

Information Paper

Methodology change to the UK Non-Financial Business Economy, 2013 Regional Results (Annual Business Survey) - publication due 23rd July 2015

Correction note

Version 2 of this paper was published in July 2015 to correct the column headings in table 1.

Executive Summary

The Annual Business Survey (ABS) will introduce a new Purchases Apportionment Methodology for the 2013 Regional Publication. This methodology ensures additivity of the components of the purchases total at the local unit⁽¹⁾ (LU) and therefore regional level. The new method will be applied to both the 2012 revised and 2013 data included within the publication. The changes only impact on the ABS Regional publication results and do not impact on the National publication results.

This article provides details of the reason behind this change, highlighting the specific methodological changes and the impact this has on the results in advance of the upcoming release.

Background

Methodology

Over time user requirements for purchases additivity and subsequently more reliable component estimates has evolved. Currently it is not possible to aggregate the purchases components to the total figure at the LU level and to address this issue the ABS has investigated various options. This issue (and planned change) has been under discussion with the ABS Government User Group since November 2013 with the latest update in November 2014 (see [item 9.2 of the published minutes](#)), with the plan to implement this new method as part of the UK non-financial business economy 2013 Regional release.

Previous Method

- The ABS Regional apportionment methodology used in Regional results published prior to the 23rd July 2015 has used regression weight modelling where all purchases variables (totals and components) have been apportioned independently with no re-derivation of the total purchases from the sum of its components taking place. Further information on regression weight modelling and the regional methodology used can be found within the [ABS technical guide](#).
- As a result of applying the regression weight modelling to each component and the total independently, when the components are aggregated these do not match the total purchases figure at the local unit level. This was an issue for some industries and regions more than others. (See Table 1, column A for an example).

- Users of Annual Business Survey (ABS) regional data have been aware of the regression model being used and the lack of additivity and have always been advised to use component data with caution.

New Method

- The new methodology ensures additivity by using the apportionment weight of the total purchases for all component purchases variables and re-deriving the total purchases from the sum of component parts (See Table 1, column B for an example).
- A similar issue, around the time of the ABS 2005 inquiry, was addressed with regard taxes and component totals to ensure additivity at the LU level. Following a review it was decided that a similar methodology to that detailed in this paper for purchases should be applied for all taxes components from this time forward providing consistency across variables.
- Various methods were tested with the adopted method achieving the combined goals of purchases additivity and reducing the volatility in the value of total purchases (and as a result that of approximate Gross Value Added (aGVA) to which purchases is a major component⁽²⁾) from that produced by the original method.
- This has allowed for a balanced reconciliation to take place with both the component and total purchases values having the potential to change at LU level.
- The new method provides more consistent estimates but it is not advocated as better in terms of quality than the non additivity method previously used as the total purchases figure is sub-optimal as it is now derived from the sum of the components. The aim of this change was to achieve the purchases additivity and improve component usability whilst continuing to provide robust estimates whilst minimising the change in data produced by the original method.

Table 1: Example of the impact of the change of Purchases methodology - Betting & Gaming industry (division 92)

UK Non-Financial Business Economy, 2012 (ref: 23 July 2015 Regional release)	A. Original method £bn	B. New Method £bn
Total purchases (after apportionment)	75.1	75.2
Sum of components	75.6	75.2
Goods and materials	0.1	0.1
Goods for resale	0.1	0.1
Industrial services	-	-
Hiring and leasing	0.0	0.1
Commercial insurance premiums	0.0	0.0
Road transport services	0.0	0.0
Telecommunications services	0.1	0.1
Computer services	0.1	0.1
Advertising services	0.5	0.5
Other services	0.8	0.9
Sub contractors	0.1	0.1
Amounts payable to winning customers	73.7	73.1
Energy for own consumption	0.1	0.1
Water	0.0	0.0
Employment agency staff	0.0	0.0
Services for resale	0.0	0.0
Sewerage costs	0.0	0.0
Parts used for repair	-	-
Other services (insurance forms only)	-	-
Costs linked directly to policies	-	-
Water transport services	-	-

Advantages of the new method

- Achieve the user need to have purchases components that add to total purchases;
- Achieve the user need for more useable component data;
- Zero impact on purchases totals at the UK level when Section K part (Insurance & Reinsurance) is included, and minimal impact when it is excluded⁽³⁾ (refer table 2 below).
- Minimal impact for the large majority of sectors within regions;
- Match the method already in place for total taxes within the ABS regional methodology.

Disadvantages of the new method

- Allocates according to the total purchases weight, which sometimes means allocations of purchases components may be inappropriate, for example, purchases could be allocated to services for resale in some production sector industries;
- The new method will result in a break in the ABS regional series. 2008 to 2011 will remain on the original method, while 2012 revised results onwards will be produced on the new method. However, an impact analysis has shown the change in method will only have a small impact on the results.

Analysis of the impact due to the methodology change

The new methodology has minimal impact overall with no change at the UK total level when Section K part (Insurance & Reinsurance⁽³⁾) is included, although some industry sectors at a regional level show a greater change than others.

Regional

Table 2 column A details the percentage change in purchases for each region in the Non-Financial Business Economy (excluding division 65 which is why there is a small change at the UK level) due to the new methodology.

The impact at the total regional level was small, with the largest percentage change for total purchases being seen in the North East (1.1% change in total purchases) and the South West (1.1%).

Industry

For the majority of industrial divisions there is a minor impact (less than 3%) at the total division level as a result of this methodology change. Changes for each division at the region level can be more pronounced in some cases but for the majority the impact is also minor. A full breakdown of the impact of the methodology change for each region by division will be included as part of the Regional ABS release on the 23rd July 2015.

The industry impacted by the change to the greatest degree for purchases (and subsequently aGVA⁽²⁾) was 'Betting & Gaming (SIC 92) (refer Table 2 column B). The 'Insurance & Reinsurance' industry (SIC 65) was also impacted to a similar level, however, figures for this industry are not included within the ABS results as detailed in the ['Removal of data for the Insurance and Reinsurance industry from the Annual Business Survey 2012 release'](#) note (October 2013 entry), due to ongoing volatility in data responses.

These industries were expected to be impacted the most as both industrial sectors have unique purchases component questions (eg 'Payments to winning customers' for division 92 'Costs linked to policies' for division 65,) which in the majority of cases also attract the largest share of the overall total purchases for these industries. As identified above, under the previous method the apportioned values for these unique variables was not always accounted for effectively in the total purchases value. This was because their individual apportionment weight could vary

significantly from that of the total purchases apportionment weight and the total purchases was not being re-derived from the sum of component parts.

Table 2 – Impact of the change of Purchases methodology at the total regional level and the Betting & Gaming industry (division 92)

UK Non-Financial Business Economy, 2012 (ref: 23 July 2015 Regional release)	A. % change in total purchases by region	B. % change in total purchases by region for division 92
UK *	0.1	0.2
North East	-1.1	-36.2
North West	0.0	-9.2
Yorkshire and The Humber	-0.1	-4.8
East Midlands	-0.9	-51.8
West Midlands	-0.9	-6.0
East of England	0.2	-4.9
London	0.7	47.9
South East	0.8	6.9
South West	-1.1	-47.4
Wales	-0.4	-42.0
Scotland	-0.9	-29.4
Northern Ireland	0.0	-1.3

* the reason for a change at the national level is due to the apportionment and subsequent removal of the 'Insurance & Reinsurance'⁽³⁾ industry from the results

Further Information

Results for 2012 revised and 2013 produced using the new methodology will be published on 23rd July 2015. As a result of this change users should take care when comparing 2012 and 2013 purchases and aGVA estimates with 2011 and earlier periods.

The changes highlighted in this report purely show the impact due to the change in methodology but do not identify any changes due to the normal revision process.

The ABS consulted with Government Users of the data who have responded positively to the minimal changes in general. These users have concluded that any negative impact has been far outweighed by the positive impact following the introduction of the new method.

Your Views Matter

We are constantly working to improve and develop ABS outputs. We would welcome any feedback you might have, and would be particularly interested in knowing how you make use of these data to inform your work. Please contact us via email: abs@ons.gsi.gov.uk or telephone Jon Gough on +44 (0)1633 456720.

Footnotes:

- ⁽¹⁾ Local unit refers to each individual site within each reporting unit structure.
- ⁽²⁾ Purchases is a component of aGVA. Further information regarding aGVA components and the Calculation of approximate Gross Value Added estimates in ABS can be found within the [ABS technical guide](#).
- ⁽³⁾ Data for a small part of the Financial and insurance sector (Insurance & Reinsurance only (SIC 65.1 and 65.2)) has been collected by the ABS since 2008 and was previously included in the results. However, following discussions with key users, ONS decided to remove this experimental series from ABS releases for the reference year 2012 onwards due to the continued volatility of the data.

Although the estimated total for the UK Business Economy in the regional ABS results is constrained to equal that in the corresponding national ABS results, the published totals for the UK Non-Financial Business Economy will not now be the same following the removal of data for the Insurance & Reinsurance industries (Groups 65.1 and 65.2) from the regional results after apportionment has taken place. For example an enterprise contributing wholly to Insurance & reinsurance at a national level (and therefore removed from the national totals) may have local sites in other industries which will still contribute to the regional totals. Likewise, an enterprise contributing wholly to the Distribution sector (and therefore included in the national totals) may have a local site in Insurance & reinsurance whose contribution will be removed from the regional totals.