Office for National Statistics

Article

National Accounts articles: Improving the household, private non-financial corporations and non-profits institutions serving households sectors' non-financial accounts

An overview of the largest impacting methodological changes in calculating Household and NPISH separate accounts.

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1 . Executive summary

This article summarises the main methodological improvements made to the separate measurement of the Household and non-profit institutions serving households (NPISH) sectors. The initial motivation for this was a requirement to follow new international standards. However, we took the opportunity to significantly improve the measurement of both sectors by bringing in new data sources. This is most evident in several transactions discussed below, especially the measurement of dividends, where new administrative and survey sources significantly improve our understanding of the economy through the behaviour of incorporating self-employed individuals, and also impact all other sectors. These estimates result in a different economic perspective to the non-financial corporate sector, particularly its net lending and net borrowing position, as well as an improved understanding of household income and saving. Finally, for the first time, we are defining economic activities of the NPISH sector. Summary impacts are covered in the separate article Impact of Blue Book 2017 changes on the Sector and Financial Accounts 1997 to 2012 and a selection of experimental statistics is attached alongside the articles.

2 . Introduction and background

The household sector represents UK resident individual consumers, as well as unincorporated entrepreneurs, whose productive activities cannot be separated from their consumption. The NPISH sector is defined by economic agents who have a purpose to mainly benefit households, and they must also not be profitable. Within the UK, we define the non-profit institutions serving households (NPISH) sector to include universities, trade unions, political parties, further education colleges and most charities. For more information on the composition of the NPISH sector, see our 2014 article Revised methodology and sources for non-profit institutions serving households by Sarah Howe.

The original purpose of this work was to meet new international reporting requirements. Additionally, we took this opportunity to significantly improve the estimation of the Household and NPISH sectors, explicitly reviewing different economic activities in the accounts, questioning historic assumptions and investigating the potential for new data sources. This was done in consideration of the importance of derived estimates such as the household savings ratio, household gross disposable income, and net lending and net borrowing. This approach has resulted in a transformation in the way we look at some key aggregates. The rest of the article summarises the main methodological improvements to the non-financial accounts resulting from this work, with a range of experimental statistics attached, which will benefit policy users before final estimates are published in more detail in June. We encourage users to get in touch and interact with the experimental data provided, in order to get a wider understanding of the implications.

3 . Main methodological improvements to non-financial account

Dividends

Dividends are captured in national accounts under two economic transactions – dividends (transaction code D. 421), and dividends attributable to collective investment fund shareholders (D.4431). The former represents dividends paid on domestic listed, unlisted and overseas shares held.

Current method

Dividends are measured by different equity separately – listed, unlisted, and overseas, for which different sources are used – and then aggregated up for a total dividends estimate, according to the two transactions above. Firstly, sectors paying the dividend out are measured. Then the sector receiving the dividend is allocated an amount – generally according to their holdings of the asset from the financial balance sheet, with a few notable exceptions. Before 1999, data from HMRC on advanced corporation tax was used to estimate domestic dividend amounts. However, this tax has been abolished, and the sources are as summarised in the table below, the first four of which relate to code D.421, while the last element relates to code D.4431.

Type of share associated with the dividend	Payment sector	Receipt sector
Listed shares	Measured from Financial Times	Allocated according to listed share holdings (apart from central government, measured directly)
Unlisted shares	A combination of historic surveys carried forward with old assumptions and adjustments	Generally allocated according to unlisted share holdings (apart from private non-financial corporations (PNFCs) and other financial institutions , which had historic proportions of their own payments allocated as their receipts)
Overseas shares, whether through foreign direct investment (FDI), or portfolio investment	Foreign direct investment element from the FDI survey. Portfolio investment as a sum of domestic sectors' receipts	Foreign direct investment element allocated to sector from the respondents of the FDI survey. Portfolio investment allocated according to overseas share holdings in portfolio investment.
Other: enhanced scrip dividends, pool repayments, special liquidity scheme, asset purchase facility fund	By the nature of the source, these are allocated between specific sectors, which are evident from the specific dividend.	
Mutual fund shares	Total mutual fund share dividend receipts as summed up from receiving sectors	Allocated according to listed share holdings multiplied by a dividend yield from case studies

New methods

Generally, new sources were found to capture total dividend receipts, and in some cases dividend payments for specific sectors. Also, some historic assumptions were replaced.

Households

For Blue Book 2017 we are incorporating a new data source and method to produce an overall dividends estimate for the Household sector.

Using a comprehensive administrative dataset from Her Majesty's Revenue and Customs (HMRC) on the amount of tax paid by individuals on receipt of dividends, taken from self assessment forms, the household dividends estimate is calculated by dividing the tax amount by the tax rate and aggregating up for each tax band. This amount represents a "total dividends" figure that is a combined estimate of "dividends" and "dividends received from mutual funds". This latter is separately measured based on a case study of rates of return multiplied by household mutual fund asset holdings from the financial balance sheet. Hence, to derive the D.421 part, we subtract the estimate of mutual fund share dividends from the overall estimate. Finally, no adjustments are applied to capture dividend receipts below the tax threshold rate as the amount of dividends received from these individuals is deemed to be immaterial (per capita holdings of shares are very concentrated at the top end of the income distribution, from analysis of the Wealth and Assets Survey).

An illustrative example is shown for one year below. Please note these are not real figures.

Transaction	Tax Rate (HMRC)	Tax amount (HMRC) (£ million)	Derived amount (£ million) financial year	Derived amount (£ million) calendar year
	Ordinary (10%)	1000	10000	
	Higher (20%)	2000	10000	
	Additional (25%)	4000	16000	
Total dividends			36000	35000
Minus D.4431 amount (separately measured)				- 500
D.421 amount				34500

The data from HMRC on the amount of tax paid on dividends is taken from the 'UK Income Tax Liabilities Statistics' Publication. The tax rates are taken directly from the gov.uk website. Prior to 6 April 2016 all dividends in the UK were paid with a notional 10% tax credit; therefore when compiling our estimates the amount of tax credit was included in our dividend estimate before any taxes were paid or deducted. Changes to amount of tax thresholds over the years have been accounted in the data. Therefore, users need to be aware of these changes when analysing the data. Though this new method steps away from the different share types, the impact is due to unlisted share dividends, since this is the type of equity for small businesses.

The resulting estimates are much larger than previously published for the combined sector, and are growing over time, contrasted with a fairly stable series previously, as can be seen in the dataset attached. Hence, the impact is to raise household income in most years, but much starker in later years, and this carries through to key aggregates such as household saving.

Other sectors

The new direct source for Households implies a very different size of dividend receipts. Hence, all other things being equal, there are either more payments across the economy, or less receipts by other sectors. In fact, we made improvements to sectors that show both are true. These are summarised as follows:

- Monetary financial institutions: direct data from the Bank of England is now used for dividend receipts and payments, except a few elements not captured on the original source, such as dividends from mutual fund shares

- Insurance Companies and Pension funds: direct data from the Quarterly Survey of Insurance Companies and equivalently for Pension Funds is now used for their respective sectors' dividend payments, and dividends and interest receipts

- NPISH Sector: direct data from the National Council for Voluntary Organisations (NCVO) and Higher Education Statistical Authority (HESA) on dividend receipts for this sector

- PNFC and Other financial institutions Sectors: Replacement of historical fixed proportions for these sectors' receipts, with receipts now relative to their asset holdings

On this last point, the historic proportions were inflating the dividend receipts particularly of the corporate sector. The historical assumption was that the corporate sector pays out approximately half of its dividends back into the sector. We found this to be unfounded, and we are now replacing this with flows to the household sector, for which evidence is presented below.

Evidence for self-employment relationship with dividends

The well-known phenomenon of a rise in self-employment in recent years in the UK has been well documented, such as in Figure 1 taken from our article Trends in self-employment in the UK: 2001 to 2015. The chart shows that from 2002 to the beginning of 2016, self-employment grew by over 40%.

Figure 1: Number of self-employed workers

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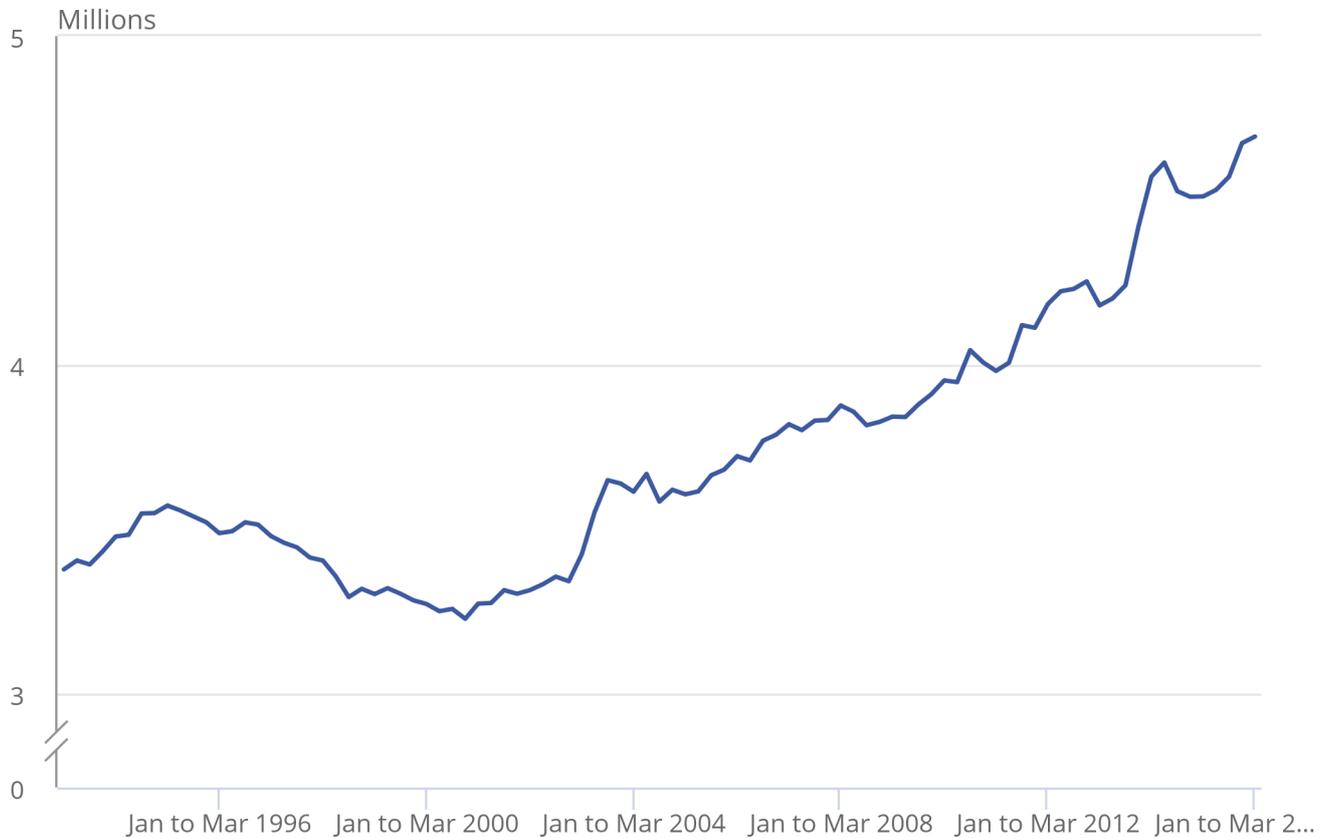
Source: Labour Force Survey (LFS), Office for National Statistics (ONS)

This data comes from the Labour Force Survey. Hence, these individuals classify themselves as being self-employed. However, they may conduct business activities in 3 ways. They can be (1) sole proprietors – unincorporated businesses with unlimited liability; (2) partnerships, whether limited liability or "ordinary" business; or (3) limited companies – individuals who have incorporated their business, separating it from their personal assets. Sole proprietors fit the description of the Household sector as defined within national accounts estimates, while both other types of self-employment need to be captured within the private non-financial corporations (PNFC) sector.

According to the Inter-Departmental Business Register (the ONS register of UK businesses who have signed up for a VAT and/or PAYE return), sole proprietors' enterprise numbers have been decreasing. This is shown in Figure 2, and more information is contained within our publication series UK business; activity, size and location.

## Figure 2: Number of sole proprietor enterprises
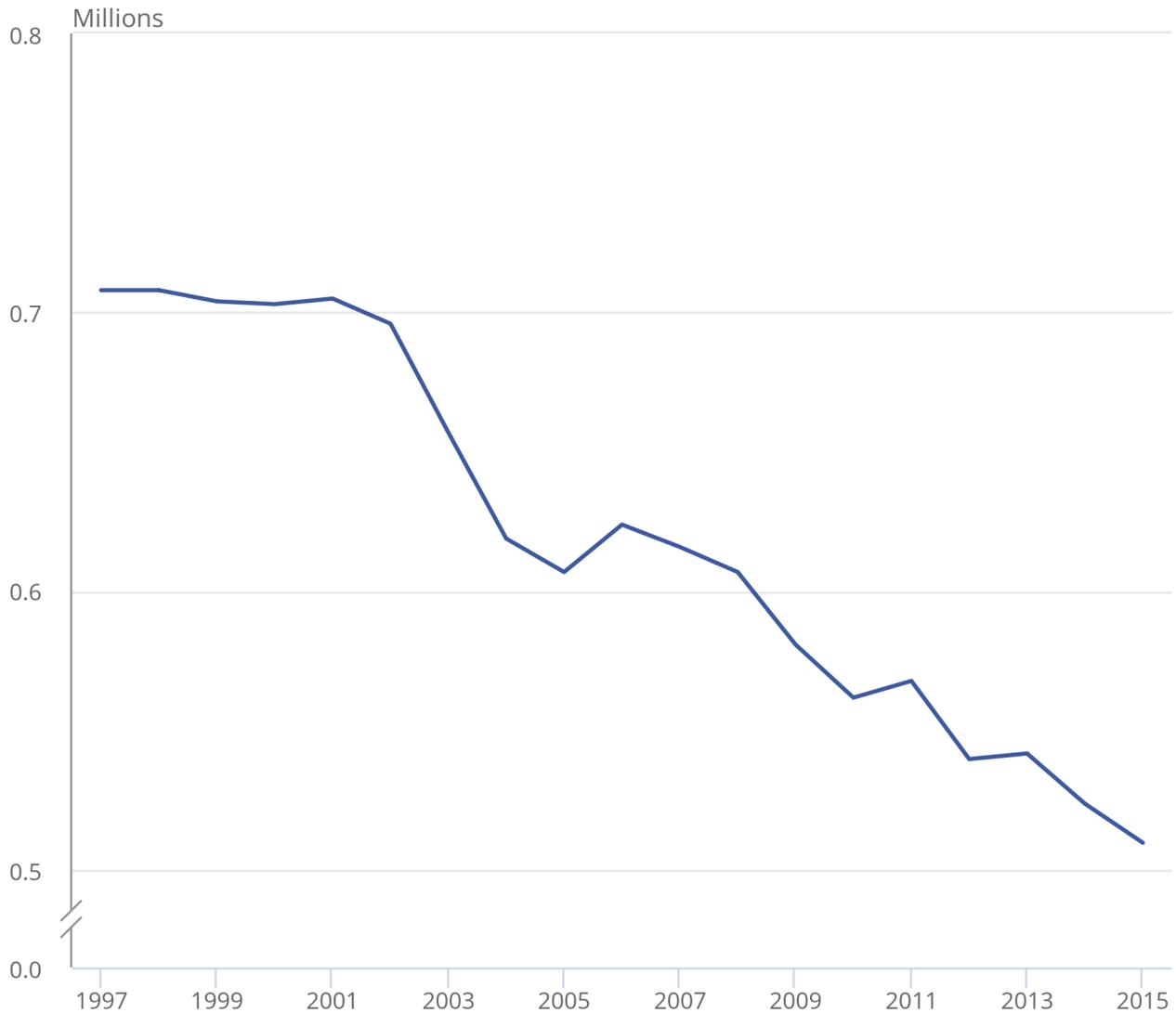
Source: Inter-Departmental Business Register (IDBR), Office for National Statistics (ONS)

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics (ONS)

In addition, some of this decrease has been due to sole traders incorporating and hence switching between the Household and PNFC sectors, as in Figure 3, which shows what the population of sole traders would have been if none had incorporated since 1997.

Figure 3: Evolution of sole proprietors incorporating over time [1]

Figure 3: Evolution of sole proprietors incorporating over time^1^
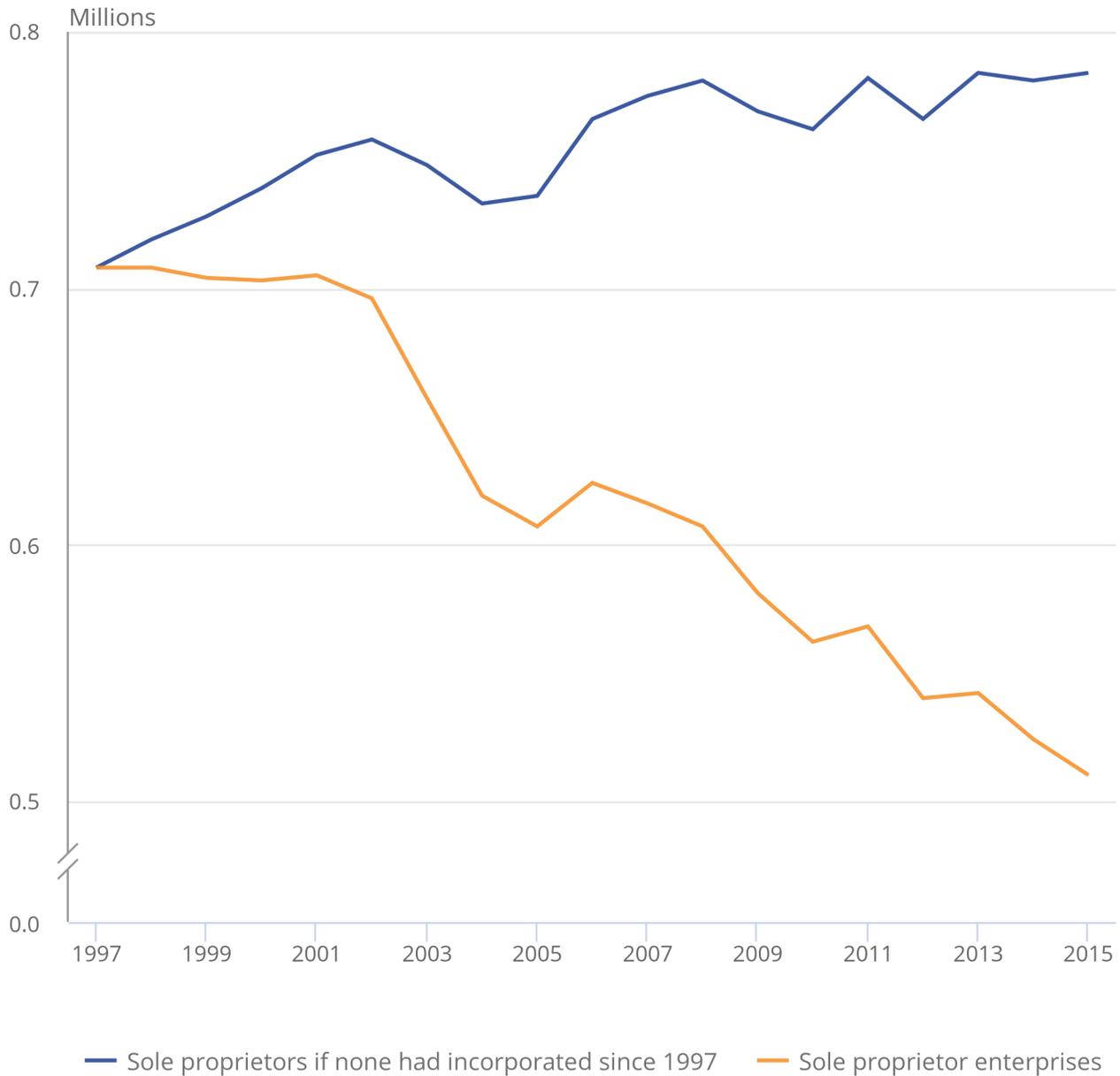
Source: Inter-Departmental Business Register (IDBR), Office for National Statistics (ONS)

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics (ONS)

Notes:

1. Please note, these units are not the universe of all businesses, but capture those registered for VAT or PAYE, so should capture the larger businesses above a certain threshold of activity. The graphs above are enterprises, not reporting units, which are used as sampling units for surveys.

The graph shows only active businesses, and adds on the units which have incorporated, that used to be sole traders. Hence, it can be seen that sole traders have been consistently incorporating and switching into other sectors.

Furthermore, there is evidence of the rise in self-employed incorporating and paying themselves out in dividends. The Office for Budget Responsibility, in their November 2016 Economic and Fiscal outlook, estimates the population of employees and self-employed individuals, both of whom incorporate, as having grown 7% annually between 2000 to 2014. Similarly, the Resolution Foundation report 'The nature of self-employment in 21st Century Britain and policy implications' shows how the majority of the rise in self-employment has been of owner-managers, and of high-income sectors.

These pieces of evidence in combination describe a picture of significant numbers of sole proprietors incorporating, while other "self-employed" are starting out as companies in the first instance and over time, paying themselves out in dividends as opposed to wages. In the national accounts we are reflecting this as increasing dividend receipts by the household, and increasing dividend payments by the PNFC sector. In summary, households have received more in dividends than previously estimated, which means their overall income has been larger than previously thought, and additionally the corporate sector has been paying out more than previously estimated, so their costs have been larger than previously thought.

Ignoring other changes in the economy, this impact would also reflect in an increase in profits by the PNFC sector (more self-employed units classified therein) and a corresponding decrease in Household mixed income, since profits are measured before dividends are paid out. These latter two transactions are discussed below.

Gross value added and mixed income

Current method

Gross value added (GVA) for the combined Household and non-profit institutions serving households (NPISH) sector, as well as the private non-financial corporations (PNFC) sector was previously derived from the income measures of gross domestic product (GDP):

$$GVA_{sector} =$$
$$Gross\ Operating\ Surplus_{sector} + Mixed\ Income_{sector} +$$
$$Taxes\ on\ production\ paid_{sector} - Subsidies\ received_{sector} +$$
$$Compensation\ of\ Employees\ paid\ out_{sector}$$

The supply use process first balances the three measures of GDP at a total economy level, not per sector. There are a large amount of sources that feed in to each one of those series, and this article will not attempt to summarise them all; for more information, see the UK GNI inventory linked in the references. In relation to the identity above, balancing adjustments are allocated to self-employment income, profits, rental income and holding gains, which are components of both mixed income and gross operating surplus, while compensation of employees is balanced directly. Taxes on production and subsidies do not receive balancing adjustments. We summarise the approach taken to estimate these components after balancing, apart from taxes and subsidies, which is sourced per sector.

- Mixed income: this only relates to households, for which the starting point of the unbalanced data is sole traders' self assessment income and rental income from HMRC, plus coverage and quality adjustments, then all self-assessment balancing adjustments were allocated to households (hence none to partnerships who also have self-employment income)

- Gross operating surplus: the household part is imputed rental output less intermediate expenses [2], while the NPISH part is equal to their consumption of fixed capital; PNFCs were the residual of the total economy estimates, once all other sectors' estimates of the specific transaction were accounted for.

- Compensation of employees paid out: the household amount was calculated as a fixed 6% of the UK total balanced figure, while the NPISH data is sourced for charities, universities, trade unions and political parties; again, PNFCs were the residual of the total economy estimates, once all other sectors' estimates of compensation of employees were accounted for.

Subsequently, we then derived output and intermediate consumption, which defines the production elements of GDP:

- Market output: the household and NPISH combined estimate was calculated as 15% of the total economy balanced figure, PNFCs were once again the residual of the total economy estimates

- Output for own final use: the combined household and NPISH estimate was just imputed rental output plus households as employers, while PNFCs were once again the residual of the total economy estimates, hence all elements of NPISH captured at the total economy level, as well as additional household elements, were being misallocated into PNFCs.

- Intermediate consumption: for the combined household and NPISH estimate, as well as the PNFCs sector, this was calculated as total output minus gross value added, both derived above

New methods

We conducted a detailed review of all the transactions listed above, apart from taxes and subsidies which are sourced per sector, to see whether the current total UK economy estimates could be refined and calculated using a bottom-up approach for each sector. Improvements to market output, output for own final use, and intermediate consumption were identified.

The starting point for these three estimates at the total economy level is the Annual Business Survey (ABS). Each business is classified into a legal status, based on the Inter-Departmental Business Register, used as a sampling frame for our most business surveys. We provide a link to the business register for more information in the references section.

In reviewing these data, we make more use of the legal status information to allocate to sectors. Units that are "legal status: sole proprietor" now make up the Household sector, while the legal statuses "company", "partnership" and "non-profit-making body or association"[3] make up the PNFC sector for businesses engaged in non-financial industries. As the sample size is large enough, approximately 73,000, we deem the data can be used per legal status.

Importantly, at the UK economy level, to cover total economic activity, we apply an adjustment to account for units under the threshold of being on the Inter-Departmental Business Register (IDBR), which is based on HMRC estimates of total self-employment turnover. Hence, we fully allocate it to the household sector. Finally, the estimates of the non-profit institutions serving households (NPISH) sector are separately identifiable based on work conducted for Blue Book 2014.

Additionally, historical supply use balancing[4] adjustments were reviewed. These tended to be allocated with no specific sector in mind. We now allocate balancing adjustments for output and intermediate consumption proportional to their unbalanced sectorised estimates, in contrast to the fixed proportions and residuals being applied to the whole data previously (see above). This gives quite different sectorised gross value added (GVA) figures to those previously published, as can be seen in the supporting dataset. Naturally, we also reviewed self-employment income and rental income (spanning gross operating surplus of partnerships and mixed income of households) balancing adjustments. It was found that disproportionate amounts are allocated to mixed income, as opposed to gross operating surplus of the corporate sector. This is now apportioned to sectors according to their unbalanced values. This results in different values of gross operating surplus for the PNFC sector, and in new identities for the other series for Households and PNFCs:

$$GVA_{sector} =$$

$$Market\ Output_{sector} + Output\ for\ own\ final\ use_{sector} - Intermediate\ consumption_{sector}$$
$$Compensation\ of\ Employees\ paid\ out_{sector} - Intermediate\ consumption_{sector}$$

$$= GVA_{sector} - Gross\ Operating\ Surplus_{sector} - Mixed\ Income_{sector}$$

$$- Taxes\ on\ production\ paid_{sector} + Subsidies\ received_{sector}$$

We have the lowest quality information on compensation of employees paid out by specific sectors, and hence this is allocated as the residual of other estimates.

To clarify, PNFCs in the UK are comprised of limited liability companies, as well as partnerships (called quasi corporations for the National Accounts). The profits partnerships earn are returned back to the household sector as "withdrawals from quasi-corporations", transaction code D.422 (which is distinct from dividends). Hence, an increase to partnership gross operating surplus does not impact the PNFC net lending position, as they always return their profits back. Partnerships are the biggest part of gross operating surplus impacted by this improvement – hence the impact is small with respect to the PNFC net lending position.

Current transfers

Current method

Miscellaneous current transfers are payments without a good or service given in return. They include donations and grants, and are accounted for as a resource by the receiving sector and a use by the paying sector. In the UK, the transfers are generally measured directly between two sectors. For the combined household and non-profit institutions serving households (NPISH) sector, some transfers were captured within the sector – for example, charity donations from Households to NPISH, which netted out to zero in the combined sector. In reviewing this line, the following estimates were found.

Resource (receipt)	Sector	Use (payment)
Transfer receipts from PNFCs – historic fixed values	NPISH	Payments to households – historic fixed values
Transfer receipts from Rest of the World – historic fixed values		
Direct transfer receipts from Households – historic fixed values		
Household transfers via gift aid sourced from HMRC		Payments to the rest of the world – sourced from Balance of Payments
Transfer receipts from government – Government Online System for Central Accounting and Reporting (OSCAR) source, and DCLG, capturing grants to charities, universities and further education colleges		

Resource (receipt)	Sector	Use (payment)
Transfer receipts from NPISH – historic fixed values	Households	Fines, such as court fees and parking fines – government OSCAR source
NHS Compensation payments from government OSCAR sources		
		Direct donations to NPISH – historic fixed values
Payment Protection Insurance (PPI) Compensation payments sourced from financial surveys		Donations via gift aid sourced from HMRC

Currently we do not measure outward or inward international remittances, which count as a current transfer, so the net position is assumed to be neutral.

New methods

We have used several new sources, which have raised the amounts for the combined Households and Non-Profits Institutions sectors.

Non-profit institutions serving households (NPISH) sector

Data for all donations (other than legacies) given to the NPISH sector which include: giving to charities, grants given to universities, trade union subscriptions and political parties donations are all allocated to the NPISH sector's resource. We also include non-performance related grants. The majority of these donations are made by the Household sector, with some also coming from government, private non-financial corporations, and the rest of the world sectors – research grants from EU and non-EU countries are explicitly included for the first time.

The source data for the charity part of NPISH now comes from the National Council for Voluntary Organisations (NCVO). The universities data are from the Higher Education Statistics Agency (HESA). Trade union data comes from the trade union certification officer while political party data is sourced from the annual reports of the three biggest political parties and then weighted up. Detailed information of the donor is used to allocate the transfers to the paying sector, including to households. These sources are used for all sectors apart from government as a paying sector, for which existing government sources are continued.

Data for any grants or awards given by the NPISH sector to the Household sector is allocated as an NPISH use. This includes bursaries or scholarships awarded by universities to individuals and grants given by charities to individuals. Again, the main sources are NCVO and HESA, apart from overseas transfers for which balance of payments estimates are continued.

There is a decrease in current transfers received from government in later years, which is reflective of the switch from government grants to performance-related contracts (from 2004 to 2005 to 2012 to 2013, grants as a proportion of total government spending on charities went from 43% to 17%) as referenced in the NCVO almanac, and quoted in a House of Commons briefing paper in 2015. Performance related grants are measured as NPISH market output, not transfers, so this represents a switch in sources of income.

Households sector

Grants and awards given to individuals by the NPISH sector are allocated to household resource, making up part of household income. Additionally, Payment Protection Insurance (PPI) compensation payments from financial institutions and transfers from government are included, such as NHS compensation payments. Apart from NPISH grants and scholarships, the other elements of household transfers income were already measured.

Household spending is mainly on donations made to the NPISH sector, updated as stated above. The other element is including updated data on parking fines, sourced from Online System for Central Accounting and Reporting (OSCAR), while the other estimates remain as before.

Converting concepts from combined sector to Households

In changing analysis of the previously combined sector, which includes NPISH, to a household-only sector, the trend of transfers will behave differently. For the combined sector, income from transfers is generally larger than expenditure on transfers, that is the net position is positive. For households, on the other hand, the net position is very negative. This is largely due to the fact households pay out much more in donations to charities and universities than they receive back from them. This is reflected in NPISH as their main source of income, which is used to fund their non-market activities and measured by NPISH final consumption expenditure. Through the system of national accounts, this amount then gets transferred to Households in their adjusted disposable income.

Notes for: Main methodological improvements to non-financial account

1. Please note, these units are not the universe of all businesses, but capture those registered for VAT or PAYE, so should capture the larger businesses above a certain threshold of activity. The graphs above are enterprises, not reporting units, which are used as sampling units for surveys.

2. For more information on imputed rental, see the publication "Changes to National Accounts: Imputed Rental" linked in the references.

3. For the non-profit-making body or association businesses, it is those not involved in the same industries as NPISH that are allocated to the corporate sector – internal analysis shows that the other units are mostly NPISH.

4. For more information see "A guide to the supply and use process".

4 . Impacts

These main methodological improvements result in a substantially larger household income, which, though offset with some higher household spending on current transfers, is reflected in higher household saving. This is mostly due to the increase from directly measuring dividend income, and can be evidenced by increased self-employment incorporation, and further use of paying of dividends as a form of compensation, as shown above. This is also reflected in the private non-financial corporations (PNFC) sector as much lower net lending, and in some cases even net borrowing, as the corporate sector is paying out more dividends than previously thought, through incorporated firms paying out to their share owners in the form of dividends.

Additionally, the NPISH sector is being defined for the first time, and as a net lender. This is since its main income source – donations and grants, is similar in size to its final consumption expenditure which is a measure of the amount of services provided to households, while other sources of income are through investment activities. Grants and donations are mostly split between donations from households and government, with a steady but smaller amount donated from the private sector and from overseas. In the more recent periods, government grants to NPISH have been dropping. This data can be found in the accompanying annexe.

There isn't any effect to gross domestic product from the changes outlined above, and generally there is only a minimal impact to total economy key statistics – the work results in a reframing of the economic activities of the different sectors within the economy.

5 . References

Annual Business Survey Quality and Methodology Information

Bank of England information on dividends source

Changes to Dividend Tax Credit

Changes to National Accounts: Imputed Rental

Charities and the voluntary sector: statistics, House of Commons briefing paper (2015)

Data used from the Survey of Personal Incomes

Economic and Fiscal outlook November 2016, OBR (see especially Box 4.1)

Impact of Blue Book 2017 changes on the Sector and Financial Accounts 1997 to 2012

Income Tax Liabilities Statistics, HMRC - see link to individual table from the Survey of Personal Incomes 'Table 2.6 – Income Tax Liabilities by Income Source and Tax Band and Marginal Rate'

Inter-departmental Business register information

NCVO Almanac showing breakdown of voluntary income

Quarterly Surveys of Insurance Companies and of Pension Funds QMI

[Revised methodology and sources for non-profit institutions serving households](#), ONS

[The nature of self-employment in 21st Century Britain and policy implications](#), Resolution Foundation

[Trends in self-employment in the UK: 2001 to 2015](#), ONS

[UK business; activity, size and location: 2016](#)

[UK GNI Inventory](#)

[Wealth and Assets Survey methodology](#)