tax gap from Appendix 1
	%		%
Austria	7.50	2008	8.25
Belgium	4.60	2009	14.99
Bulgaria	13.40	2011	24.20
Croatia	10.1	2002	18.43
Cyprus	n/a	n/a	21.61
Czech Republic	8.1	2009	14.15
Denmark	n/a	n/a	12.84
Estonia	9.60	2002	16.99
Finland	n/a	n/a	10.92
France	6.70	2008	11.09
Germany	n/a	n/a	10.10
Greece	n/a	n/a	26.11
Hungary	10.9	2009	18.78
Ireland	4.0	1998	10.57
Italy	17.5	2008	23.28
Latvia	13.6	2000	20.03
Lithuania	18.9	2002	24.36

Luxembourg	n/a	n/a	7.98
Malta	n/a	n/a	25.42
Netherlands	2.30	2007	8.29
Poland	15.40	2009	21.66
Portugal	n/a	n/a	16.09
Romania	21.50	2010	29.51
Slovak Republic	15.60	2009	18.52
Slovenia	10.20	2007	16.28
Spain	11.20	2002	14.71
Sweden	3.00	2009	8.07
United Kingdom	2.30	2005	9.63

Sources: As noted in text

In every case where data is available the estimate of the shadow economy included in GDP appears likely to be lower than that estimated in this paper, and in most cases is lower than that suggested likely by the European Commission estimate of the VAT gap.

Given the significance of the sums involved it is very surprising that there is no better disclosure on this issue, given the significance that it has on the reporting of national income, growth and the fiscal control of an economy that any member state might have.

Appendix 4

Tax spillovers

In a recent paper written for Global Policy (Baker and Murphy 2019) a new approach to what are described as tax spillovers was proposed. It was proposed that this should be adopted by states, international organisations and others who are keen to assess the strengths and weaknesses within tax systems.

It was argued that a tax spillover is the impact one tax measure has on another part of a tax system. Attention to date on this issue has primarily been international; largely related to corporation tax and was focused upon the impact of measures on developing countries. Without in any way dismissing these concerns, the new approach argues that tax spillovers can occur both within a jurisdiction and between jurisdictions; between different taxes; and can be created by administrative disorder and regulatory arrangements. The result is a qualitative evaluation framework that seeks to assess the relationship between four direct taxes within and between tax jurisdictions to get a broader sense of the risks and vulnerabilities particular regimes generate and face in their entirety.

States might wish to appraise tax spillovers for a number of reasons:

- Firstly, they might be seeking to raise additional tax revenues without increasing tax rates or extending the tax base;
- Second, they may be seeking to uphold the rule of law;
- Third, they may be trying to improve fiscal management of an economy;
- Fourth, they may be seeking to ensure that the incentives and other arrangements to encourage particular behaviours built into the tax system work to best effect;
- Fifthly, they might be seeking to promote economic and social justice by making sure that everyone pays their share of the taxes owing a state and the burden does not fall inappropriately on some who are law abiding alone;
- Sixth, they may be worried about the investment made in their tax authority and are wondering whether those funds are being used to best effect.
- Last, they may be concerned about their country's international relations and the way these are impacted by tax competition.

Whatever the motivation for concern, a tax spillover appraisal will assist the achievement of these objectives, many of which might exist simultaneously in different branches of any government. What, in effect, the tax spillover appraisal does is suggest why a tax gap has arisen and how it might be addressed.

Baker and Murphy have also published papers to support their proposal. The first explains how the tax spillover appraisal methodology that they have proposed might be used. Its purpose is to suggest those questions and approaches that an appraiser of the tax system of any jurisdiction might wish to bear in mind when approaching such an appraisal.

In addition they have prepared an example tax spillover appraisal for the United Kingdom in 2018. This includes recommendations for improving the UK tax system to tackle tax spillovers, which would in turn help close the tax gap.

The approach that Baker and Murphy propose incorporates a mildly normative assumption. This assumption is that a tax system should do no harm. This means that neither the tax system as a whole, or any part of it, should do harm either to the tax system of another jurisdiction or to another part of the tax system of the jurisdiction that is being appraised. This, they suggest, is the minimum and only assumption required to undertake a tax spillover appraisal.

The aim of the suggested tax spillover assessment system is to appraise spillovers in two ways. The first is the way in which spillovers exist within the domestic economy i.e. how one tax or administrative issue within a country impacts on another tax or administrative issue within the same country. This is a relatively self-contained process.

The second way is to assess international tax spillovers. This process is undertaken in two parts. The first appraises the threat that the tax system of the country being assessed poses to other countries whilst the second assesses the vulnerability of that tax system to a loss of revenue as a consequence of the tax systems of other countries.

The mindset required for each appraisal is slightly different. For example, it is likely that when undertaking the domestic appraisal that if it is found that the income tax system is vulnerable to attack from the capital gains tax system then it is likely that when considering the equal and opposite question of the impact of the capital gains tax system upon income tax that the reverse relationship will be found, although it is stressed that asymmetry is possible, as the UK appraisal does make clear.

What this means is that when considering domestic spillovers the whole appraisal can be recorded in one table and each tax can be appraised on a scale from 1 to 5. The suggested marking is as follows:

Mark awarded	Means
1	The tax base or policy issue being appraised is heavily reinforced by the tax base or policy measure it is being compared with.
2	The tax base or policy issue being appraised is to some extent reinforced by the tax base or policy measure that it is being compared with.
3	The tax base or policy issue being appraised neither reinforces or

	undermines the tax base or policy measure it is being compared with.
4	The tax base or policy issue being considered is to some extent undermined by the tax base or policy issue it is being compared with.
5	The tax base or policy issue being considered is heavily undermined by the tax or policy issue it is being compared with.

The result is that positive and negative impacts are assessed simultaneously in the domestic spillover assessment.

This is not true with regard to the international assessment. For practical reasons it was necessary to consider positive and negative impacts separately in this case, so that two assessment tables are prepared for each jurisdiction being appraised for their international tax spillover effects.

Internationally the appraisal makes a fundamental assumption. It assumes that a good tax or tax policy measure within the jurisdiction will cause no harm to another tax either within that same jurisdiction, or elsewhere. Importantly, this means that the appraisal system is not specifically intended to reward those occasions when the tax system of one country is designed to enhance the tax revenues of another country at cost to the country putting the arrangement in place. Instead it is focused upon negative spillover impacts.

The international system does, like the domestic system, appraise tax bases and policy measures on a scale from 1 to 5, but in this case the scale is consistent in direction and aggression and vulnerability are not appraised on the same scale but are appraised in two separate assessments.

With regard to assessment of the aggressiveness of the tax system - which is a measurement of the tax spillover effect the jurisdiction creates for other countries - the following assessment scale is used:

Mark awarded	Means
1	Not at all aggressive. The tax base or policy measure being appraised is unlikely to cause any harm to the tax system being considered in other countries.
2	It is possible that the tax base or policy measure being appraised might cause minor harm to the tax system being considered in another jurisdiction. These harmful consequences may, however, be inadvertent or of limited consequence.
3	There are features of the tax base or policy measure being appraised that are likely to have impact on the tax system being considered in other countries. Even if they are inadvertent there is awareness that these consequences exist despite which no action to correct the issue has been taken.

4	There are features in the tax base or policy measure being appraised that are intended to undermine the tax system being considered in other countries.
5	The tax base or policy measure being appraised is designed to, and actually does, undermine the tax system being considered in other countries.

To appraise the vulnerability of the tax system - which is a measurement of the tax spillover effect the jurisdiction suffers as a result of the action of other countries - the following scale is used:

Mark awarded	Means
1	Not at all vulnerable. The tax base or policy measure being appraised is unlikely to suffer harm from the tax system being considered in other countries.
2	It is possible that the tax base or policy measure being appraised might suffer minor harm to from the tax system being considered in another jurisdiction. These harmful consequences may, however, be inadvertent or of limited consequence.
3	There are features of the tax base or policy measure being appraised that are likely to suffer harm from the tax system being considered in other countries.
4	There are features in the tax base or policy measure being appraised that appear to be deliberately undermined by the tax system being considered in other countries.
5	The tax base or policy measure being appraised is systematically harmed by the tax system being considered in other countries.

The result is that an assessment grid is prepared in the following form:

Table 14 – Tax spillover assessment grid

Country X	Issue impacting upon										Sub totals
	Tax spillovers	Income tax	Corporation tax	Capital gain tax	Social security	Tax competition	Tax Politics	Company and trust administration	International agreements	Total	
Issue being considered	Income tax										
	Corporation tax										
	Capital gain tax										
	Social security										
	Tax Politics										
	Tax administration										
	Company and trust administration										
	International agreements										
	Total										

In all versions of the assessment a high score indicates high risk. The result is that areas where action is required are easily identified.

It is for this reason that this systematized approach to assessing the spillover risks that give rise to tax gaps is recommended.

Appendix 5

References

Baker, A and Murphy, R. 2017. *Tax spillover: a new framework*. London: The UK parliament All Party Parliamentary Group on Inclusive Growth. https://www.inclusivegrowth.co.uk/wp-content/uploads/2017/03/Tax-Spillover_v4.pdf

Baker, A and Murphy, R. 2019. *The Political Economy of 'Tax Spillover': A New Multilateral Framework*. London: Global Policy. Forthcoming.

Cobham, A. and P. Janský. 2017. *Global Distribution Of Revenue Loss From Tax Avoidance: Re-Estimation And Country Results*. WIDER Working Paper 2017/55. Helsinki: UNU-WIDER.

EC DGT, 2017. *VAT Gap Factsheet*. European Commission Director General of Taxation. https://ec.europa.eu/taxation_customs/sites/taxation/files/vat_gap_factsheet_2017.pdf.

EC DGT, 2018. *Study and Reports on the VAT Gap in the EU-28 Member States: 2018 Final Report*. Brussels: TAXUD/2015/CC/131

European Commission, 2017. *Tax policies in the European Union*. Brussels. https://ec.europa.eu/taxation_customs/sites/taxation/files/tax_policies_survey_2017.pdf

European Commission. n.d. *Taxation Trends in the European Union 2017*. Country Chapters. Accessed June 25, 2018. https://ec.europa.eu/taxation_customs/business/economic-analysis-taxation/taxation-trends-eu-union/country-chapters_en.

Fiscalis, 2016. *The Concept Of Tax Gaps Report on VAT Gap Estimations*. The FISCALIS Tax Gap Project Group (FPG/041). Brussels, March 2016. Published by European Commission Director General of Taxation.

HMRC, 2018. *Measuring tax gaps 2018 edition*. London: HM Revenue & Customs https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/715742/HMRC-measuring-tax-gaps-2018.pdf

Medina, L. and Schneider, F., 2018. *Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?* Washington, DC: International Monetary Fund Working Paper WP/18/17

Murphy, R. and Petersen, H., 2018. *Minding the tax gap at the heart of macroeconomic policy*. London: Coffers.eu working paper

OECD, 2012. *Working Party on National Accounts: Summary of the OECD Survey on Measuring the Non-Observed Economy*. OECD Publishing.

OECD, 2015. *Comparative Information on OECD and Other Advanced and Emerging Economies*, Paris: Organisation for Economic Cooperation and Development <http://www.oecd.org/ctp/administration/tax-administration-23077727.htm>

OECD, 2017. *Tax Administration 2017*. Paris. https://www.oecd-ilibrary.org/content/publication/tax_admin-2017-en.

Raczkowski, K. 2015. *Measuring the tax gap in the European economy*. Journal of Economics and Management Vol. 21 (3): 343.

Schneider, F., Buehn, A. and Mentengro, C. 2010. *Shadow Economies All over the World New Estimates for 162 Countries from 1999 to 2007*. World Bank Working Paper 5356. Washington DC: The World Bank Group

Schneider, F., Raczkowski, K. and Mróz, B. 2015. *Shadow economy and tax evasion in the EU*. Journal of Money Laundering Control, Vol. 18 Issue: 1, pp.34-51

United Nations. 2008. *Systems of National Accounts*. New York: <https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf>

Zucman, G., Tørsløv, T. and Wier, L. 2018. *The Missing Profits Of Nations*. Cambridge, USA: National Bureau Of Economic Research Working Paper 2470

Endnotes

ⁱ Address for correspondence:

Richard Murphy
Professor of Practice in International Political Economy, City University
and
Director, Tax Research LLP
33 Kingsley Walk, Ely, Cambridgeshire, CB6 3BZ

+44 (0) 777 552 1797

richard.murphy@taxresearch.org.uk

Registered at the above address. Registered number OC316294

Some of the research that underpins this paper received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727145. The research in question is entitled Combating Financial Fraud and Empowering Regulators (COFFERS) and this element was based at City, University of London.

ⁱⁱ https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=uriserv:OJ.L_.2011.306.01.0041.01.ENG

ⁱⁱⁱ To be published by Global Policy in 2019: contact the authors for more details before then.