



HM Revenue  
& Customs

## Scottish VAT Assignment 2018 Estimate Experimental Statistics - November 2020

### About this release

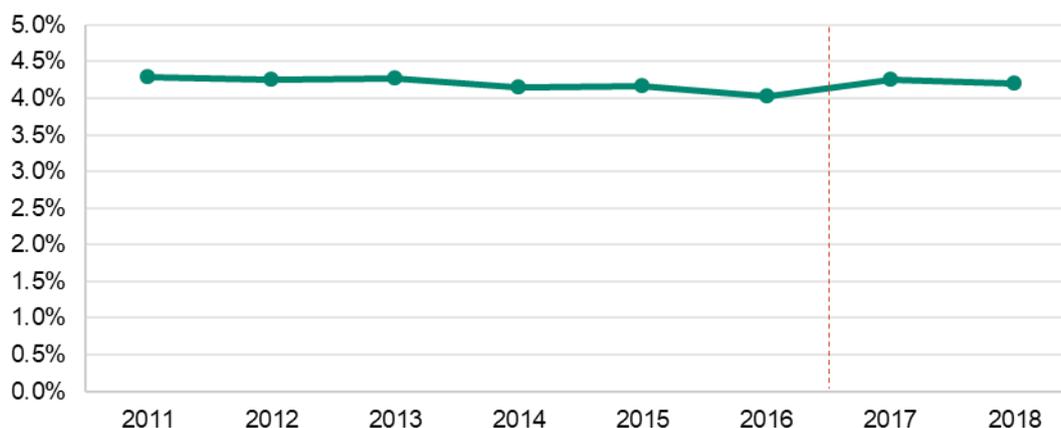
This Experimental Statistics publication on Scottish VAT Assignment (VA) presents the share of the first 10 percentage points of standard rated VAT and 2.5 percentage points of reduced rated VAT raised in Scotland as an annual proportion of UK VAT receipts.

The share has been estimated using the Scottish VA model, jointly developed by officials from UK and Scottish Governments. The VA share calculation is based on a detailed model which considers how much VAT Scotland would raise if it were a separate jurisdiction for VAT purposes considering expenditure in Scotland and the rest of the UK on different types of goods and services. VA estimates for 2011 to 2018 (provisional estimate for 2018) were published on 30 June 2020.

This publication contains a revised estimate for the Scottish VA share of UK VAT for 2018 and a revised historic back series to 2011<sup>1</sup>. The Scottish VA methodology is not yet finalised or fully agreed and therefore estimates presented in this publication are provisional and subject to change to reflect any future methodological changes.

### Executive summary

**Chart 1: Scottish VA share of UK VAT receipts (%), 2011 to 2018.**



Produced by the Scottish VAT Assignment team, as part of the 'Devolved Taxes' collection.

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<sup>1</sup> Scottish VA share estimates will remain provisional for a period of time to allow for revisions to the underlying data to be accommodated; the duration of this time period is yet to be finalised by UK and Scottish Governments.

Chart 1 shows the estimated Scottish VA share presented in calendar years 2011 to 2018. The estimated Scottish VA share of UK VAT is fairly flat over the period covered. In Chart 3 presented later in the publication, it appears that fluctuations in the VA share are primarily driven by changes in Household expenditure that is subject to VAT.

The LCF survey is used in the Scottish VA model to calculate the Scottish share of UK Household expenditure which is liable to VAT, the LCF survey accounts for a large part of the input data used in the model. The dotted line highlights the point in the VA series which this sample expansion occurred. It should be noted that the 2017 VA estimate has a partial boost from Q2 onwards and from 2018 onwards the VA estimate is based on a full boost from Q1.

From the 2017-18 Living Costs and Food survey onwards, the UK and Scottish Governments jointly sponsored a 100% boost to the LCF sample size narrowing the sample error at this point and expanding the geographical coverage.

## Policy background

In 2015 the Smith Commission convened and recommended that "the receipts raised in Scotland by the first 10 percentage points of the standard rate of Value Added Tax (VAT), and the first 2.5 percentage points of the reduced rate of VAT, will be assigned to the Scottish Government's budget."

The Commission further recommended that "these receipts should be calculated on a verified basis to be agreed between the UK and Scottish Governments, with a corresponding adjustment in the block grant...."

In October 2020 the UK and Scottish Government agreed that a new implementation date will be established as part of the review of the Scottish Government's Fiscal Framework.

## What's new in this publication?

HMRC carried out a comprehensive quality assurance review process on the VA model consisting of a thorough verification exercise and additional scrutiny of key input data sources (further detail provided in QA section below) prior to the publication of the 2017 final estimate.

The intensive verification exercise, carried out prior to the publication of the 2017 final estimate, focussed heavily on quality assuring the calculations performed by the VA model and scrutinised key input data sources but did not extensively focus on every single data input. The verification exercise highlighted areas for potential improvement such as further investigation of some assumptions and judgements.

During this transition period the VA model calculations and input data sources are under constant scrutiny for Quality Assurance (QA) purposes. Through ongoing QA of the model, HMRC have introduced some amendments to how input data sources are used in the model since the publication of the earlier 2018 estimate. These changes have impacted the VA share throughout the back series.

New data which became available over the summer relating to 2018 has been

incorporated into the VA series<sup>2</sup>. In addition, revisions to a variety of the model's underlying input data sources that have occurred since the publication of the provisional 2018 estimate have led to additional revisions to the historic VA series.

## Model Results and Commentary

Some of the information in this publication is presented on a calendar year basis whereas others are presented on a financial year basis. This is because the Scottish VA model calculates the share on a calendar year basis using data that is primarily based on when the expenditure occurs and the VAT liability arises. The share has then been applied to VAT receipts relating to the financial year to reflect the assumed three month time lag between VAT liabilities arising and VAT receipts being paid to HMRC.

**Table 1: Estimated Scottish VA share of UK VAT (%), 2011 to 2018.**

Table 1 shows the revised Scottish VA share figures presented in Chart 1.

Calendar Year	2011	2012	2013	2014	2015	2016	2017	2018
VA share	4.29%	4.25%	4.28%	4.15%	4.17%	4.03%	4.26%	4.21%

The broad trend observed in the Scottish VA share series as published previously remains in the updated Scottish VA outturn series. In line with all previous published VA series the estimate for 2016 remains the lowest point in the series.

The 2017 estimate is higher than 2016 and broadly in line with the estimates from 2011 to 2013. The share has slightly fallen in 2018, decreasing by 0.05 percentage points.

The 2016 estimate represents the year with the lowest response rate to the LCF survey from Scottish respondents. The 100% LCF survey sample boost took effect from 2017-18 broadening coverage and reducing the sampling error from April 2017.

The primary driver of variation in the Scottish VA share in most years of the series is the Household sector (the green bars in chart 3). The changes shown in the Scottish VA model estimates reflect the trends in the underlying Household expenditure data observed in the LCF survey which shows a decline in 2016 and a rise in 2017 (the orange line in chart 4). The LCF survey is the data source used to calculate the Scottish share of UK expenditure for a large amount of the Household sector.

Analysis of the raw data in the LCF survey shows that the Scottish share of

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<sup>2</sup> The Blue Book data relating to 2018 was not available in time to feed into this statistical release.

overall UK consumption declined faster in 2016 than the previous years and rose in 2017 to levels shown prior to 2016. This confirms that the Scottish VA model is accurately reflecting the trend exhibited in the underlying data. These trends are exaggerated once applied to the VA model, suggesting that these trends are slightly stronger in expenditure categories with higher VAT rates.

**Table 2: UK Total VAT receipts (HMRC), 2011-12 to 2018-19.**

Table 2 shows UK VAT receipts on a financial year basis from [HMRC Total VAT receipts](#).

Financial Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
UK VAT receipts (£m)	98,292	100,572	104,718	111,363	115,415	119,799	125,363	132,174

**Table 3: Illustrative £m VA figures 2011-12 to 2018-19.**

Table 3 shows an illustrative £m VA estimate; calculated by applying the calendar year Scottish VA share (Table 1) to the UK financial year VAT receipts (Table 2).

Financial Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Illustrative VA figures (£m) (figures are subject to rounding)	4,220	4,270	4,480	4,620	4,810	4,830	5,340	5,560

The share has been applied to financial year UK VAT receipts to reflect the three month time lag between VAT liabilities arising at the point of expenditure and VAT receipts being paid to HMRC<sup>3</sup>.

Chart 2 decomposes the trend in the illustrative £m figures presented in Table 3 in % growth rates. These VA growth rates are based on applying the Scottish VA share on a calendar year basis (in Table 1) to HMRC Total VAT receipts on a financial year basis (in Table 2). The increase in the illustrative £m VA figure across the time series is driven by a combination of growth in UK VAT receipts over the period (shown in Table 2) and the varying trend in the VA share estimated by the model (shown in Table 1).

<sup>3</sup> HMRC Total VAT receipts are used to produce the illustrative VAT Assignment £m figure as they are presented on a cash basis. This differs to previous VA publications that used ONS public sector current receipts to produce the illustrative VA figure.

In most years it can be observed that the impact of growth in UK VAT receipts outweighs the impact of any change in the VA share, albeit in 2016-17 the decrease in the VA almost cancels out the growth in UK VAT receipts.

**Chart 2: Growth in the illustrative £m VA figures.**

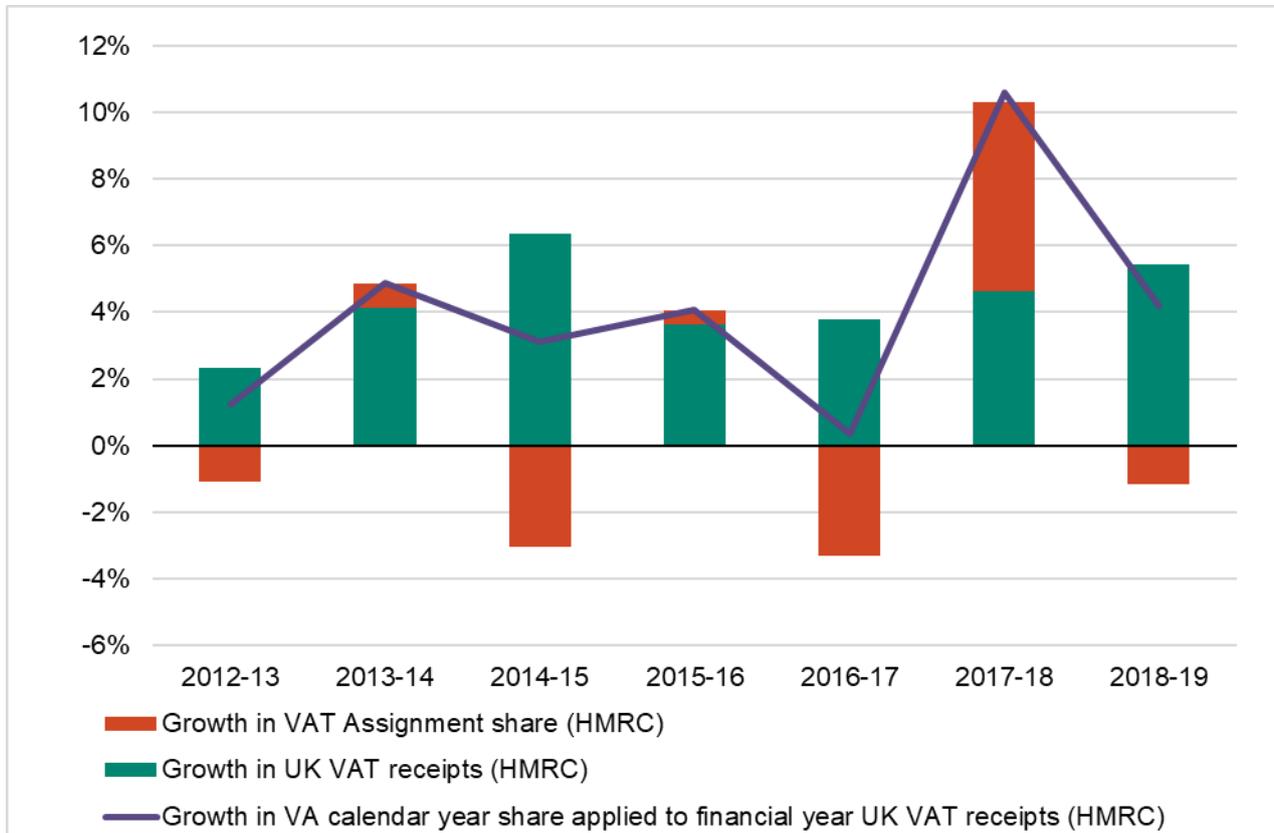


Chart 2 shows comparative growth rates of:

- Growth in UK VAT receipts based on HMRC Total VAT receipts data.
- A growth rate in the VA share produced by the VA model (jointly developed between HMRC, HMT and SG).
- The percentage change in an illustrative cash value of VA, calculated by multiplying the VA share on a calendar basis to HMRC Total VAT receipts on a financial year basis.

## Methodology

A methodology document, [Scottish VAT Assignment: Summary of VAT Assignment model](#), was published in November 2018.

This paper outlines the Scottish and UK Governments' implementation of the assignment of Scottish VAT and details the methodology for calculating Scottish VAT receipts using the Scottish VA model.

The VA model enables the UK and Scottish Governments (SG) to estimate Scottish VAT without creating additional reporting and administrative burdens on businesses. The model is based on HMRC's VAT Total Theoretical Liability model,

which is an internationally recognised methodology for estimating national VAT liabilities. It has been jointly developed between HM Treasury (HMT), HM Revenue and Customs (HMRC) and SG officials and makes use of independent expenditure data.

A detailed methodology paper will be published at a future date, including discussion of limitations, data sources and sampling error associated with input survey data.

It is not possible to measure outturn VAT receipts arising from consumption in Scotland as the information collected by HMRC from businesses, through VAT returns, does not specify the UK region in which goods and services are consumed. Therefore, to calculate the Scottish share of UK VAT, a model is required to calculate the VAT incurred on goods and services which are consumed within Scotland compared with other UK regions.

### **Data sources used within the Scottish VA model**

There are various data sources providing independent expenditure data which are used in the model to estimate consumption in Scotland and other UK regions.

There are a number of areas of expenditure which contribute to UK VAT, with the largest contribution coming from Household spending. The VA model is made up of five spending components and several adjustment components. Each spending component represents an area of expenditure where the final VAT liability is generated.

The five expenditure components are Household, Charities, Central Government, Exempt and Housing. There are also adjustments to ensure VAT rules are applied correctly, for example Unregistered Traders, where an adjustment is made to correct for those traders included in expenditure components that are below the VAT registration threshold. This is included within the adjustment components, where further detail is provided in the annex. Adjustments are made to both Scotland and the rest of the UK.

By multiplying comprehensive components of expenditure in Scotland by their appropriate VAT rates, allowing for any other relevant rules determining liability for tax, we are able to estimate the Scottish share of total UK VAT, and from this value derive the Scottish VA share.

### **The Household component and the LCF survey data**

The Household component is the largest component of the VA model, approximately 70% as shown in Chart 5. The LCF survey is the primary data source used to calculate the Scottish share of UK Household expenditure in the VA model therefore further detail is provided below on this data source. Data from the LCF survey is used to split expenditure by country/region to determine the Scottish proportion of UK expenditure.

The LCF is an annual survey, designed primarily to measure Household expenditure on goods and services. It also gathers information about the income of Household members. Respondents, including children, keep a detailed diary of

expenditure for two weeks, they record the weights and volumes of food and drink items bought, this can be found on the [ONS LCF page](#).

The Scottish proportions of expenditure estimated from the LCF survey are then applied to UK level estimates of Household Final Consumption Expenditure (HHFCE) published by the ONS. The ONS do not publish measurements for the accuracy of the Consumer Trends HHFCE. However, the ONS do publish percentage standard errors for LCF expenditure in the [LCF technical report data tables](#). More information on LCF standard error methodology is available from the [ONS website](#).

The LCF survey data is largely used on a quarterly basis in the VA model. In some expenditure categories where the sample size is small, UK and Scottish Government officials have jointly agreed to reduce the sampling error by using an average of three or more years of survey data to calculate the regional share. This has the effect of boosting the sample size for these categories in order to increase the accuracy of the regional splits.

The averages are simple retrospective averages, for example a three year average for the 2018 share of a particular category includes all quarterly data from 2016, 2017 and 2018.

HMRC and Scottish Government also jointly sponsored a boost to the Scottish sample size of the LCF survey from 2017-18 in order to increase the accuracy of the regional splits for Household expenditure. The sample size achieved in 2017-18 was 723 compared to 360 in 2016-17, detail can found in the [LCF technical report](#).

This boosted sample also included additional regions in Scotland such as the Highlands and north of the Caledonian Canal. The larger 2017-18 responding sample narrows the sampling error and the broader coverage ensures the results are more representative of the Scottish population as a whole.

The sample size achieved in Scotland for the 2018-19 LCF survey was 816, an increase on 2017-18. The 2017 and 2018 VA estimates are based on a larger LCF sample size than the estimates from 2016 and earlier due to the higher sample size achieved in the LCF survey from 2017-18. Due to declining response rates, prior to the boost to the sample size, 2016 represents the year with the lowest response rate in the period covered by this statistical release.

Further detail explaining the methodology and the uses of different data sources will be made available in a separate methodology publication at a future date.

## **Verification Exercise**

The verification exercise focussed on specification testing and detailed audit of the model logic, code and calculations for given data inputs and assumptions. Data inputs and assumptions were checked at source where appropriate, and their appropriate use was verified as part of the model audit.

The VAT treatment of the various goods and services was also reviewed. As a result of the verification exercise some minor amendments were made to the Scottish VA model resulting in revisions to the historic outturn series including the

2017 estimate. The corrections and revisions to the model due to the verification exercise were relatively minor.

## **Quality Assurance**

In 2019 HMRC carried out the comprehensive quality assurance review process on the VA model consisting of a thorough verification exercise and additional scrutiny of key input data sources.

The intensive verification exercise, carried out prior to the publication of the 2017 final estimate, focussed heavily on quality assuring the calculations performed by the VA model and scrutinised key input data sources but did not extensively focus on every single data input. The verification exercise highlighted areas for potential improvement such as further investigation of some assumptions and judgements.

During this transition period the VA model calculations and input data sources are under constant scrutiny for QA purposes. Through ongoing QA of the model, HMRC have introduced an additional modelling change and some amendments to how input data sources are used in the model since the publication of the 2017 final estimate. These changes have impacted the VA share throughout the back series.

## **What are Experimental Statistics?**

Experimental Statistics are Official Statistics which are within their development phase and have been published in order to involve potential users at an early stage in building high quality statistics that meet users' needs. On completion of the development phase HMRC may consider applying to the Office for Statistics Regulation to have these statistics assessed for designation as National Statistics.

The Experimental Statistics label highlights to users that HMRC are still working on further developing the methodologies used in producing these statistics. HMRC will conduct a user survey to learn what can be done to further improve these statistics. In addition, it should be emphasised that the label of Experimental Statistics does not mean that the statistics are of low quality, but it does signify that the statistics are novel and still being developed.

## **Standard rate equivalent (SRE) expenditure**

### **Why do we need this concept?**

VAT is a consumption tax paid on goods and services. There are three main rates of VAT (standard rated (20%), reduced rated (5%), and zero-rated (0%)) and there are also goods and services that are exempt or outside the scope of VAT.

In order to translate expenditure, subject to different rates of VAT, into a common VAT currency, we make use of a concept called standard rate equivalent (SRE) expenditure. Each unit of SRE expenditure represents the same amount of VAT.

This concept is simply a mechanism to reflect the equivalent value of expenditure

if the standard rate of VAT is applied. It is used here in order to make meaningful comparisons across expenditure components for the purposes of understanding the Scottish VA modelling.

### **What is standard rate equivalent (SRE) expenditure?**

SRE expenditure is where expenditure liable to VAT is converted to a standard rate equivalent.

For example, if net expenditure (excluding VAT) of £10.00 is liable to a reduced rate of VAT (5%), gross expenditure would be £10.50 (net expenditure + VAT of £0.50). The standard rate equivalent would be a gross amount that includes the same level VAT, i.e. £0.50 at the standard rate of 20%. The standard rate equivalent would be net expenditure of £2.50, because with a standard rate applied (20%), the VAT would be £0.50, and gross expenditure would be £3.00.

SRE expenditure presented in this publication is all on a gross expenditure basis (i.e. inclusive of VAT).

### **What does this look like for the Household expenditure components that include standard rated, reduced rated and zero-rated expenditure?**

The Household expenditure component is made up of sub-components within the LCF at the classification of individual consumption by purpose (COICOP) level, which have some element of expenditure within them liable to VAT.

For example, the Health component which is a sub-component within Household expenditure, contains goods and services liable to standard rate, reduced rate and zero-rated VAT, as well as goods and services which are exempt from VAT.

Within the Health sub-component all hospital services are exempt from VAT so expenditure in this component is not included in the Scottish VA model.

Expenditure on pharmaceutical products is predominantly standard rated but this component also includes products sold on prescriptions that are zero-rated and smoking cessation products that are reduced rated.

Thus, by converting all expenditure on these separate sub-components of expenditure within Health to SRE expenditure, this removes all expenditure from the model that is zero-rated, converts all reduced rated expenditure to a value 4 times smaller (the equivalent amount of net expenditure which would be liable to the same amount of VAT at the standard rate of VAT i.e.  $20\%/5\% = 4$ ), and includes all the standard rated expenditure, in a common currency.

### **How does SRE expenditure compare to overall expenditure?**

When expenditure is converted to SRE expenditure, the assumptions related to standard rated goods and services across all sectors are applied on a UK basis. Therefore, calculating SRE expenditure does not introduce any regional variation in expenditure in Scotland relative to the rest of the UK (rUK). Using SRE expenditure is a more relevant way of comparing expenditure between Scotland and the rUK for VAT purposes.

### What other adjustments have been made to SRE expenditure?

The Scottish VA estimates presented incorporate all aspects of the Scottish VA modelling including adjustments.

The SRE expenditure analysis presented in Charts 5 and 6 shows the expenditure components before deducting adjustments. This is because adjustments are made at the final stage of the modelling and cannot be incorporated at the component expenditure levels presented below.

### What components of the model are driving movements in the Scottish VA share over time?

**Chart 3: Breakdown of the year on year change in Scottish VA share of UK VAT by Scottish VA model components 2012 to 2018.**

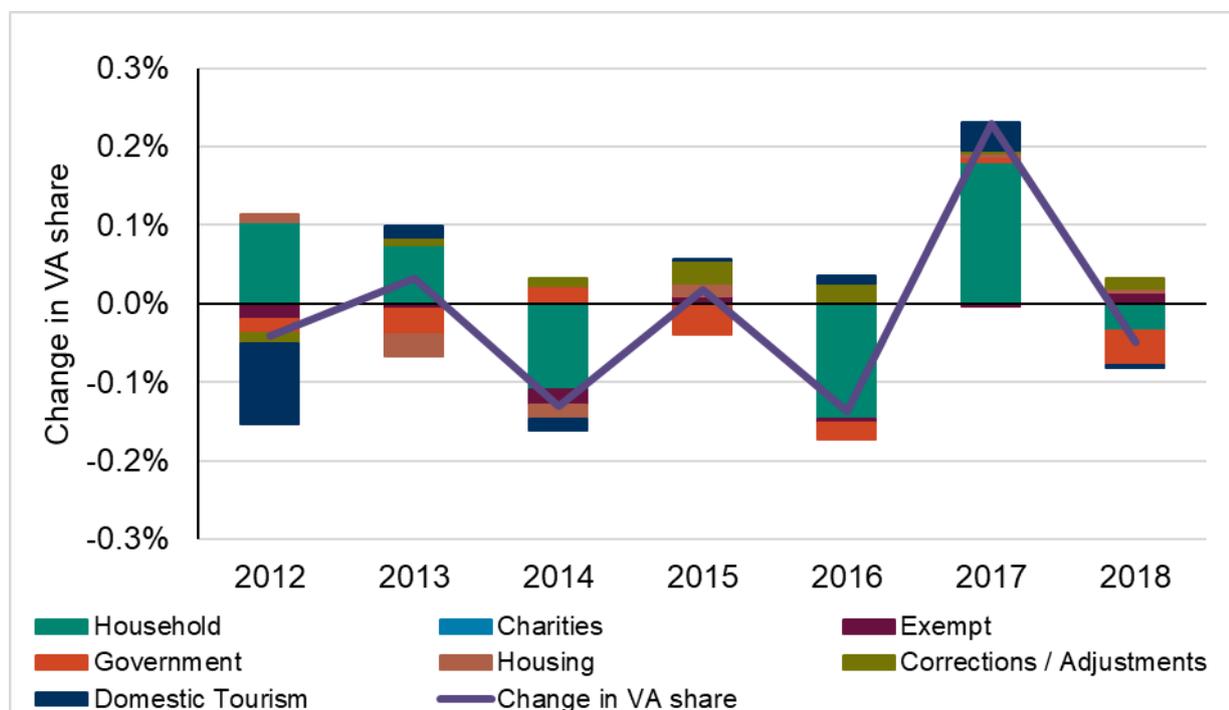


Chart 3 shows the impact that each component of the model<sup>4</sup>, the five expenditure components and adjustments as described above, have on the Scottish VA share over time. Domestic Tourism is shown separately due to the magnitude of its impact on the VA share in 2012. Domestic Tourism is a sub-component of the adjustments made to the model.

The purple line in the chart shows the annual change in the Scottish VA share while the bars show how much each component of the model contributes to the change in the VA share over time.

As the largest sector in the model, any big changes in the Scottish share of the Household sector have a large impact on the VA share, as shown in 2012, 2014,

<sup>4</sup> These components are shown using measures based on standard rated expenditure which is described in more detail in the above “Standard Rate Equivalent Expenditure” section of this publication.

2016 and 2017.

In 2016, the VA share fell by 0.14 percentage points and then in 2017 increased by 0.23 percentage points, in both cases largely due to changes in the Household sector. It is not surprising that the Household sector is the main driver in the change in the VA share in most years as it is by far the largest sector in the model as shown in Chart 5.

In 2017, the Household expenditure bar shown in this graph represents a faster increase in SRE expenditure in Scotland than in the rUK on goods and services that fall within the Household component of the model. The effect of expenditure in this component growing faster in Scotland than in the rUK resulted in an increase in the Scottish VA share of 0.23 percentage points.

In 2018, the VA share decreased by 0.05 percentage points. Chart 3 shows that this slight decrease in the share is the net result of negative growth in SRE expenditure in the Household, Government, and Domestic Tourism sectors in Scotland, relative to rUK, offset against the positive growth in SRE expenditure in all other sectors in Scotland, relative to rUK.

**Chart 4: Scottish share of UK total household expenditure per the LCF survey data compared to the Scottish SRE share of total UK SRE household expenditure derived in the VA model.**

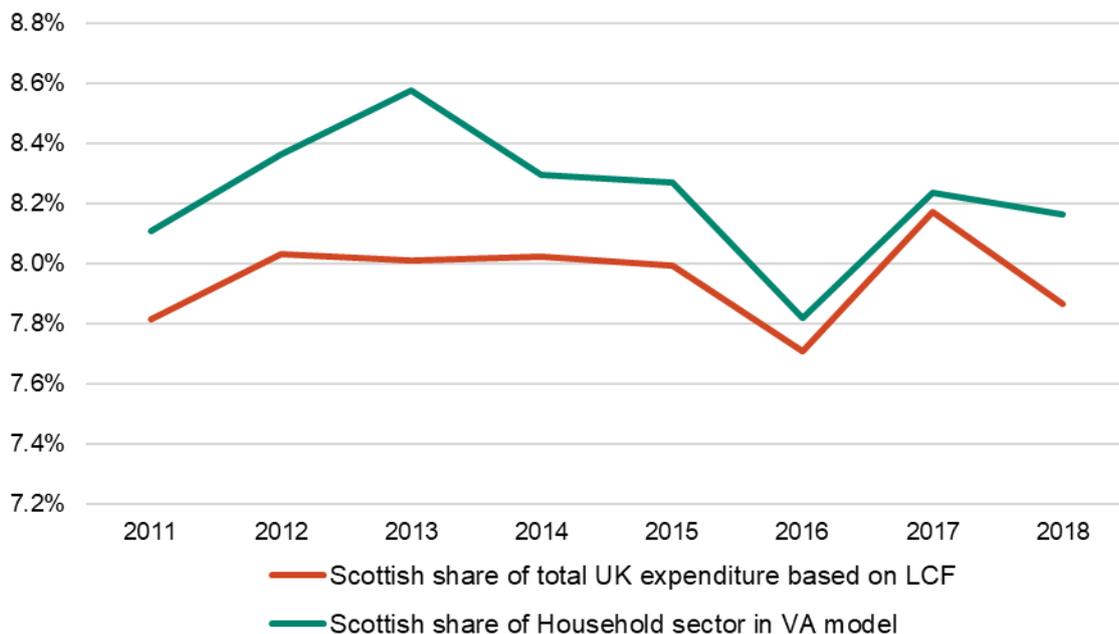


Chart 4 presents the Scottish share of total UK household expenditure per the LCF survey data (orange line) compared to the Scottish SRE share of UK SRE household expenditure derived using the VA model (green line). The VA model focuses on categories of expenditure which are subject to VAT and translates these into SRE currency, while the LCF survey data provides the raw data before any of these adjustments.

The LCF is one of many data sources the VA model uses to calculate the Scottish SRE share of UK household expenditure. The LCF is used to regionalise a large amount of the Household sector in the VA model, meaning the LCF has a substantial influence on the VA Household share and the final VA share.

Chart 4 shows that the Scottish SRE share of UK SRE household expenditure from the VA model follows a similar trend as the Scottish share of total UK expenditure based on the LCF, notably the decrease in 2016 and increase in 2017. The changes in the Scottish share of UK total expenditure depicted by the LCF indicate that the underlying LCF data is largely driving the changes in the Scottish household share in the VA model, which subsequently is driving the VA share.

In 2018, the decrease in the Scottish share of total UK expenditure based on the LCF is reflected in the Scottish SRE share of UK SRE household expenditure from the VA model, but to a lesser extent. Only selected expenditure variables from the LCF are used in the VA model and are therefore reflected in the VA Household share.

Other data sources are used to estimate the remaining household categories that aren't based on the LCF. Variations in the trend of the LCF categories excluded from the model, both liable and not liable to VAT, and the trend in the non-LCF categories in the VA model explain the differences between the Scottish share of total expenditure based on the LCF (orange line) and the Scottish share of the Household sector in the VA model (green line).

The data points presented in this series have associated confidence intervals meaning the estimates could vary from what is currently shown. A detailed methodology paper will be published at a future date including discussion of limitations, data sources and sampling error associated with input survey data.

## Breaking down Expenditure components in the Scottish VA Model

Chart 5: Breakdown of total SRE expenditure by sector, 2018 (figures are rounded to the nearest 1% so may not add up).

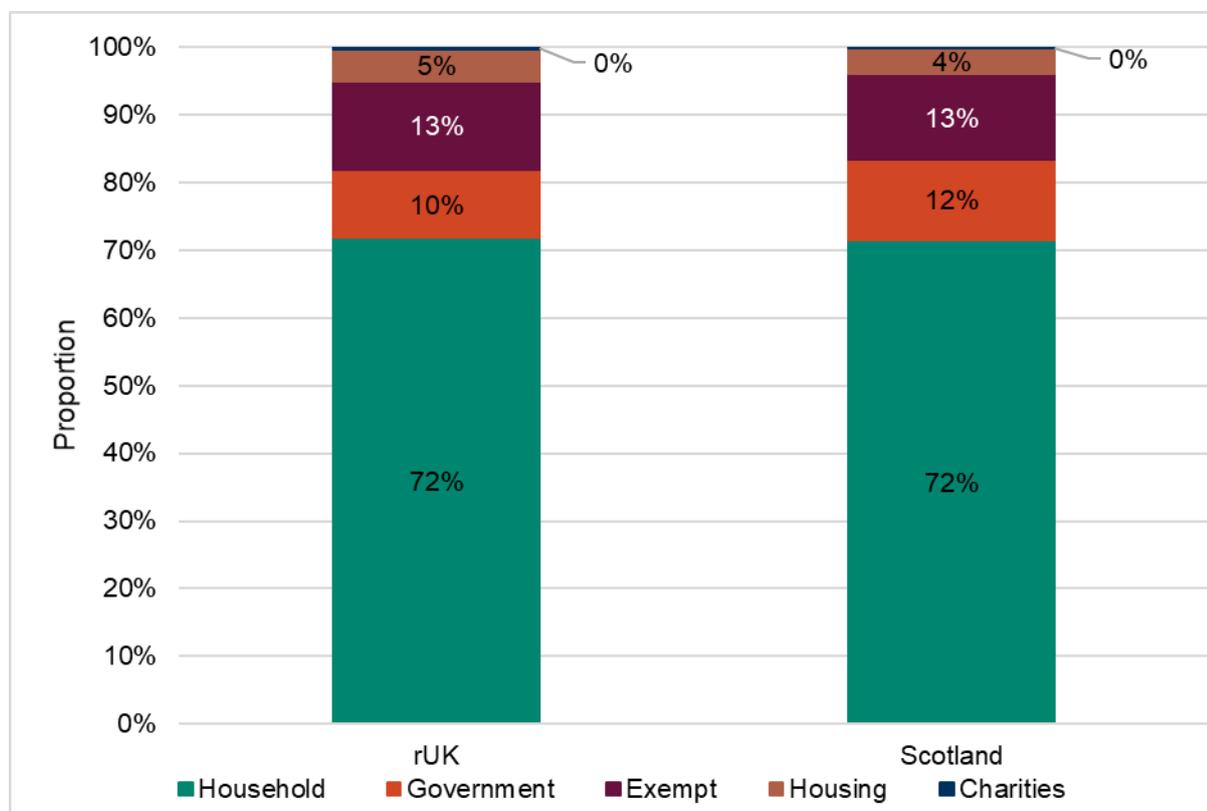


Chart 5 represents the total SRE expenditure estimated in Scotland and rUK before adjustments are taken into account. It shows the breakdown of SRE expenditure by expenditure components in 2018.

In 2018 the composition of the high level expenditure component in Scotland and the rUK appears to be very similar. The Household expenditure component accounts for the largest proportion of SRE expenditure, around 70%. With the Government and Exempt expenditure components each accounting for approximately 10-13%. The Housing expenditure component accounts for 4-5% whilst Charities makes up <1%. These weights do not vary much between years.

**Chart 6: Breakdown of total SRE expenditure in Scotland by sector over time.**

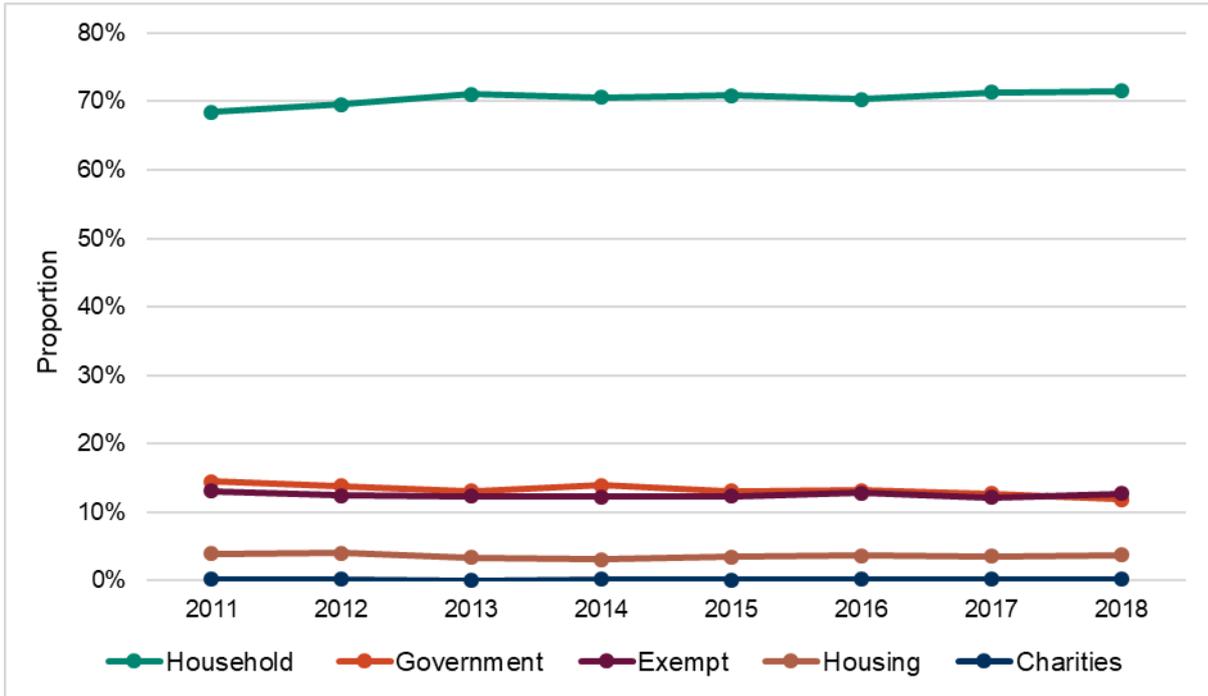
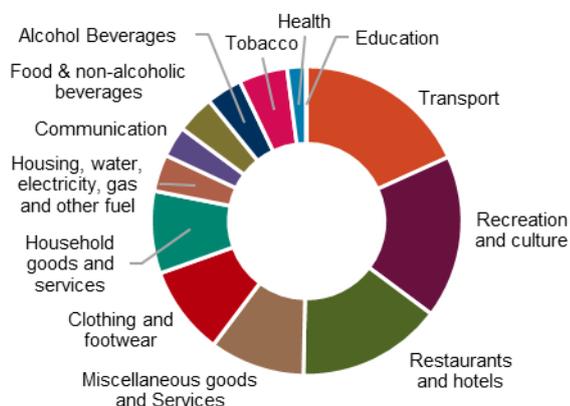


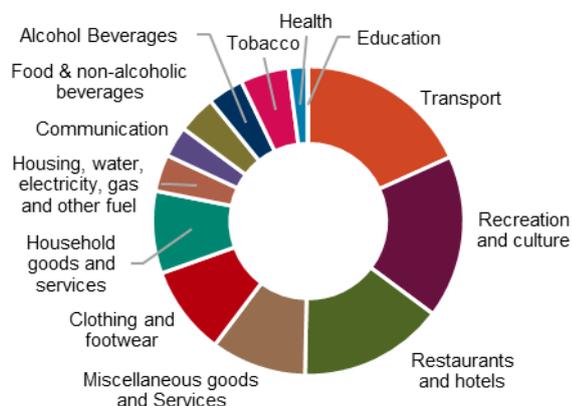
Chart 6 displays a time series of the breakdown in expenditure components of total SRE expenditure in Scotland, before adjustments. The time series shows limited variability in the components of SRE expenditure in Scotland from 2011 to 2018.

## Household SRE expenditure

**Chart 7: Household SRE expenditure in Scotland, 2018.**



**Chart 8: Household SRE expenditure in the rest of the UK, 2018.**



The SRE expenditure shown in these charts is at ONS COICOP level 1, apart from Tobacco, where expenditure has been depicted at a lower COICOP level to show the difference between Scottish and rUK expenditure on Tobacco as a percentage of total Household SRE expenditure.

Household SRE expenditure patterns appear broadly similar in Scotland and in the rUK. In 2018, expenditure on Tobacco deviates the most as a proportion of total SRE expenditure, between Scotland and the rUK, accounting for a 2.1% larger share of SRE expenditure in Scotland than the rUK. This is in keeping with statistics published by the ONS on [tobacco consumption](#), suggesting a higher proportion of the population in Scotland consume tobacco products relative to the rUK.

Recreation and Culture, Restaurants, Hotels and Transport are the next largest differences in relative expenditure component size between Scotland and the rUK, each accounting for approximately a 1% larger share of rUK SRE expenditure than in Scotland.

## Publication timeline

- HMRC is committed to providing impartial quality statistics that meet our users' needs. We encourage our users to engage with us so that we can improve our statistics and identify gaps in the statistics that we produce. Users can send us their thoughts and suggestions via this email address: [modelscottishvatassignment@hmrc.gov.uk](mailto:modelscottishvatassignment@hmrc.gov.uk)

### Future plans:

- We had initially proposed a provisional timetable to release two publications on Scottish VA each year. The first being an interim provisional estimate in Spring, and a final provisional estimate by the end of Autumn. The publication timeline is provisional and reliant on input data sources from the ONS amongst other providers, to be published to their usual timetables. If there is a delay in the publication of these input data sources, we will need to consider if this will delay the release of our publications. This is to allow for the required level of quality assurance to release these estimates as Official Statistics.
- In October 2020 the UK and the Scottish Government agreed that a new implementation date will be established as part of the review of the Scottish Government's Fiscal Framework. During the extended transition period the publication timeline will be considered fully by stakeholders and therefore future publication plans are to be confirmed.
- We welcome users feedback on our proposed timeline for future publications.

## Annex 1

This statistical release focuses on the main expenditure components which contribute to the vast majority of the VA share. The model also includes adjustment components to accurately reflect different rules and exemptions in the VAT system.

The adjustments ensure the impacts of expenditure on VAT accurately reflects the VAT system currently in place. They are applied on a regional basis to the total SRE expenditure to account for expenditure by Unregistered Traders, Do-It-Yourself (DIY) Builders, Prostitution, Domestic Tourism, Museums and Galleries, Retail Export Scheme, Place of Supply and Government Departments Contracted Out Services.

For example adjustments are required for unregistered traders. Traders with annual VAT taxable turnover (turnover of non-exempt goods and services) below the VAT registration threshold (£85,000 in 2018-19) are not liable to register for VAT, and are not able to reclaim VAT on inputs.

As the expenditure data is largely based on surveys this will not specify if expenditure is on goods and services from a business above or below the VAT threshold. For simplicity the model starts by assuming the expenditure data relates to purchases from businesses above the VAT threshold.

In order to adjust for expenditure by unregistered traders, a negative adjustment must be made to Household expenditure, as no VAT will be paid by households on sales from these unregistered traders, and a positive adjustment must be made to the intermediate current expenditure to capture the amount of 'stuck' VAT that is paid on the inputs of these traders, which they are unable to reclaim.