

Article

Looking ahead – developments in public sector finance statistics: 2018

This article outlines what the ONS sees as areas for future development in the public sector finances.

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1 . Executive summary

This is the first article in what is envisaged to be a series of annual publications. The aim of the articles is to provide information on methodology work that we are undertaking, or plan to undertake, which may impact future editions of our fiscal statistics. Methodological developments covered in this article will ensure that the public sector finances reflect the latest international statistical guidance on methods and classifications as well as statistical best practice.

The article discusses major pieces of methodological work that we plan to accomplish over the coming few years. It does not include changes related to government policy, events in the UK economy, routine classifications or data updates. However, it does provide details of all those areas where we have identified potential material impacts on the fiscal aggregates. These will usually relate to changes in the international statistical guidance, modifications to the coverage of the public sector finance statistics or improvements in the statistical methodology and compilation practices.

In this article, we focus on the following topics:

- student loans
- pensions
- depreciation
- leases
- public sector financial assets

We also discuss compliance with Eurostat and the International Monetary Fund's government finance statistic requirements. Within each section we set out the reason for reviewing the existing methods and discuss methodological considerations. Where possible, we include the approximate impact on the fiscal aggregates and indicative timescales over which the work will be taking place.

2 . Context

The monthly public sector finance (PSF) statistics are published jointly by the Office for National Statistics (ONS) and HM Treasury. They provide users with information about the current state of the UK government's fiscal position and are compiled in accordance with the international statistical guidance in the [European System of Accounts 2010: ESA 2010](#) and the [2016 edition of the Manual on Government Debt and Deficit: MGDD 2016](#). The coverage of the PSF statistics is the UK public sector, which is defined according to sector [classification decisions made by the ONS in compliance with ESA 2010 and MGDD 2016](#). The methods and data sources used in the compilation of the monthly PSF statistics are [described in a methodology guide](#). However, until now, we have not published in a single document information on planned methodological work and classification reviews that may affect the PSF statistics over the coming months and years. This article is envisaged to be the first such publication, with regular updates to be published hereafter on an annual basis.

The Office for Budget Responsibility's (OBR) Fiscal Risks Report, published in July 2017, highlights that statistical reclassifications and methodological changes can alter the perception of government's fiscal exposure, as measured by the fiscal aggregates in the PSF. Broadly speaking OBR identify two different scenarios:

1. Statistical classification decisions which happen in response to government actions
2. Statistical classification decisions and method changes which are made to better capture the economic substance of government policies and interactions.

In both cases the statistical classification decisions and method changes may impact the fiscal aggregates as reported in the PSF statistics. However, only in the first case is there a real-world change in government's fiscal position. Sometimes classification and method changes are required to address what the OBR term "fiscal illusions", that is, accounting treatments which mean the fiscal aggregates do not reflect the true health of the fiscal position. As OBR recognises, some fiscal illusions result simply from the way that the fiscal aggregates are defined and therefore will not be addressed by any classification decision or methods change, an example of which are sales of equity held by government which improve public sector net debt (PSND) despite being an exchange of one financial asset for another. However, there are other cases where the fiscal illusion stems from the accounting treatment itself rather than the definition of the fiscal aggregate, an example being student loans which are discussed later in this article.

The purpose of this article is to increase transparency around the methodology work, including classification reviews, that we are undertaking or are intending to undertake. Clearly, we do not know what will be the future actions of government and so those classification decisions which might stem from these actions are not included in this document. Instead this article focuses on where we are seeking to improve methods or data coverage to better capture economic substance.

The development of methodology is a continuous process, not only for ONS but also for the international statistical community. Organisations such as the United Nations, Eurostat, the Organisation for the Economic Cooperation and Development, and the International Monetary Fund all contribute to improving the framework for compiling national accounts. Although changes or clarifications to the international guidance relating to national accounts are prompted by the need for statistics to keep pace with the evolving nature of the economy, they can cause discontinuities in data reporting or complicate the understanding of statistics at the point of implementation.

The article is one part of a wider strategy to improve the visibility and explanation of methodological changes in the PSF statistics, not only at the point that they are introduced but also before and after the implementation. Our complete strategy has three broad elements:

1. Publication of ongoing and planned PSF methodology and classification work to give users early sight of changes which might impact the fiscal aggregates.
2. Packaging together PSF methodological changes so that they occur, where possible, at a single point in the year to provide increased predictability to users.
3. Publishing more information on the impacts of major changes to allow users to identify movements in the fiscal aggregates that are solely a result of our methodology improvements.

This article is the first step in fulfilling the first element of the strategy. We aim in this document, and its future annual updates, to identify methodological work that we plan to undertake over the next few years. It covers major improvements related to the latest international statistical guidance or statistical best practice but, as noted previously, does not include work related to reflecting in the PSF statistics new government policy or events in the UK economy. Such events and policy changes are by their nature difficult to foresee and their impact on the PSF statistics needs to be implemented as soon as possible after the event or policy change.

Routine classification work¹ and data source revisions are also not covered in this document. It should also be noted that it is not possible to foresee all methodological issues that may arise over the coming years, so necessarily the document reflects only those issues that have been identified at the time of publication as potentially needing to be reviewed. Normally, any methodological issues that are identified after publication will be discussed in the next annual update of this article, although on exceptional occasions there may be a requirement to resolve a newly identified issue more quickly, preventing discussion in the next scheduled annual publication. Should such issues arise, we will decide on a case by case basis how best to communicate the methodological work to PSF users ahead of implementation.

In the second element of the strategy, we are looking to package together improvements that are needed to best reflect the latest international statistical guidance and best practice. Other changes, such as those arising as a consequence of new government policies, events in the UK economy, data source revisions and routine classification work¹ will continue to be implemented in the PSF statistics at the earliest opportunity, as now. This packaging approach is somewhat similar to that followed in the wider UK National Accounts, where an annual Blue Book takes on a wide range of methodological improvements whereas the quarterly UK National Accounts publications include a much more limited range of method and data changes.

No firm decision has been taken on when is the best time within the year to take on major methodological changes to the PSF statistics. September may be the best point in the year to do this because it allows the latest data and methods to be used as a baseline for the government's Autumn Budget. It also often coincides with the publication of the National Accounts Blue Book. This latter point will help the UK National Accounts and PSF statistics to take on methodological changes at the same point in time, reducing if not completely resolving the [differences which occur between the two datasets](#).

Finally, within the third element of the strategy, we recognise the benefit to users in being able to identify the impact of major methodological changes, not only at the time when they are implemented but also for a period after implementation. For this reason, we currently publish information on the impact of the inclusion of housing associations in the public sector on a monthly basis. There is more we can do in this area. Some users may specifically want to monitor the UK government's performance against its fiscal targets, and thus separate out the impact of major methodological improvements, especially where such method changes were not envisaged at the time that the fiscal targets were set. To provide more transparency to users in this respect, we plan to provide time series after implementation of major methodological improvements which show the impact of those changes on the main fiscal aggregates. We are still considering the best way to present this additional information in a transparent way that supports user understanding. As with the other elements of the strategy, we will not show modified fiscal aggregates which exclude the impact of government policy, events in the UK economy, data updates or routine classification changes¹.

We have developed our strategy in consultation with HM Treasury, who jointly publish the monthly PSF statistics. We have also shared our proposals with the OBR and received their support for improving the transparency around future methodological work in the ways outlined in this section.

We have chosen to publish this article to coincide with the publication of OBR's latest Fiscal Sustainability Report, OBR's working paper on student loans and HM Treasury's response to OBR's Fiscal Risks Report. Of particular relevance is the section detailing our methodological work on student loans, which we have shared with the independent OBR prior to publication to support OBR in their own considerations of the fiscal impact of student loans. The treatment of student loans was an issue discussed by the OBR in both last year's Fiscal Sustainability Report and Fiscal Risks Report.

Notes for: Context

1. By routine classification work we mean that classification activity that is conducted routinely to assure the accuracy of the public sector classification guide, for example, removing defunct public sector bodies, adding new bodies, conducting market tests for public corporations, ensuring coverage of the public sector is as complete as possible. This should be contrasted with major classification reviews, discussed in this article, which take place to either apply new statistical guidance or to ensure previous classifications remain consistent with the latest international statistical interpretation.

3 . Introduction to public sector finances statistics

The [public sector finances \(PSF\) statistical bulletin](#) is a monthly National Statistics publication that has been produced jointly by the Office for National Statistics (ONS) and HM Treasury since 1998. This joint approach to compilation of the PSF statistics is, in part, possible as HM Treasury has chosen to base its fiscal framework on national accounts principles. HM Treasury is responsible for UK fiscal policy and for defining the fiscal aggregates required to monitor and evaluate that policy.

The bulletin provides users with an indication of the current state of the UK's fiscal position and includes a set of headline statistics known as fiscal aggregates, such as public sector net borrowing (PSNB), public sector net debt (PSND) and public sector net financial liabilities (PSNFL). Public sector net borrowing is the amount by which total spending exceeds total receipts. It is a flow measure that is compiled on an accruals basis and is often referred to as the deficit. Public sector net debt (PSND) is a stock measure which comprises the excess of the public sector's financial liabilities in the form of loans, debt securities, deposit holdings and currency over its liquid financial assets, mainly foreign exchange reserves and cash deposits, with both measured at face value. While the coverage of liabilities in PSND is consistent with that of the official EU measure of the member states' general government debt, commonly known as the Maastricht debt, PSND does not capture all of government's financial liabilities and assets. In recognition of [the partial balance sheet coverage of PSND](#), the UK government introduced in November 2016 a new supplementary fiscal aggregate, public sector net financial liabilities (PSNFL), which includes all financial assets and liabilities on a national accounts basis.

ONS has final responsibility for estimating the statistical aggregates used in the PSF bulletin, for ensuring they conform to statistical standards and that the content [complies with the Code of Practice for Official Statistics](#). We are also responsible for the application of national accounts principles, in particular for defining the boundary of the public sector and for classifying transactions.

The remaining sections of this document detail those major methodological improvements to the PSF statistics that we have identified. Each section discusses the reasons why we are reviewing the particular topic area and as part of that discussion highlights the conceptual and practical challenges that we face. The different sections of this document are as follows:

Section 4: Treatment of student loans

Section 5: Treatment of pension liabilities

Section 6: Treatment of depreciation

Section 7: New treatment of leases under International Financial Reporting Standards

Section 8: Continuous development of public sector net financial liabilities

Section 9: International Monetary Fund's Government Finance Statistics framework

Section 10: Eurostat reviews

Section 11: Other developments

Where there is sufficient clarity to explain the different options under consideration and their likely impact on the fiscal aggregates, then this information is provided. In most cases, we plan to implement these improvements during 2019, although in some instances the improvements may take longer to implement, depending on the complexity of the issue and its solution.

The UK's planned withdrawal from the European Union on 29 March 2019, is likely to result in a number of government transactions that will require classification and then implementation in the PSF statistics. At present, the details of these transactions are not sufficiently clear for us to comment on them within this article. However, once further clarity is available we will keep users informed of what we expect the fiscal impacts of the transactions to be through the relevant section of the monthly PSF bulletin or later editions of this article.

4 . Treatment of student loans

Context

The funding for higher education is an important policy area that has seen several changes over recent decades. The Treasury Select Committee published the report of its [inquiry into the student loan system and related financial implications](#) on 18 February 2018 and the House of Lords Economic Affairs Committee published its report on [Treating Students Fairly: The Economics of Post-School Education](#) on 11 June 2018. Both reports recommend that ONS should re-examine the classification of student loans as financial assets for government and consider whether there is a basis to treat them differently from other loans in the UK National Accounts and public sector finances (PSF).

Student loans in the UK are different from typical loans; they have a high degree of contingency in that repayments are conditional on future income, and under certain conditions the loan obligation itself may be cancelled. Estimates of the proportion of student loans that will be cancelled, or written off, in the future have been rising in recent years, and are now a significant proportion of the total value of the loan book.

As noted earlier, the UK National Accounts and PSF statistics are compiled in line with the international guidance. This guidance is clear on the treatment of loans and it is this treatment that we currently follow. However, the guidance is less clear around the recording of financial assets with a significant expected loss for government. Given the contingency of student loans on future income and the expectation that the outstanding loan balance will be written off after a set time period, they could be considered as a financial asset with a significant expected loss.

To consider the accounting issues that income-contingent loans, such as UK student loans, raise, we have been working with international agencies and other national statistical institutes to agree an appropriate statistical treatment. This is a complex topic that could have potential implications for all countries with similar loans. Should a different method of recording income-contingent loans be agreed internationally, and the relevant statistical guidance updated, we will revise the recording of student loans in the PSF statistics accordingly.

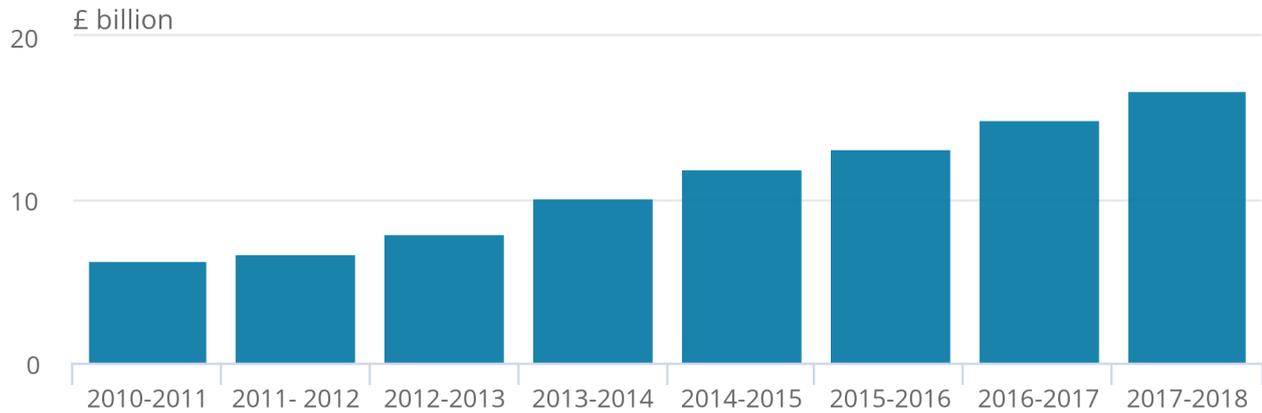
Overview of the UK student loan system

The UK student loan system is complex and varies depending on many factors. It was first introduced through the Education (Student Loans) Act 1990 and the Student Loans Company (SLC) was established to administer the scheme. Unlike student loans in many other countries which are extended to students by private banks and guaranteed by government, in the UK, the SLC, a government organisation, directly extends the loans to students.

The value of UK student loans extended in each financial year has been increasing. To provide an indication of the size of the UK student loan market, the value of loans extended to all UK and qualifying EU students by SLC in the financial year ending (FYE) 2018 was £16.7 billion. The equivalent figure for the financial year ending (FYE) 2011 was £6.3 billion. In FYE 2018, approximately 58% of the total extended loan value was in relation to tuition fees (including advanced learner loans). This percentage was much lower previously: in FYE 2011, it stood at 42%, which largely reflects the increase in tuition fees since September 2012.

Figure 1: Value of student loan outlay by financial year

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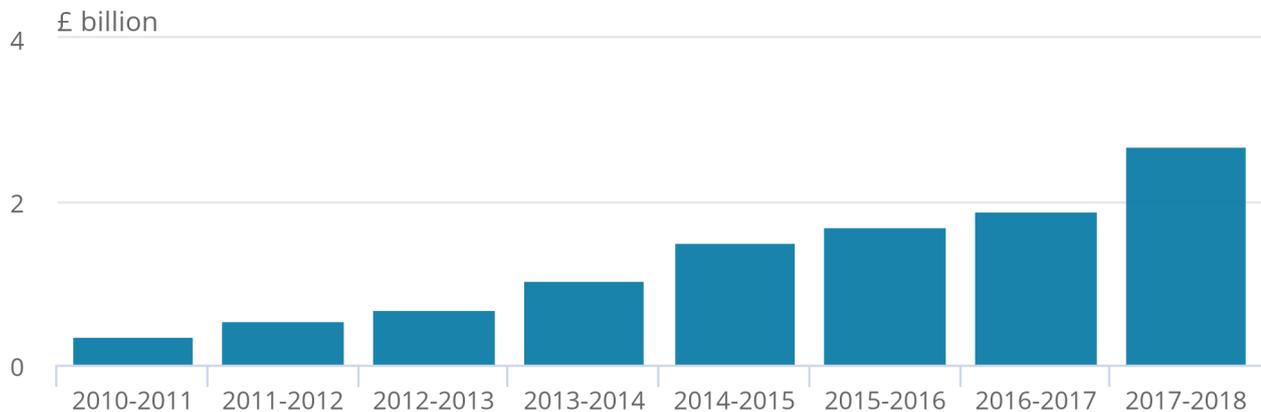
Source: Office for National Statistics using Student Loan Company official statistics

Unless repaid in full through mandatory deductions on earnings above a set threshold or voluntary repayments, student loans are written off if one of several conditions is met. These conditions vary slightly between the different loan plans offered since 1990. Common to all plans is that the loan is written off when either a specified period has elapsed (25 and 30 years for the later plans), or the graduate can no longer work owing to disability.

The interest rates charged on student loans vary by plan; loans issued before 2012 (Plan 1) have a current interest rate of 1.5% and loans issued after 2012 (Plan 2) have a variable rate dependent upon income, ranging between the same rate as the retail price index (RPI), and up to RPI plus 3%.

Figure 2: Annual interest accrued on all outstanding student loans by financial year

Figure 2: Annual interest accrued on all outstanding student loans by financial year



Source: Office for National Statistics using Student Loan Company official statistics

Methodological considerations

Current treatment and reasons to consider new approaches

In the public sector finance (PSF) statistics, student loans are recorded as financial assets for government. Such a recording recognises that government, through SLC, has a financial claim on the student and thus a right to receive a series of payments. These financial assets are recorded as loan assets in the government balance sheet at their nominal value¹.

This recording is in line with the international guidance that underpins the PSF and the UK National Accounts – the European System of Accounts 2010: ESA 2010 and the accompanying Manual on Government Debt and Deficit 2016: MGDD 2016. These manuals are clear on what constitutes a loan, specifying that the main features are that:²

- a) the loan is established through a non-negotiable document evidencing the lending of funds between the creditor and the debtor
- b) the conditions governing the loan are either fixed by the lender, or agreed through a broker
- c) the initiative to take out the loan lies with the borrower

d) the loan is interest-bearing

e) there is an unconditional debt to the creditor which has to be repaid at maturity

The recording of student loans as a financial asset for government means that the issuance and repayment of the loans are recorded purely as financial transactions; in other words, as movements in cash and increases or decreases in the loan assets of government. This means that public sector net borrowing (PSNB) is not directly affected by these flows, but public sector net debt (PSND) and public sector net financial liabilities (PSNFL) are, albeit in different ways.

For example, in FYE 2018 the £16.7 billion of loans extended to UK and eligible EU students would have raised PSND by the same amount through the flow of cash to students. Conversely, the loan assets held by government would have risen as the government now holds a claim on students for the £16.7 billion. Owing to its restricted coverage, PSND does not capture this increase in loan assets, meaning that it would increase by £16.7 billion. In contrast, PSNFL, which represents the overall net position of the government's financial balance sheet, does. As such, the fall in cash assets and rise in loan assets offset each other, resulting in no overall impact on PSNFL.

Table 1: Effects of present recording of student loan transactions on main fiscal aggregates

Transaction	Public sector net borrowing (PSNB)	Public sector net debt (PSND)	Public sector net financial liabilities (PSNFL)
Extension of student loan	No effect	Increases by full value of outlay	No effect
Interest accrual on student loan	Decreases by value of interest accrued	No effect	Decreases by value of interest accrued
Repayment of student loan	No effect	Decreases by full value of repayment	No effect
Outstanding balance is written off	Increases by value of write-off	No effect	Increases by value of write-off
Student loans are sold off at a price below nominal value before write-off	No direct effect*	Decreases by value of cash received from sale*	Increases by difference between nominal and sale price*

Source: Office for National Statistics

Notes:

1. * In the event of a sale, government ceases to benefit from any repayments and interest accruals, which may contribute to an increase of the fiscal aggregates over time.

The current treatment has several conceptual challenges. Firstly, it relies on student loans meeting the main features of loans as described in the international guidance. It is clear that the loan represents debt for the borrower in the legal sense and is interest-bearing, however it is less clear if the debt is truly unconditional. Student loans are income-contingent loans. This means that the repayments are linked to earnings, whereby the repayment schedule and amount are scaled according to income.

It is also expected that not all students will repay the loan. It is possible for a graduate to never meet the earnings threshold, and thus for them never to make any repayment. It is also possible for a graduate to earn above the threshold, but not by a wide enough margin to repay their loan in full once the accrued interest is factored in. In both these scenarios any remaining balance is written-off after 25 or 30 years.

As an example, the Department for Education estimates that approximately 45% of the value of Plan 2 loans extended to full-time students in England in the academic year 2017 to 2018 will not be repaid when future repayments are valued in present terms³. Under the current treatment, no write-offs are recognised in PSNB until they have occurred around the 30-year mark, effectively pushing what could be considered expenditure for the current period further into the future. Similarly, the balance sheet does not reflect this loss until the write-off has occurred, thus PSNFL does not increase until this point.

Perhaps more importantly, revenue is recorded in the form of interest receivable, irrespective of whether the income-contingent thresholds will be reached and the interest actually paid. In line with international guidance, the accrual of interest on student loans is recorded with the loan as an asset on the government balance sheet. Any unpaid interest is eventually written off, however there is a significant lag between when the interest first accrues to when it is written off.

Additionally, a number of sales of student loan books have taken place over the years, most recently in December 2017 when approximately £3.5 billion (nominal value) of student loans were sold for a cash value of £1.7 billion (sale price). ESA 2010 guidance states that “when an existing loan is sold to another institutional unit, the write-down of the loan, which is the difference between the redemption price and the transaction price, is recorded under the revaluation account of the seller and the purchaser at the time of the transaction”⁴. Therefore, the cash receipt from the sale, of £1.7 billion, reduces PSND while PSNFL increases by the difference of £1.8 billion. The difference between the nominal value of loans sold and sale price does not affect PSNB.

The current treatment recognises the claim the government has on the student through the contract underpinning the funding and arguably reflects the economic reality experienced by the borrower. However, the complexities of student loans suggest that the current recording over-simplifies the underlying economic substance of these loans and international guidance is not yet available to cover all such complexities. In the remainder of this section, we have therefore laid out four potential alternative approaches to recording student loans in the PSF statistics.

Approach 1: Revenue and expenditure

It is not uncommon for the national accounts to deviate from legal and commercial accounting definitions, which do not always provide the best economic description of a transaction or activity. It could be argued that the student financing, while being done through lending in the legal sense, fails to meet the ESA 2010 definition of “an unconditional debt to the creditor which has to be repaid at maturity”⁵. Indeed, student loans bear some resemblance to contingent assets for government. In this context, contingency relates not to the borrowers’ income but more widely to a situation “whereby one party is obliged to provide a payment or series of payments to another unit only where certain specific conditions prevail.”⁶

If this logic was to be employed, the original extension of the loans would have to be recorded as a transfer, which would increase PSNB by the full value of the outlay. The repayments, which no longer have to be split into the principal and interest elements, would have to be recorded as borrowers’ social contributions or taxes of some sort, acting in the opposite direction and reducing PSNB when paid⁷. The time of the recording, although not perfectly coinciding with the cash flows, could be expected to be reasonably close to them.

Extending the loans to students would increase PSNB by the value of the cash outlay. Using [SLC figures for loans extended in FYE 2018](#), this would mean that the loan extensions would affect PSNB by around £16.7 billion. Taking into account total repayments in the same year (£2.7 billion), the overall impact sums to £14.0 billion. Because contingent assets and liabilities are not considered financial instruments in the ESA balance sheet, no corresponding asset would be recorded and included in PSNFL. Government would still have to finance the related expenditure, for example, by debt issuance. These indirect financing effects, as well changes in the cash balances, would be captured by the balance sheet aggregates of PSND and PSNFL, but the claim on the students would not.

Table 2: Effects of student loan transactions on main fiscal aggregates under revenue and expenditure approach

Transaction	Public sector net borrowing (PSNB)	Public sector net debt (PSND)	Public sector net financial liabilities (PSNFL)
Extension of student loan	Increases by full value of outlay	Increases by full value of outlay	Increases by full value of outlay
Interest accrual on student loan	No effect	No effect	No effect
Repayment of student loan	Decreases by full value of repayment	Decreases by full value of repayment	Decreases by full value of repayment
Outstanding balance is written off	No effect	No effect	No effect
Student loans are sold off at a price below nominal value before write-off	No direct effect*	No direct effect*	No direct effect*

Source: Office for National Statistics

Notes:

1. * No sale is recognised under this approach. The transaction is considered a securitisation of future revenue flows, in accordance with the European System of Accounts 2010 paragraph 20.263. The revenue from repayments continues to be recorded in the government accounts, however the “sale” does not affect PSNB directly. The sale proceeds increase the cash assets of government; however, a new loan liability is recorded resulting in no impact on PSND or PSNFL.

The advantage of this method is its transparent reporting of revenue and expenditure. Unlike the present treatment as a genuine loan, it avoids treating interest that is not likely to be paid as government revenue. Furthermore, the revenue and expenditure method would capture other costs that may otherwise be underestimated, for example when the loans are securitised and sold at a price below their nominal value (a transaction that does not affect PSNB directly). Additionally, the model is easy to implement: the method does not require the use of economic models, which are based on certain assumptions about future loan repayment profiles.

On the other hand, while this near-cash approach to scoring revenue and expenditure can be reasonable in many circumstances, it may distort the assessment of public finances when the cash profile associated with an economic activity is far from being uniform. For any individual student loan, the approach will lead to recording peak government expenditure at inception followed by gradual repayments over a long time horizon. At an aggregate level, the distinct front-loaded profile of PSNB will be observable given the relative novelty of the increased tuition fees. Furthermore, from the perspective of the student this approach records no debt obligations, despite the loans being obligations recognised by financial institutions that impact the students' future ability to borrow.

Approach 2: Recording interest when actually paid

The treatments of student financing as genuine loans (current approach) and as expenditure (Approach 1) have their strengths and weaknesses. It is useful to consider how these approaches could be combined to better reflect the economic substance of the UK student loans. In this context, it is worth remembering that the UK National Accounts and PSF statistics must comply with the international statistical framework. Although economic models can be developed that offer better results for the purposes of analysing student loans alone, their application to the national accounts framework, which seeks to capture all transactions in the economy in a coherent, consistent and symmetrical way, may prove impossible.

One approach to resolve this dilemma, which can be conceived of within the national accounts framework, is to recognise the loan principal as a genuine claim between creditor and debtor, but to consider the accrued interest to be insufficiently certain until the repayments actually take place. Arguably, treating interest differently to the amount of principal may not be the most intuitive representation of the economic reality, but it does nonetheless have two important properties.

First, the high amounts of interest accruing on the loans, including those that are not being repaid, would not be recognised as government revenue, and would not reduce PSNB until actually paid. Second, such an approach would parallel the time of recording of taxes and social contributions and would therefore avoid deviations from the fundamental national accounts principles, even if the guidance specifically related to loans, particularly income-contingent loans, may need to be clarified: the recording of only those tax revenues which “government realistically expects to collect⁸” is somewhat at odds with the ESA 2010 guidance on recording of accrued interest, which must be “recorded in the accounting period when it accrues, regardless of whether or not it is paid in that period.”⁹ This makes sense for loans where all the interest will be ultimately paid, essentially smoothing the cash loan payments over the lifetime of the loan. However, it can be argued that in the case of income-contingent loans, such as UK student loans, where the amount of interest that will be ultimately received is not certain, this approach to interest is not appropriate. Indeed for taxes and social contributions, ESA 2010 requires that “in all cases, only amounts that government realistically expects to collect should be recorded. Uncollectible taxes should not be accounted for in the net lending/net borrowing of the general government and generally not in the total revenue. Accordingly, the impact on general government net lending/borrowing of taxes and social contributions recorded in the system on an accrual basis shall be equivalent over a reasonable amount of time to the corresponding amounts actually received.”¹⁰

To achieve such an effect on borrowing, for taxes and social contributions ESA 2010 guides that the revenue “can either be recorded net of the part unlikely to be collected or, if this part is included, it is neutralised in the same accounting period by a capital transfer from the general government to the relevant sectors.”¹¹ Applying this approach to interest on student loans, it may be possible to record the accrued interest on a cash or time-adjusted cash basis (as for a tax) or to record the full accrued interest but offset it with capital transfers so that the net impact is equal to the cash inflow.

Whatever the precise accounting treatment, the economic attractiveness of the method lies in its ability to avoid the PSNB distortions caused first by the accruing interest that is unlikely to be collected by government, and subsequently the write-offs of interest that is accrued but never paid, at the point that the associated outstanding loan balance is written off.

Table 3: Effects of student loan transactions on main fiscal aggregates under interest paid approach

Transaction	Public sector net borrowing (PSNB)	Public sector net debt (PSND)	Public sector net financial liabilities (PSNFL)
Extension of student loan	No effect	Increases by full value of outlay	No effect
Interest accrual on student loan	No effect	No effect	No effect
Repayment of student loan	Decreases by value allocated to interest	Decreases by full value of repayment	Decreases by value allocated to interest
Outstanding balance is written off	Increases by value of principal written off	No effect	Increases by value of principal written off
Student loans are sold off at a price below nominal value before write-off	No direct effect*	Decreases by value of cash received from sale*	Increases by difference between nominal and sale price*

Source: Office for National Statistics

Notes:

1. * In the event of a sale, government ceases to benefit from any repayments, which may contribute to an increase of the fiscal aggregates over time.

It follows that to record interest paid, one has to know how much of each repayment goes towards paying down principal and how much goes towards paying down interest. In practice, it is very difficult to split student loan repayments into principal and interest, as the accounting rules followed by the SLC do not make this distinction. For this reason, detailed modelling is required to estimate the split between principal and interest repayment.

The treatment of loan principal as a financial instrument has mixed consequences. On the one hand, it reflects the debtor's perspective of the student loans. On the other, it is a characteristic of the UK student loan system that a significant proportion of loans will eventually be written off. The recognition of the full nominal value of those loans until they are written off therefore shifts the PSNB impact up to 30 years into the future. It would also mean that the full nominal value of loans is considered government asset in the calculation of PSNFL until any write-offs occur. Furthermore, if the loan book is sold in the meantime, the difference between the sale price and the nominal value may not be recorded as a transaction that affects government borrowing, but rather a revaluation effect, thus avoiding any direct PSNB impact.

Approach 3: Hybrid treatment of loan extension

An extension to the approach which treats accrued interest as insufficiently certain until the repayments take place is an upfront recognition that a proportion of the loan principal would not be repaid either. This proportion could then be recorded at inception as government expenditure – an unrequited transfer to students. The remaining loans would continue to be recognised as a genuine financial asset for government and a liability for the household sector. Essentially, this hybrid treatment would bring forward the time of recording for the loan write-offs, ostensibly overcoming the problem of underestimating PSNB and PSNFL throughout the life of the loan.

Just as for the interest paid approach discussed earlier, this option would require an extension to the existing statistical regulations, however it would not be entirely alien to the national accounts framework. ESA 2010 prescribes that the “loans granted by government not likely to be repaid are recorded in the ESA as capital transfers, and are not reported [as loans].”¹² However, this piece of the guidance generally relates to individual transactions, which may take the legal form of lending, for example, by government to a public corporation, but fail to meet the statistical definition of a loan. It would not generally apply to a scenario where partitioning of otherwise identical transactions is required to split a single economic activity into the lending and gifting elements.

Table 4: Effects of student loan transactions on main fiscal aggregates under hybrid approach

Transaction	Public sector net borrowing (PSNB)	Public sector net debt (PSND)	Public sector net financial liabilities (PSNFL)
Extension of student loan	Increases by value of loans not expected to be repaid	Increases by full value of outlay	Increases by value of loans not expected to be repaid
Interest accrual on student loan	Decreases by value of interest accrued on loans expected to be repaid	No effect	Decreases by value of interest capitalised on loans expected to be repaid
Repayment of student loan	No direct effect. Used to estimate value of loans not expected to be repaid	Decreases by full value of repayment	No direct effect. Used to estimate value of loans not expected to be repaid
Outstanding balance is written off	No direct effect*	No effect	No direct effect*
Student loans are sold off at a price below nominal value before write-off	No direct effect*	Decreases by value of cash received from sale*	No direct effect*

Source: Office for National Statistics

Notes:

1. * Conceptually, writing off or selling off student loans at a price below nominal value should not affect PSND and PSNFL. In practice, there is likely to be a discrepancy between the initial assessment of the loans unlikely to be repaid, and the values eventually written off or reflected by the sale price. This may lead to additional transactions recorded at that point. Additionally, government ceases to benefit from any repayments and interest accruals, which may contribute to an increase of the fiscal aggregates over time.

There are practical challenges too. Accurately estimating the proportion of loans that will not be repaid over the 30-year horizon may prove difficult, as such amounts are very uncertain and will vary as a result of future policies and macroeconomic conditions. These difficulties are further exacerbated by the need to not only make an assessment of the proportion of loan principal that will not be repaid, but also the associated interest: once a proportion of the outlay has been recorded as a transfer, no interest should be accruing on those amounts in national accounts. However, SLC accounting framework does not split loan balances and repayments into initial lending and capitalised interest once it has added to the balance. Furthermore, interest accrues on the entire balance, meaning that the loans that are not being repaid give rise to the relatively higher amounts of accrued interest. As a result, adjusting the estimates to exclude interest on such loans could be a very difficult task.

It is therefore likely that following this approach would require regular updates of the original transfer amount, estimated in line with the performance of the loan book. There are a number of ways to deal with this. For example, if the capital transfer at inception underestimates the amount of loan principal and interest that is eventually written off, the discrepancy could be accommodated through the recording of a further transfer at the time of the loan cancellation. This would, however, shift PSNB and PSNFL impacts to the end of the loan term.

Alternatively, one could, in principle, revise the original transfer recorded at inception. This solution does not appear to be particularly pragmatic, given the final estimates will not be available until the 30-year period has passed for any loan cohort.

A rather more realistic option is to record annual capital transfers throughout the life of the loan to keep the transfer estimates in line with the actual performance of the loans. By continually adjusting the overall amounts of write-offs for each cohort, any revisions to PSNB and PSNFL would occur year-to-year. It would avoid the disadvantages caused by letting the initial estimate diverge from repayments for up to 30 years before recording one large transfer, or affecting the historic estimates of PSNB by revising the initial estimate of the write-off after inception.

Adopting the hybrid treatment would result in an increase in PSNB and PSNFL at inception. Repayments would continue to be recorded as well as accrued interest on the portion of loan stock that is expected to be repaid. Nevertheless, as with the interest paid approach, it is likely that this model will under- or over-estimate PSNB and PSNFL throughout the life of the loan because of its sensitivity to modelling assumptions.

Approach 4: Net cost to government

A practical alternative to the methods explained in the previous sub-sections is an approach based on measuring the net cost of student loans. For government, the total expenditure associated with extending the loans to students comprises outlays and financing costs (that is, any interest paid on government debt raised to finance the outlays), and in return, government expects to receive repayments¹³. The gap between the expenditure and the repayments could be viewed as a transfer to householders. This transfer represents the unrequited element within total expenditure, while the remaining part could be considered genuine lending. The model therefore bears some similarity to the hybrid approach but differs in the basis on which the transfer element is calculated¹⁴.

Table 5: Effects of student loan transactions on main fiscal aggregates under net cost approach

Transaction	Public sector net borrowing (PSNB)	Public sector net debt (PSND)	Public sector net financial liabilities (PSNFL)
Extension of student loan	Increases by net costs of student loans to government	Increases by full value of outlay	Increases by net costs of student loans to government
Interest accrual on student loan	No effect	No effect	Decreases by value of interest capitalised on proportion of outlay recorded as loans
Repayment of student loan	No direct effect. Used to estimate net costs of student loans to government	Decreases as repayment is made	No direct effect. Used to estimate net costs of student loans to government and revise balance accordingly
Outstanding balance is written off	No direct effect*	No effect	No direct effect. Used to estimate net costs of student loans to government and revise balance accordingly
Student loans are sold off at a price below nominal value before write-off	No direct effect*	Decreases by value of cash received from sale*	Affected by difference between value recorded on balance sheet and sale price*

Source: Office for National Statistics

Notes:

1. * Writing off or selling off student loans would not affect PSND and PSNFL directly. However, it may lead to re-assessment of the cost of these loans to government. This may lead to additional transactions recorded at that point.
2. In the event of a sale, government ceases to benefit from any repayments and interest accruals, which may contribute to an increase of the fiscal aggregates over time.

Consequently, the decomposition of the repayments into interest and principal is not essential for estimating the value of the transfer and subsequently the direct impact on borrowing. Despite some practical attractiveness, this approach is not without its drawbacks and while credible as an economic model, may introduce statistical distortions.

Arguably the main one stems from the need to estimate government's future finance costs associated with the loans. Although such costs can be modelled, the quality of the estimates will depend on the validity of the assumptions used in the model. Another complication lies in the reconciliation of the balance sheet and the flows. While a proportion of the outlay is recorded as a grant, the remainder enters the balance sheet as a government loan asset. It follows that some interest must accrue on the loan balance just like in the previous model, firstly to meet the ESA 2010 definition of a loan and secondly for a purely pragmatic reason: if no interest accrues, the entire amount of the repayment has to be recorded as going towards the principal, thereby reducing the balance faster than it would in reality¹⁵. In turn, this means that a part of the repayment has to be explicitly recorded as interest receivable by government.

Fundamentally, the model therefore still requires assumptions about the interest accruing on the loans and thus offers no comparative advantages to the hybrid and interest paid approaches when transplanted into the system of national accounts. Of the models presented in this article, it is the least grounded in the international statistical framework.

Student loans: concluding remarks

The approaches presented in this article vary in their impact on the fiscal aggregates and in the time profiles of government revenue and expenditure. While the focus of the article is on their suitability for reporting on the state of the UK public finances, it is equally important that any approach we follow should offer a holistic, symmetrical and internally consistent representation of the UK student loan system from the point of view of the creditor (government) and the debtor (student). This means, for example, that should student loans be treated as contingent assets for government, they would have to be recognised as contingent liabilities for students, and thus would not be recorded as households' debt in the UK National Accounts. Similarly, the treatment of any transactions must be conceptually consistent with its impact on the balance sheet aggregates. For example, if interest is recorded when actually paid, the balance sheet position will also reflect the stock of loans as extended to students, but not the uplifts associated with the interest capitalised on those loans.

Table 6: Effects of student loan transactions on public sector net borrowing by approach

Transaction	Current treatment as loan	Approach 1: Revenue and expenditure	Approach 2: Recording interest when actually paid	Approach 3: Hybrid treatment of loan extension	Approach 4: Net cost to government
Extension of student loan	No effect	Increases by full value of outlay	No effect	Increases by value of loans not expected to be repaid	Increases by net costs of student loans to government
Interest accrual on student loan	Decreases by value of interest accrued	No effect	No effect	Decreases by value of interest accrued on loans expected to be repaid	No effect
Repayment of student loan	No effect	Decreases by full value of repayment	Decreases by value allocated to interest	No direct effect. Used to estimate value of loans not expected to be repaid	No direct effect. Used to estimate net costs of student loans to government
Outstanding balance is written off	Increases by value of write-off	No effect	Increases by value of principal written off	No direct effect*	No direct effect*
Student loans are sold off at a price below nominal value before write-off	No direct effect*	No direct effect*	No direct effect*	No direct effect*	No direct effect*

Source: Office for National Statistics

Notes:

1. * In the event of a sale, government ceases to benefit from any repayments and interest accruals, which may contribute to an increase of the fiscal aggregates over time. The precise mechanism and impact would vary by approach. Additionally, the sale and the write-offs may also lead to re-assessment of the amounts that have to be recorded as expenditure under approaches 3 and 4, which may in turn lead to additional transactions recorded at that point.

Finally, it is important to note that the effects described in this article are based on the application of the existing statistical guidance and classifications. The guidance, most notably ESA 2010 and MGDD 2016, is generally definitive in relation to the current loan approach and the revenue and expenditure treatment of Approach 1, but the other approaches require extension to the existing guidance. It is for this reason that we have been engaging with international statistical organisations and other national statistics institutions on the most appropriate recording. Those discussions have not yet concluded, although we are hopeful that we will reach an agreed treatment within the European statistical community by December 2018. Until we have that agreement it is difficult for us to speculate about when any improved statistical treatment of student loans, should it be different to the present approach, will be implemented in the PSF statistics, as some of the current options described in this article are much more complex than others to implement.

One area of the current accounting treatment that might merit changing ahead of any wider improvements to the accounting for UK student loans is in relation to the sale of those loans. Current international discussion have identified relatively strong support for recording a government expenditure at the point of sale to reflect the fact that government by selling the loans is crystallising a loss on the full nominal value of those loans. This makes sense for the government accounts, but is somewhat problematic from the debtors' perspective as the sale has changed nothing. As national accounts is a single integrated picture of the economy, it would mean that any such government expenditure at the time of sale would be recorded as revenue for households at the same point in time. Notwithstanding this difficulty, should the international consensus be to record a transfer at the point of sale then we may consider making this adjustment ahead of any wider changes to the accounting treatment of student loans.

Notes for: Treatment of student loans

1. Nominal value relates to the principal loaned, plus accrued interest, less repayments on principal and interest (the outstanding balance).
2. European System of Accounts 2010 paragraph 5.113.
3. This rate is referred to in the [Department for Education's accounts](#) as the "Resource and Accounting Budgeting" (RAB) charge.
4. European System of Accounts 2010 paragraph 6.58.
5. European System of Accounts 2010 paragraph 5.113.
6. European System of Accounts 2010 paragraph 5.08.
7. Although the repayment of the student loans is often described as a tax, in economic statistics, taxes are generally unrelated to a direct provision of a service to the taxpayer, or are out of proportion to the cost of such as a service.
8. European System of Accounts 2010 paragraph 20.170.
9. European System of Accounts 2010 paragraph 1.101.
10. European System of Accounts 2010 paragraph 20.170.
11. European System of Accounts 2010 paragraph 1.104.
12. European System of Accounts 2010, paragraph 20.121.
13. Of course, there are also administrative costs involved, such as the operating costs of the Student Loan Company. These costs are not affected by the treatment of the student loans and are generally omitted from this paper for simplicity.
14. In national accounts, what is referred to as the financing cost in this section has to be separately recorded as interest payable on government debt, and is already accounted for in PSF statistics. As a result, should this model be implemented, the newly added transfer will be estimated as outlay less expected repayments, to avoid double-counting the financing cost as both interest payable and part of the transfer in the PSNB calculations.
15. European System of Accounts 2010 paragraph 5.113 states, among other criteria, that "a loan is an unconditional debt to the creditor which has to be repaid at maturity and which is interest-bearing".

5 . Treatment of pension liabilities

Introduction

An important aspect of the public sector finance (PSF) statistics is the treatment of public sector pensions, which constitute a significant proportion of public sector liabilities. The treatment of those liabilities has changed in recent years with the adoption of a new international statistical framework in 2014 (European System of Accounts 2010: ESA 2010).

In September 2017, PSF statistics were updated to include the latest pension estimates available. However, the treatment of pensions in PSF is complicated by the need to balance exhaustiveness against the risk of distorting the main fiscal aggregates such that the meaning of the statistics is not impaired. It is important that the PSF statistics remain fully consistent with international statistical frameworks, but we have identified a number of different possible treatments of pensions within the PSF statistics that all maintain alignment to the wider national accounts.

To consult on the best way of presenting pension liabilities in the PSF statistics, we have published a consultation article explaining the full range of available options and their impact on the fiscal aggregates and inviting users to provide their opinions on the different options. To get a full understanding of the issues and let us know what you think, we recommend that you read [the technical note and consultation document](#).

Once the consultation period ends on 31 August 2018, we will review the responses and decide a way forward. We will then publish a response and plans for implementation in autumn 2018. The following subsections provide a brief introduction to the issue.

Methodological considerations

The adoption of the ESA 2010 framework led to the delineation of new types of public bodies, namely public pension funds and the units exercising day-to-day administration of those funds. In accordance with the ESA 2010 terminology, these units together are considered pension administrators.

Pension administrators do not bear the ultimate responsibility for the provision of funded pensions, which rests with the pension managers (typically employers). However, while the pension managers only recognise net liability arising from any shortfall in the scheme, or the benefit of any excess, pension administrators record the gross amounts of assets held in pension funds and total pension entitlements of the scheme members.

In the PSF statistics, the present approach is to record only the manager's net pension liability but not the administrator's total pension liabilities and not the investment assets held in the pension funds. Under this net liabilities approach, pension administrators are effectively deemed to be outside of the public sector. Alternatively, pension administrators can be brought into the PSF boundary. In other words, pension liabilities and the associated ring-fenced assets can be recorded on a gross basis in the PSF statistics. The gross liabilities approach raises a further question of whether to include the administrators in the "inc-boundary" together with public sector banks, or in the "ex-boundary", which underpins the fiscal targets.

In principle, the application of either the net or gross liabilities approach should yield similar results when it comes to the wide measures of government financial liabilities, such as public sector net financial liabilities (PSNFL)¹. Such fiscal aggregates are impacted by the gap between the total assets and total liabilities. Under the net liability approach, the gap is recorded explicitly as a liability in the pension manager's balance sheet. Under the gross liability, it is represented by the balance between total pension fund assets and total pension liabilities held jointly by the administrator and the manager.

However, the two methods vary in their impact on the more restrictive public sector net debt (PSND) aggregate. If recorded on a net liability basis (in other words, if pension administrators remain outside of the PSF boundary), none of the assets or liabilities related to pensions affect this fiscal measure. However, recording on a gross liabilities basis leads to the consolidation of government debt securities held as investment assets by the pension administrator, and further recognises its liquid assets. Therefore, as PSND does not include pension liabilities, the gross recording contributes to a reduction in this measure of debt, through consolidation of debt securities and increased liquid assets, irrespective of whether the pension scheme is in surplus or in deficit. This can be seen as a distortive effect, which has to be balanced against the need to report public sector assets and liabilities transparently and exhaustively.

These considerations can be extended to the recording of the Pension Protection Fund (PPF), which combines the functions of both the manager and the administrator. Similar to the case of other funded workplace pension schemes, the inclusion of the PPF, while necessary to ensure exhaustiveness, would have an impact on the headline PSND measure at the point of implementation. The consolidation of PPF's holdings of government debt securities and the inclusion of its liquid assets in the net debt calculations are expected to reduce PSND, rather than increase it. Furthermore, the transfer of new pension schemes to the PPF in the future may have a similarly counter-intuitive effect on PSND, resulting from the relatively narrow definition of liabilities that are included in PSND.

The final point for consideration is the PSF presentation of unfunded workplace schemes, such as the Principal Civil Service Pension Scheme or the NHS Pension Scheme. Under the unfunded structure, no investment assets are held in a segregated fund and the functions of the administrator and the manager are deemed to be performed by a single notional unit². In compliance with ESA 2010, the obligations of unfunded pension schemes are not included in the PSF balance sheets. We are considering measures to improve transparency while maintaining consistency with international statistical frameworks, such as to include these figures in a supplementary table would ensure a more complete picture of government obligations. It would have to be made clear in the text of the bulletin that the obligations of unfunded public sector pension schemes do not feed into the main aggregates presented.

5.1 Potential impacts on fiscal aggregates

We estimate that the inclusion of pension administrators within the PSF boundary could reduce PSND by an amount close to £20 billion in the case of funded public sector pension schemes. A further reduction of approximately £15 billion could result from the inclusion of PPF's liquid asset and consolidation of its gilt holdings – an amount that should be contrasted with a total PSND ex of approximately £1,700 billion.

Public sector net borrowing (PSNB) would also be affected. Based on data in the UK [National Accounts Table 29: Accrued-to-date pension entitlements in social insurance presentation](#), we expect PSNB to increase by up to £2 billion per financial year. However, more generally, whether PSNB increases or decreases depends on the balance between employee contributions and pension benefits paid.

Notes for: Treatment of pension liabilities

1. Gross and net liabilities recording would yield some PSNFL differences because of the conventions followed in the valuation of government debt securities. When recognised as a government liability, such debt is recorded at face value, which represents the amount due to be repaid. However, in the pension fund's balance sheet, the recording is done on a market value basis.
2. This is the case when the employer provides the benefits directly. In the public sector, several large schemes exist, notably the Principal Civil Service Pension Scheme, which serves a number of government organisations. Both the schemes and the participating employers are still recorded in one institutional sector, and it can be further argued that most of such organisations do indeed represent one institutional unit – core central government – in the national accounts sense.

6 . Treatment of depreciation

Introduction

Estimating stocks and flows of non-financial assets is an important aspect of producing national accounts. Both the [Bean review \(2016\)](#) and the [National Statistics Quality Review of the National Accounts \(NSQR, 2014\)](#) highlighted estimates of capital stocks as key indicators and areas in need of development by ONS. These recent reviews of the UK National Accounts made significant recommendations related to the concepts concerning the estimation of various stock and flow measures of fixed assets and work is currently ongoing to address these recommendations.

The central component of capital stocks estimation is the implementation of the perpetual inventory method (PIM), as endorsed in the European System of Accounts 2010: ESA 2010, the System of National Accounts 2008: SNA 2008 and the [Organisation for Economic Cooperation and Development's \(OECD\) manual](#). The PIM combines flows of gross fixed capital formation (GFCF) data with assumptions about the life lengths and depreciation patterns of fixed assets to produce estimates of the gross stock (purchase value), net stock (market value), productive stock (efficiency units), consumption of fixed capital (CFC), along with other changes in volume of those fixed assets. Like other national statistics institutes that compile public sector accounts in accordance with ESA 2010, we use CFC rather than the estimates of depreciation based on the business accounting practices to measure the decline in the value of net stock over the course of the accounting period.

For the public sector accounts the ongoing development work is focussed on improving capital stock estimates and as a result, through the PIM, the CFC estimates. The improvements to the public sector capital stock estimates do not directly impact the monthly PSF statistics. However, the public sector CFC features within the calculation of receipts, current expenditure and net investment (or capital expenditure) aggregates of the PSF statistics. CFC estimates do not impact on public sector net borrowing (PSNB), due to netting, but they do impact the public sector current budget deficit (PSCB). PSCB is a fiscal aggregate that measures the difference between current expenditure (after taking account of CFC) and receipts, and has been used in previous fiscal targets, such as the "[golden rule](#)".

In summary, the work that we are doing to improve capital stock estimates, and related flows, in the national accounts will impact PSCB estimates in the PSF statistics, but have no impact on PSNB, public sector net debt (PSND) or public sector net financial liabilities (PSNFL). In addition to these impacts the improvements to the capital stock estimates will lead directly to improvements in public sector net worth (PSNW). PSNW is an important national accounts balance sheet measure which is derived by subtracting the total value of public sector liabilities (excluding contingent ones) from the total value of assets (both financial and non-financial). However, PSNW is not published as part of the monthly PSF statistics.

Methodological considerations

In calculating CFC, the main inputs are long time series of gross fixed capital formation (GFCF) data. The "fixed" part of GFCF refers to how assets will be used repeatedly or continuously in the production of economic output for more than one accounting period. Estimates of average life lengths of different assets are then used to determine how long different types of assets are used before they are obsolete or worn out. This information is used to accumulate the flows of GFCF into the capital stock, and assumptions about the using up of assets because of physical wear and tear and anticipated obsolescence are used to calculate the flow of economic depreciation (CFC) out of the capital stock.

The changing economic environment affects the key assumptions in the PIM model. For example, the development of high-tech fixed assets (such as computers, software and certain types of computer-controlled machinery) means that many assets experience more rapid obsolescence than was previously the case. Given that the development of such technology was particularly pronounced during the 1990s, this should be accounted for in the method used with appropriately short economic lives.

Such an effect takes place because the productive potential of an asset may decline, which means that its contribution to production falls and the benefits of using the asset in future periods are lower. This gives rise to the distinction between age-price and age-efficiency profiles, which are collectively referred to as age profiles. The first is the age efficiency of an asset which defines its productive capacity each period; because over time most assets suffer from some wear and tear. The second is the age price profile of an asset which relates to the decline in value of the asset as it ages, aside from changes caused by inflation. These two in combination provide a sequence of prices for capital services discounted to the beginning of start year price over time.

It would be impractical for statistics to model the life cycle of individual assets in the economy. Instead, cohorts of assets represent the main analytical unit. Assets within each cohort, even though similar, are not identical and so do not all retire at the same time, where retirement refers to the removal of an asset from a stock. This gives rise to assumptions about the retirement distributions for the cohorts of assets.

The age profiles and retirement distributions are both examples of assumptions used by the PIM. In combination, these assumptions define the trajectory of CFC. We commissioned [an independent review of the assumptions](#) used to calculate CFC for various types and cohorts of assets by the National Institute of Economic and Social Research. We are also making significant improvements to the PIM itself, increasing its flexibility and ability to apply complex sets of assumptions to specific asset cohorts.

Potential impacts on fiscal aggregates

We will be able to estimate the effects of the PIM review on the fiscal aggregates when our work on the assumptions that underlie the model reaches the final stages. This is likely to be during the first half of 2019, for implementation in September 2019. However, our early estimates suggest that the public sector CFC in recent years is likely to increase, reflecting the shorter productive life of some assets than used to be the case in the historic periods. Such an increase will lead to an increase in PSCB, but have no effect on PSNB. As noted earlier, the balance sheet aggregates of PSND and PSNFL will not be affected.

7 . New International Financial Reporting Standards treatment of leases

Introduction

In 2016, the International Accounting Standards Board (IASB) issued IFRS 16 standard, which replaces the earlier IAS 17 and prescribes a different treatment of leases in commercial accounting. At present, financial statements categorise leases as either finance leases (reported on balance sheet) or operating leases (off balance sheet). Under IFRS 16, nearly all leases will be reported on balance sheet within lessees' financial statements, leading to increases in lessees' reported debt and non-current assets. Yet the same leased assets may also be recorded the lessors' on balance sheets.

The changes to the International Financial Reporting Standards (IFRS) are a potential issue for the public sector finance (PSF) statistics because most UK public sector organisations compile accounts in accordance with IFRS, adapted and interpreted for the public sector. The IFRS 16 approach deviates from that in the European System of Accounts 2010: ESA 2010, which is mostly consistent with the UK's generally accepted accounting practice (UK GAAP) on the subject of leases. Because of the similarity between the treatment of leases in UK GAAP and IAS 17 and that in ESA 2010, most leases in the PSF statistics are reported consistently with the commercial accounting data. The main exception to this are the leases related to public-private partnerships (PPPs).

Ahead of the introduction of IFRS 16 in 2019, HM Treasury published [an exposure draft](#) in May 2018. The document explores whether the UK public sector should adopt the new standard and if so, whether any adaptations should be considered. If the new standard is adopted by the UK public sector, it is likely that the data sources used for leases in PSF will report step changes between the financial year ending (FYE) 2019 and FYE 2020. Furthermore, the leases data supplied on an IFRS 16 basis will no longer be compliant with ESA 2010 and may lead to over-reporting of finance leases, double counting or omission of data.

7.1 Methodological considerations

The ESA 2010 statistical treatment is based on the concept of economic ownership, which is defined by the allocation of risks and rewards of holding an asset, rather than by its legal ownership. As with IFRS, ESA 2010 distinguishes between finance ("financial" in statistical language) and operating leases. However, the rules for deciding whether something is a finance lease or an operating lease differ between the two frameworks.

In the national accounts and PSF statistics, the assets leased under a financial lease appear on the balance sheet of the lessee (and are depreciated accordingly) along with the related finance lease liabilities. The lease payments are analysed into loan repayments and interest charges. For operating leases, the payments are recorded as service charges, which are treated as intermediate consumption, and the assets remain on the balance sheet of the lessor.

Following the IFRS 16 implementation, lessees will be treating nearly all leases as finance leases. Therefore, lessees' intermediate consumption will reduce and be replaced partly by interest expenditure and consumption of fixed capital (CFC), as the leased assets will appear on the lessees' balance sheets. The data required for statistical purposes, such as the split into finance and operating lease elements, may become unavailable.

Furthermore, the application of IFRS 16 itself will introduce asymmetries in the financial reports produced by lessors and lessees. While almost all leases will be treated as finance leases in the lessees' accounts, lessors will account for only some leases as finance leases. Consequently, in some cases, both, or neither, the lessor or lessee might show economic ownership of the leased assets. While this is not an issue for the financial reporting of single entities, the holistic and inter-related nature of the national accounts framework requires a fully consistent recording between lessor and lessee within national accounts and PSF statistics.

We are working with HM Treasury to understand the extent to which the accounting issues may manifest. The first question to answer is whether UK public sector organisations will be adopting IFRS 16. [Financial Reporting Advisory Board \(FRAB\)](#) have approved the implementation of IFRS 16 within public sector accounting, but are yet to agree any adaptations or interpretations of the standard for the UK public sector. Under current plans, IFRS 16 will be adopted for the first time in public sector accounts that relate to FYE 2020.

In preparation for the new standard we have therefore reviewed our current working assumption that the IAS 17 approach to leases is consistent in its assessment of finance and operating leases to ESA 2010. This work has identified that some property leases of UK government departments are full repair and insure (FRI) leases, where the government as lessee has the full responsibility for the cost of maintenance, repairs and even reconstruction in the event that the building is irrevocably damaged. Under ESA 2010, such a lease is to be recorded as a financial lease despite being considered as an operating lease under IAS 17. This suggests that we need to revise some historic lease data as well as make efforts to avoid discontinuities between lease data for FYE 2019 and FYE 2020.

HM Treasury, as one of the main PSF data suppliers, is assisting us by seeking to establish the number and value of FRI leases in historic periods and quantifying the value of all leases that are expected to be in place at the end of March 2019. This is not straightforward to do given the large number of public sector organisations and the similarly large number of lease contracts to which most of those organisations will be signatories. HM Treasury have estimated that central government bodies alone are currently participants (as either lessor or lessee) in approximately 55,000 lease contracts.

In a further work stream, ONS and HM Treasury are considering the different options for collecting and compiling leasing data which are compliant with ESA 2010. To support this work, HM Treasury have initiated a one-off data collection exercise to obtain information from central government bodies on the lease contracts they have. Given the number of large number of leases, a materiality threshold has been applied to the data collection exercise. It is intended that the responses to this data collection exercise will assist in both revising historic leasing data for FRI leases and in identifying appropriate steps to deal with the data source issue that the introduction of IFRS 16 presents.

7.2 Potential impacts on fiscal aggregates

The introduction of IFRS 16 will affect many areas and sectors of economic statistics beyond PSF. The impact is difficult to assess with any certainty given the potential not only for operating leases to be restated as finance leases, but also for double counting and data omission.

As with the impacts on the wider economic statistics, the effects on the fiscal aggregates are difficult to estimate at this stage. The transition to IFRS 16, should it be implemented within the UK public sector in April 2019, would create a discontinuity in the data time series with an increased public sector net debt (PSND) and public sector net financial liabilities (PSNFL) unless data on an ESA-compliant basis remain available to ONS. PSNB will also be impacted although in which direction, and to what degree, is unknown at this stage. The reclassification of historic and existing FRI leases from operating to financial leases will result in an increase to PSND and may also increase public sector net borrowing (PSNB).

In addition to pure accounting consequences, IFRS 16 could lead to changes in the size and operation of leasing markets. Without the accounting benefits of operating leases, those who currently lease assets may buy them instead, raising the requisite finance by other means. If such changes occur, it is likely that their impacts may be difficult to identify separately from those arising from the new reporting requirements.

We will continue to work with HM Treasury to establish how best to address the challenges presented by the new IFRS 16 accounting standard. These challenges are not only limited to the recording of leases in the PSF statistics. In addition, HM Treasury will need to decide on the appropriate future budgeting treatment. Usually, the budgeting treatment follows the national accounts treatment. Therefore, should IFRS 16 be implemented for FYE 2018, the budgeting treatment may need to be decided in autumn 2018.

8 . Continuous development of public sector net financial liabilities

Introduction

Public sector net debt (PSND) has long been used as the main balance sheet fiscal aggregate, however [it is a relatively narrow measure](#) that does not capture all of government's financial liabilities and assets. In the 2016 Autumn statement, the Chancellor announced two new supplementary fiscal aggregates. One of them, public sector net financial liabilities (PSNFL), had a considerably wider coverage of financial instruments than PSND or the preferred EU member states' measure, general government gross debt (Maastricht debt). This meant that robust data on financial instruments such as equity, derivatives or pension liabilities, which had not been used to derive the fiscal measures historically, were required to estimate the new PSNFL aggregate.

In response to these new demands, we launched a review of some elements of the public sector balance sheet. To date, the most significant improvement has been to the estimates of the net liabilities of government in relation to funded public sector pension schemes. These new data were introduced in the August 2017 public sector finances (PSF) bulletin and have since been updated to incorporate the latest administrative data. We are now consulting on the best way to record and present the wider pensions data in the PSF statistics, as explained in Section 2 of this article.

Recently, further progress has been made in improving loan assets and equity holdings, which is the focus of this section. While the main scope of the review is the financial instruments that had not been included in the PSND measure, we may identify individual instances where assets or liabilities that contribute to PSND have to be revised. This is particularly likely in the case public corporations and units that are owned or controlled by the general government sector but which have the legal form of private companies.

Methodological considerations

The review of the public sector balance sheet encompasses two principal aspects – coverage and quality. The former builds on the 2015 National Audit Office report, which identified [over 3,000 legal entities in the public sector that could be broadly described as companies](#). Such units are typically wholly owned or controlled by government but are incorporated as private companies limited by guarantees or private companies limited by shares, although they can take other legal forms¹.

For statistical purposes, most companies in question are classified to the general government sector in reflection of their economic substance. The vast majority are either consolidated in the accounts of their parent organisation, normally a government department, or are explicitly [identified as market producers by the Economic Statistics Classification Committee](#) and recorded as public corporations in the PSF statistics. Generally, such units pose relatively few complications with regards to their treatment and data collection.

Yet a significant minority of companies with public sector involvement are treated as investment assets or are considered sufficiently removed from direct departmental control in accordance with the International Financial Reporting Standards (IFRS) framework, which underpins many of our relevant data sources. This means that in certain circumstances, government departments may only recognise equity assets in their subsidiaries or associates under the IFRS rules. In contrast, PSF statistics may need to record the full balance sheet of those units including any external borrowing they may have undertaken. This subset of companies requires statistical analysis on a case-by-case basis to establish the correct sector classification based on the European System of Accounts 2010: ESA 2010 framework and include their assets and liabilities in the public sector balance sheet where necessary.

The quality dimension covers the conceptual adjustments that need to be applied to the source data, which in most cases also conform to the IFRS accounting framework. We explained in the article on the wider measures of government debt that [there are important differences in recognition of financial assets and liabilities](#) under the ESA 2010 and IFRS frameworks. Furthermore, even where both frameworks recognise an asset or a liability in principle, the IFRS financial instrument categories do not always align to the ESA 2010 categories, and the same is true for the valuation.

Aside of pension liabilities that are discussed in Section 5 and leases explained in Section 6 (which are both prime examples of instruments that are recognised by both IFRS and ESA 2010 but have significant variations in scope and valuation), most improvements can be expected to the estimates of public sector equity. The concept of issuing equity such as shares is not applicable to the core government departments, however public sector units of a corporate structure may issue shares and other forms of equity. Indeed, any public sector unit may also hold equity in private organisations or international bodies such as the European Bank for Reconstruction and Development.

In PSF, intra-government holdings of equity should be consolidated, leaving only the balances with the private sector and rest of the world. The consolidation has to be applied in accordance with the units' statistical classification, and not with legal or that based on the corporate accounting standards. The quality aspect is therefore intrinsically linked to the exhaustiveness dimension of the review.

In addition to equity, another major area for improvement is trade and other accounts payable and receivable. Some component series, such as those related to taxation and social contributions, have robust data sources, however the coverage of other areas is less complete and also suffers from inconsistencies between the IFRS and ESA reporting standards as well as lack of disaggregated cash data. We will be reviewing available administrative data to supplement our existing sources and fill any identified gaps in the collection of trade and other payable and receivable data.

8.1 Potential impacts on fiscal aggregates

Following the introduction of the strengthened pensions data in the August 2017 bulletin, we made the initial improvements to other assets and liabilities in the March 2018 PSF bulletin. Over the course of the next 12 months, we will be introducing further changes. We expect that as a result of the enhanced coverage, the total values of assets and liabilities reported on the public sector balance sheet should rise. However, it is harder to judge the direction of the impact on the fiscal aggregates that this overall increase in the balance sheet levels will have. Such an impact will inevitably depend on the balance between the changes in assets and liabilities, and the definitions of the aggregates themselves.

PSND, being a rather restrictive measure, comprises the excess of public sector's financial liabilities (in the form of loans, debt securities, deposit holdings and currency) over its liquid financial assets (mainly foreign exchange reserves and cash deposits). It follows that it is not affected by the focus areas of the review, namely equity and other accounts payable and receivable. As a result, even though the review may lead to an increased estimate of public sector's overall [net financial worth](#), the potential upward revisions to PSND are not likely to be significant.

Unlike PSND, PSNFL encompasses a wider range of financial instruments and is likely to benefit from the improved recording of illiquid assets. It is worth remembering that we have already strengthened the data related to public sector net pension liabilities, thereby increasing PSNFL, and expect most of the improvements to affect the asset side of the balance sheet.

We expect to implement changes to PSNFL in stages given the continuous nature of the work, as such, we would expect changes in 2018 and 2019. It is also likely that changes made will not be particularly large in the context of PSNFL. For example, the major improvements to loan and equity assets in the March 2018 bulletin were of approximately £7.3 billion while PSNFL was approximately £1.4 trillion at the end of 2017.

Notes for: Continuous development of public sector net financial liabilities

1. In legal context, the term private limited corporation means that the equity cannot be publicly traded. In contract, the shares of public limited corporations can be sold on the market. However, throughout the rest of this article, we use terms public or private to denote statistical classification, unless otherwise stated.

9 . Eurostat reviews

Introduction

Fiscal statistics submitted to the European Commission's Directorate-General for statistics, Eurostat, are used to monitor the UK government's debt and deficit against the excessive deficit procedure criteria (EDP) stipulated in the Maastricht Treaty. As part of their role, Eurostat work with the EU member states to ensure that the methodologies employed by those member states are robust and follow the relevant statistical guidance.

One way in which Eurostat performs these quality assurance activities is through visits to member states (known as EDP standard dialogue visits) where they meet with the statistical compilers to assess their methods and processes. These visits usually occur once every two years. The last dialogue visit to the UK was in May 2017, in which Eurostat's main focus was to review our quality framework, audit and internal control arrangements, as well as data sources used for EDP data compilation. Eurostat also reviewed a number of methodological issues, sector classification of units and the arrangements we have in place for the assessment and recording of [public-private partnerships](#) (PPPs).

After Eurostat have concluded their reviews, they identify areas that require further action, either by the member state or by Eurostat. During the May 2017 dialogue visit, Eurostat identified 37 action points, of which 28 were to be completed by the UK¹. Full details of the visit and action points are available in the [Final Findings of the EDP dialogue visit to the UK](#) report recently published by Eurostat.

9.1 Excessive deficit procedure action points

At times, the statistical guidance in the European System of Accounts 2010: ESA 2010 and the associated manuals may not be fully clear or could be interpreted in more than one way. As such, it is possible for Eurostat to come to a different view on a statistical treatment or classification to that concluded by ONS. During the May 2017 UK dialogue visit Eurostat raised a number of areas as action points, where they wanted ONS to provide more information to assist Eurostat in assessing the treatment or classification followed in the UK. Generally, we expect that Eurostat will agree with our methodological treatment but there is always the possibility that they might not, with resultant consequences for the fiscal aggregates. Below is a list of those outstanding action points still being considered by Eurostat, excluding action points related to the impact of the new International Financial Reporting Standards (IFRS) treatment of leases as well as student loans, both of which are dealt with in the earlier sections of this article.

EDP Action Point 10: Classification of Private Finance 2 (PF2) model

We have provided to Eurostat our provisional analysis of the classification of HM Treasury's Private Finance 2 (PF2) model, in which we concluded that the framework, if followed, would lead to the assets of the public private partnerships being recorded off government balance sheet. Eurostat are considering our classification assessment against the international statistical manuals.

EDP Action Point 15: Review of NACE O bodies

Nomenclature Statistique des activités économiques dans la Communauté européenne (NACE) is the statistical classification of economic activities in the European Community and the NACE O category relates to public administration and defence. ESA 2010 stipulates that activities recorded as NACE O are by definition non-market in nature. This means that the activities of public corporations, which are market bodies, should not be recorded in NACE O and led Eurostat to wonder whether some of the NACE O bodies recorded by the UK as public corporations might not be more appropriately classified as government bodies. Public bodies which ONS were asked to review include Companies House, Driving and Vehicle Standards Agency, Land Registry, Medicines and Health Products Regulatory Agency, Intellectual Property Office, Registers of Scotland and Wales Audit Office. We are currently in the process of carrying out the requested classification review of these bodies.

EDP Action Point 17: Change in recording of corporate taxes

In February 2017, we [improved the accrual methodology](#) used for corporate taxes to better reflect the timing of the economic event to which the tax relates. Prior to February 2017, we recorded corporation tax according to the timing of the cash receipts with no adjustments. Eurostat have expressed some concern with regards to length of the time adjustment and possible revisions that could result from using forecast data in recent periods. We continue to respond to Eurostat queries and have discussed the improved accrual methodology in international statistical fora.

EDP Action Point 22: Classification of housing associations

In October 2015, we reclassified English housing associations from the private sector to the public sector and subsequently also reclassified similar housing bodies in Wales, Scotland and Northern Ireland to the public sector. Following changes to the legislative framework applying to English housing associations, they were reclassified again to the private sector with effect from November 2017. We have shared with Eurostat the basis of our classification assessment for housing associations and Eurostat are considering whether it fully conforms to the international statistical guidance.

EDP Action Point 26: Classification of Welsh and Scottish PPP models

We have provided to Eurostat our analysis of the classification of the Welsh Government's PPP model and the Scottish "Hub" model, in which we concluded that both frameworks, if followed, would lead to the assets of the public private-partnerships being recorded off government balance sheet within the PSF statistics and UK National Accounts. Eurostat have confirmed our treatment of the Welsh model in [a published letter](#) and are currently considering our classification assessment of the Scottish "Hub" model against the international statistical manuals.

EDP Action Point 29: Hinkley Point C nuclear power plant

In September 2017, we announced that we had reviewed the contract documents relating to the construction of the Hinkley Point C nuclear power plant and concluded that the arrangements were such that the power plant assets should be statistically recorded on the balance sheet of the private sector and not the UK government. We have shared with Eurostat the basis of our classification assessment for Hinkley Point C.

Notes for: Eurostat reviews

1. Where required, ONS will involve other government departments in the completion of the action points.

10 . International Monetary Fund's Government Finance Statistics framework

The International Monetary Fund's (IMF) [Fiscal Transparency Code](#) (the Code) is the international standard for disclosure of information about public finances. The Code comprises a set of principles built around four pillars: fiscal reporting; fiscal forecasting and budgeting; fiscal risk analysis and management; and resource revenue management.

In July 2016, the IMF conducted a fiscal transparency evaluation, in which the UK scored highly, reflecting the "underlying strength of fiscal institutions and ongoing efforts to improve transparency of public finances"¹. A report of the evaluation and recommendations for the UK [was published by the IMF in November 2016](#). A number of recommendations were highlighted in the report based on the four pillars of the Code. There are two recommendations related to fiscal reporting that we have been working to address: to extend the coverage of data on stock positions of public sector assets and liabilities, and to add a set of tables compiled under alternative international statistical standards².

We have largely addressed the former recommendation through the introduction of public sector net financial liabilities (PSNFL) aggregate and we continue to improve the quality of the underlying data. To address the latter recommendation, we are looking to increase our compliance with the IMF's government finance statistics framework, for which the underlying manual is the Government Finance Statistics Manual 2014: GFSM 2014. This framework is followed by the majority of countries in the world and the data, including that for the UK, are published in the [IMF Yearbook](#). The primary purpose of GFSM 2014 is to provide a comprehensive conceptual and reporting framework suitable for analysing and evaluating fiscal policy, encompassing general government and the broader public sector.

The UK public sector finance (PSF) statistics are based on national accounts concepts and rules that are primarily derived from the European System of Accounts 2010: ESA 2010, which in turn is based on the international System of National Accounts 2008: SNA 2008. As such, the PSF statistics are already comparable at an international level, particularly with other EU member states.

SNA 2008 and ESA 2010 record government transactions according to their involvement in the measurement of production, generation, distribution and use of income as well as capital and financial account transactions. SNA 2008 and ESA 2010 also look to reconcile the accounts and balance sheet positions across all sectors. Therefore, the analytical purpose is to understand the interactions between all sectors of the economy and assess their impacts on the economy.

Although GFSM 2014 is largely based on SNA 2008, hence consistent with ESA 2010, some differences exist thanks to the analytical purposes of each framework. The two main areas of divergence relate to own-account capital formation and social protection, mainly employment-related pensions. Other smaller areas of difference include social transfers in kind or financial intermediation services indirectly measured. While own-account capital formation is treated differently in each framework, the impact on PSNB is still the same and therefore not discussed further.

GFSM 2014 requires the liability for all unfunded employment-related pension schemes to be included in the statistics, whereas ESA and SNA allow these to be excluded from the core accounts and reported in supplementary tables. A further difference related to pensions is the recording of social contributions and social benefits. ESA and SNA record these as revenue and expense while GFSM 2014 treats these as either revenue and expense or transactions in liabilities. Owing to these differences, it is likely that the estimate of public sector net borrowing (PSNB) produced under both frameworks would be different.

Although not strictly a difference between GFSM 2014 and ESA 2010, the rules around the recording of public-private partnerships (PPPs) are much more prescriptive in ESA 2010 and the associated MGDD, than they are in GFSM 2014 and SNA 2008. This is particularly true in relation to the guidance on whether the assets of the PPPs should be on the government balance sheet or not. Therefore, as part of meeting IMF's recommendation 1.1c we will consider the most appropriate recording of UK PPPs under GFSM 2014.

In 2012, the IMF established the Special Data Dissemination Standard Plus (SDDS+), as a third tier of the IMF's Data Standards Initiatives to address data gaps revealed during the financial crisis. Adherence to the SDDS+ are voluntary, however this represents best practise and the UK government has previously expressed an intention to be a signatory to SDDS+. Although the UK is not yet SDDS+ compliant, we intend to begin to publish the two SDDS+ tables related to government finances as part of the PSF statistics.

Publishing these GFSM 2014 consistent tables should address IMF's recommendation 1.1c. We plan to initially publish tables, excluding unfunded employment-related pensions, by Spring 2019. By end-2019, we aim to improve these tables to comply with the GFSM 2014 treatment of unfunded employment-related pensions.

Notes for: International Monetary Fund's Government Finance Statistics framework

1. [IMF Publishes Fiscal Transparency Evaluation of the United Kingdom](#), November 2016.
2. The recommendations read as follows: Recommendation 1.1b: Expanding the coverage of data on stock positions of all public sector assets and liabilities in the PSF. This would allow policy makers to more effectively manage the available assets and take into account the long-term implications of current policy decisions. Recommendation 1.1c: Adding a set of tables to the PSF, compiled under alternative international statistical standards. This would allow the PSF to include statistical data produced under a framework that is closer to IFRS, for example regarding the recognition of civil servant's pension entitlements and PPP (Public Private Partnerships) arrangements, two of the largest reconciliation items between national accounts and WGA (Whole of Government Accounts).

11 . Other developments

Earlier sections described the main developments that will impact the public sector finances (PSF). This section focusses on other, smaller changes that will be implemented over the coming months. Such changes, while beneficial to the quality of PSF statistics, could be considered to have less impact on the fiscal aggregates or may already meet the compliance requirements.

National non-domestic rates and council tax

The European System of Accounts 2010: ESA 2010 suggests two methods for estimating accrued tax revenue ¹:

1. Using assessments and declarations, however these amounts are to be adjusted by a coefficient to reflect amounts that are never collected.
2. Using the time-adjusted cash method, which involves lagging cash receipts.

The UK uses the time-adjusted cash method for almost all taxes; accrued revenue for national non-domestic rates (NNDR) are however arrived at using a methodology that is based partially on what could be considered an assessment of what is expected to be collected and some cash information.

We have begun reviewing this methodology, working with relevant government departments to ensure all aspects of NNDR are reflected in accordance with the guidance. We expect to make changes within the next 12 months, initially focussing on England. These changes will impact public sector net borrowing (PSNB) and public sector net financial liabilities (PSNFL) historically and in the present time period.

As council tax data are provided by the same data sources and share some similarities in their administration, we will also be reviewing the methodology used to derive accrued council tax. However, we expect this work to commence after the completion and implementation of NNDR changes.

Ministry of Defence inventories and other data

The Ministry of Defence (MoD) has been granted a one-off amnesty to remove obsolete items from its balance sheet in the financial year ending March 2018. [Latest estimates](#) suggest that this could result in writing-off or disposing of up to £0.5 billion worth of obsolete items.

ESA 2010 and the Manual on Government Debt and Deficit: MGDD 2016 provide clear guidance on the recording of military expenditure². Using this guidance, we have concluded that the initial purchase of these items will be backdated and recorded under acquisition of inventories. This will increase PSNB each year of purchase. The writing-off of the obsolescent items (the Amnesty) however, will not impact PSNB, but will affect current and capital expenditure in an opposite but equal way.

We are working with MoD to source the data we need to fully reflect the impacts of the Amnesty on the PSF statistics and expect to complete this work in the next six months. In addition to inventories, we are working with MoD to ensure other aspects of military expenditure, in particular data on single use military equipment (SUME) are correctly recorded. Any changes could impact the fiscal aggregates.

Notes for: Other developments

1. European System of Accounts 2010 paragraph 4.27.
2. European System of Accounts 2010 paragraphs 20.190, 20.191 and 20.192; Manual on Government Debt and Deficit 2016 Part II.5.

12 . Conclusion

The development of methodology is a continuous process, both for ONS and for the international statistical community. The United Nations, Eurostat, the Organisation for the Economic Cooperation and Development, the International Monetary Fund and national statistical institutes, all contribute to improving the framework for compiling national accounts and wider economic statistics. These changes in the international guidance, while prompted by the need for statistics to keep pace with the evolving nature of the economy, can cause discontinuities in data reporting or complicate the understanding of statistics at the point of implementation. The same can be said about the assumptions underlying our economic models, which have to be reviewed periodically to remain relevant. An example of such a review is our work on the Perpetual Inventory Method explained in Section 6.

This article has sought to increase the visibility of ongoing and planned methodological improvements that may impact the UK fiscal aggregates reported within the monthly public sector finance (PSF) statistics. A large part of the article has focussed on the current methodological considerations for student loans. This reflects the size of the potential impacts on the fiscal aggregates from this methodological improvement as well as the relative complexity of the topic.

Other improvements covered within the article are those related to pensions, depreciation, leases, and the coverage of public sector net financial liabilities (PSNFL). We are also working on expanding PSF to include tables which are fully compliant with the International Monetary Fund's government finance statistics framework. This latter piece of work will expand the balance sheet coverage currently included within the PSF statistics, in particular through the inclusion of unfunded pension liabilities.

Most of the improvements discussed in this article are expected to be delivered in 2019 although in some instances the improvements may take longer to implement, depending on the complexity of the issue and its solution.

We recognise that detailing the likely numerical impact of the ongoing or planned methodology improvements is helpful for providing users with the means to assess the potential impact on the fiscal aggregates and possible future government policies. Therefore, where possible, we have included that information. However, owing to the nature of some of the changes it has not been feasible to include this information in all cases.

This article is a first publication of its kind and for this reason, we would like to invite your views on the format, accessibility and usefulness of the information provided. You can email your feedback to psa@ons.gov.uk. We will review all responses received and decide how best to address the issues raised. You can also post your feedback to:

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13 . Annex 1. Effects of student loan transactions on public sector net debt by approach

Annex 1. Effects of student loan transactions on public sector net debt by approach

Transaction	Current treatment as loans	Approach 1: Revenue and expenditure	Approach 2: Recording interest when actually paid	Approach 3: Hybrid treatment of loan extension	Approach 4: Net cost to government
Extension of student loan	Increases by full value of outlay	Increases by full value of outlay	Increases by full value of outlay	Increases by full value of outlay	Increases by full value of outlay
Interest accrual on student loan	No effect	No effect	No effect	No effect	No effect
Repayment of student loan	Decreases by full value of repayment	Decreases by full value of repayment	Decreases by full value of repayment	Decreases by full value of repayment	Decreases as repayment is made
Outstanding balance is written off	No effect	No effect	No effect	No effect	No effect
Student loans are sold off at a price below nominal value before write-off	Decreases by value of cash received from sale*	No direct effect	Decreases by value of cash received from sale*	Decreases by value of cash received from sale*	Decreases by value of cash received from sale*

Source: Office for National Statistics

Notes:

1. * In the event of a sale, government ceases to benefit from any repayments and interest accruals, which may contribute to an increase of the fiscal aggregates over time. The precise mechanism and impact would vary by approach. Additionally, the sale and the write-offs may also lead to re-assessment of the amounts that have to be recorded as expenditure under approaches 3 and 4.

2. No sale is recognised under the revenue and expenditure approach. The transaction is considered a securitisation of future revenue flows, in accordance with the European System of Accounts 2010 paragraph 20.263. The sale proceeds increase the cash assets of government; however, a new loan liability is recorded resulting in no impact on PSND.

14 . Annex 2: Effects of student loan transactions on public sector net financial liabilities

Annex 2: Effects of student loan transactions on public sector net financial liabilities

Transaction	Current treatment as loans	Approach 1: Revenue and expenditure	Approach 2: Recording interest when actually paid	Approach 3: Hybrid treatment of loan extension	Approach 4: Net cost to government
Extension of student loan	No effect	Increases by full value of outlay	No effect	Increases by value of loans not expected to be repaid	Increases by net costs of student loans to government
Interest accrual on student loan	Decreases by value of interest accrued	No effect	No effect	Decreases by value of interest capitalised on loans expected to be repaid	Decreases by value of interest capitalised on proportion of outlay recorded as loans
Repayment of student loan	No effect	Decreases by full value of repayment	Decreases by value allocated to interest	No direct effect. Used to estimate value of loans not expected to be repaid	No direct effect. Used to estimate net costs of student loans to government
Outstanding balance is written off	Increases by value of write-off	No effect	Increases by value of principal written off	No direct effect*	No direct effect. Used to estimate net costs of student loans to government
Student loans are sold off at a price below nominal value before write-off	Increases by difference between nominal and sale price*	No direct effect	Increases by difference between nominal and sale price*	No direct effect*	Affected by difference between value recorded on balance sheet and sale price.*

Source: Office for National Statistics

Notes:

1. *In the event of a sale, government ceases to benefit from any repayments and interest accruals, which may contribute to an increase of the fiscal aggregates over time. The precise mechanism and impact would vary by approach. Additionally, the sale and the write-offs may also lead to re-assessment of the amounts that have to be recorded as expenditure under approaches 3 and 4.

2. No sale is recognised under the revenue and expenditure approach. The transaction is considered a securitisation of future revenue flows, in accordance with the European System of Accounts 2010 paragraph 20.263. The sale proceeds increase the cash assets of government; however, a new loan liability is recorded resulting in no impact on PSNFL.