



Department
for Work &
Pensions

Technical Note: Monthly Early Estimates of Income Support Lone Parent's (ISLP) and Employment and Support Allowance (ESA) and Incapacity Benefits Client Groups

Updated February 2017

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Background

1. National Statistics are produced quarterly and these include the numbers in the ESA and incapacity benefits and Income Support Lone Parent's working age client groups². These figures are usually released five to six months after their reference period, for example the end May figures are published around mid November. The time delay in the National Statistics enables all late cases to be captured (retrospection) and the National Statistics represent the finalised figures. ESA was introduced on 27th October 2008.
2. The economic downturn meant that there is considerable interest in producing earlier, albeit estimated, figures that can be released publicly. A phased approach to the production of such figures was adopted. We first released early estimates as "Official Statistics" using a simple methodology in June 2009. The second phase of the work looked to improve the methodology, both in terms of the base information used for the estimation processes and the actual estimation methodology. The second phase of the work was introduced from January 2010.
3. The early estimates are published on a monthly basis and will be published approximately five to six weeks in arrears. For example in mid March we will publish early estimates for the end of January and this pattern of publication will continue on a regular basis. The monthly publication will coincide with the release of the ONS Labour Market Statistics.
4. The methodology is based on scans from the Income Support computer system and Pensions computer system (GMS scans). The scans pick up 'live in payment' cases at regular extract points. The Income Support and ESA data is available weekly but the incapacity benefits data is only available on a six weekly cycle.
5. These early estimates are an indication of how numbers on key inactive benefits have changed since the last National Statistics release. We will not know the true caseload until the quarterly National Statistics are published approximately five to six months later. The scans only tell us which cases are on the system at a particular point in time and do not include 'new' cases which may not yet have been input onto the system.

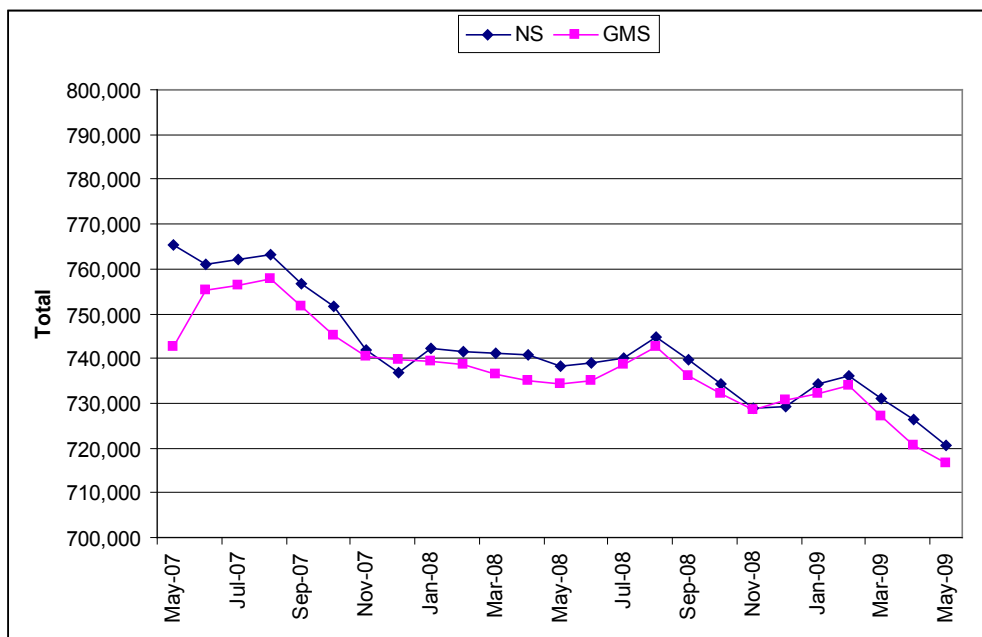
- There is no intention to revise the monthly estimates. When the relevant quarterly statistics are published as National Statistics these will be the finalised figures.

Methodology

Working Age Income Support Lone Parent's client group

- GMS scans for Income Support are received weekly and include some Northern Ireland and abroad cases which we removed. We then selected customers who had no partner and at least one child from the scan nearest the end of the month. As the scans are weekly this means that we can have up to three days extra or three days short of a complete month.
- We created a monthly time series, from May 2007, of caseloads from the GSM scans and from the monthly National Statistics (which were created based on the same methodology as the released quarterly National Statistics to support the early estimates).

Figure One: GSM caseload against NS caseload for ISLP



- Figure One illustrates that the Income support Lone parent's data caseload from GSM is very close to the monthly National Statistics caseload.
- The ratio between the National Statistics and GSM was computed for each month from May 2007 through to the most recent month for which monthly National Statistics were available i.e. May 2009. These monthly ratios were then combined to produce monthly weighting factors used to up rate the raw figure. The monthly weighting factor is then applied to the weekly

GMS scan which is closest to the end of the month and this gives a monthly early estimate of the caseload.

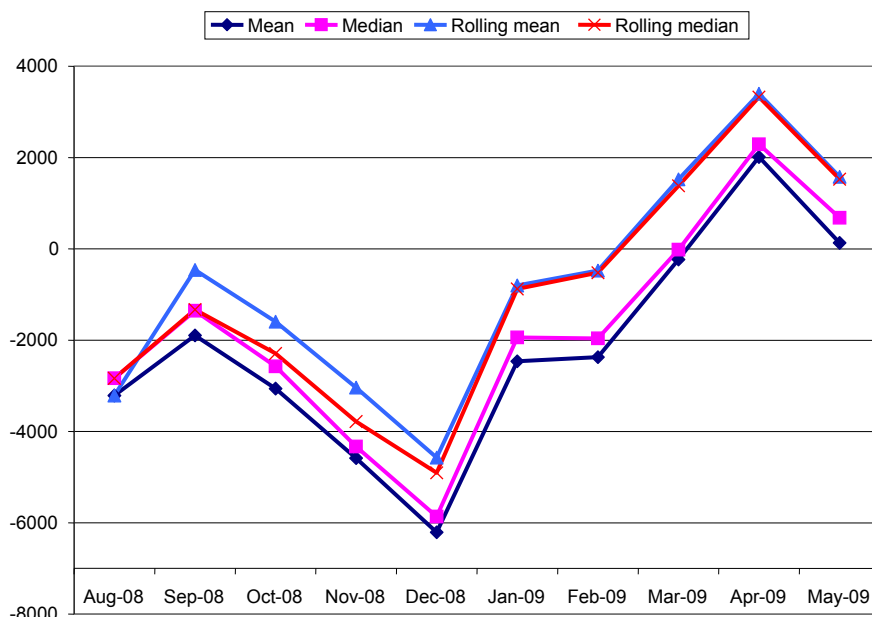
10. Various methods for calculating the monthly weighting factor were tested:

- i. Overall mean of all ratios
- ii. Overall median of all ratios
- iii. 12 month rolling mean of ratios (working four months ahead)
- iv. 12 month rolling median of ratios (working four months ahead)

For the rolling averages we have used a four months ahead method as the latest monthly National Statistics are four months behind the month we are estimating. This means, for example, we can obtain a monthly weighting factor for November 2009 based on monthly data up to July 2009.

11. Monthly estimates for the monthly National Statistics caseloads were calculated and the difference, between the monthly National Statistics and the estimates, defined as the error term. The magnitude and distribution of the error terms were then used to determine which weighting factor was most appropriate. Figure Two shows the plotted differences between the monthly National Statistics and the estimates produced by each method and all are very similar.

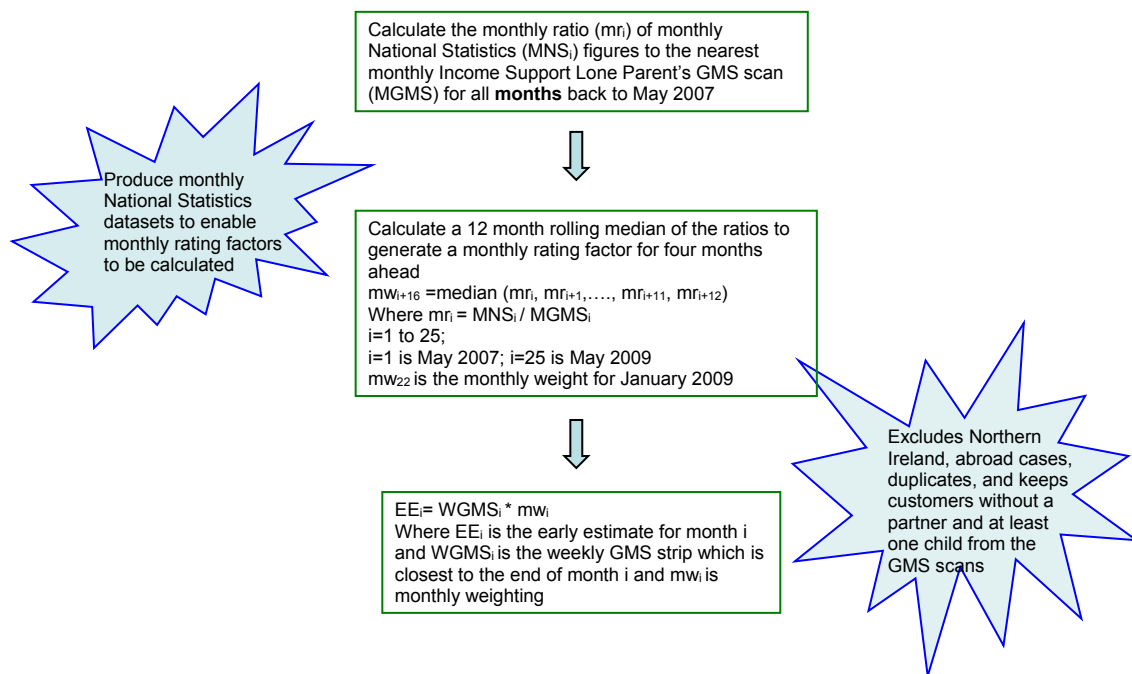
Figure Two: Differences between NS and estimates of ISLP



12. Descriptive statistics were computed for the error terms and based on these the 12 month rolling median was identified as the best approach. This was on the grounds that it minimised maximum errors and average absolute errors. The median is more robust to 'oddities' in the data and will reduce the effect of any unusual spikes in the data on subsequent estimates and a rolling rating factor uses the most recent data; preferable when the climate is changing as it is now.

13. The monthly weighting factor for November 2009 is calculated by taking the median of rating factors for the 12 months August 2008 – July 2009. The early estimate for November 2009 is then the caseload on the GMS scan nearest to 30 November multiplied by the November 2009 weighting factor. The estimate for December 2009 is the GMS scan caseload nearest to 31 December multiplied by the December 2009 monthly weighting - the median of the rating factors for the 12 months September 2008 – August 2009. Estimates are published rounded to the nearest 5,000.
14. To give an indication of the accuracy of the early estimates we will be giving the average revision between the early estimate and final National Statistic over the past 12 months, and supplementing this with the range of revisions observed.

Figure 3: Summary for working age Income Support Lone Parent Client group



Working Age Employment and Support Allowance / Incapacity Benefits Client Group

15. The methodology for ESA / incapacity benefits is essentially the same as that for Income Support Lone Parent's but differences in the data feeds requires a slightly modified approach. GMS scans for incapacity benefits are received on a six weekly cycle and hence do not coincide with month ends. The worst case scenario occurs in cases such as that for 31 December 2008 where the nearest scans are 5 December 2008 or 22 January 2009. Depending on which scan is used makes a difference, to the early estimate caseloads for December 2008, of around 54,000.
16. An approximation to the six weekly incapacity benefits caseload has been made. The approximation adjusts the scan caseload by the number of working days for which the scan date and end of month date do not

coincide. This figure is then multiplied by the average daily change in caseload. The average change in caseload is the difference in caseload between the scan being used and the previous scan divided by the number of working days between scans.

17. Monthly ratios of monthly National Statistics figures to GMS scan data for all months from May 2007 to May 2009 were calculated and used to derive 12 month rolling medians as weighting factors - as for Income Support Lone Parent's. For November 2008, and for all subsequent months, the incapacity benefits scan data is combined with ESA scan data to produce a combined ESA / incapacity benefits figure for the ratio of monthly National Statistics to GMS scans. ESA was introduced at the end of October 2008 and we have weekly scans. The ESA scan closest to the end of the month has been combined with the adjusted incapacity benefits caseload for the end of the month.
18. There is an additional document of Questions and Answers covering similar ground to this document.
19. Appendix A includes tables showing the historic Quarterly National Statistics used in the creation of both sets of early estimates and what the early estimates for these quarters would have been based on the methodology described in this document.
20. Appendix B briefly describes the differences between the phase two and the phase one methodologies. The phase one methodology was used to produce early estimates for June – October 2009. The technical document for the phase one methodology can be found at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204838/tech-doc-early-estimates-working-age-inactive.pdf
21. Appendix C includes a table showing the accuracy of the published early estimates compared to the final Quarterly National Statistics for the same period.

Appendix A

Below are tables showing the historic published National Statistics used in the creation of these early estimates and what the early estimates for these quarters would have been using the methodology described above.

National Statistics are published rounded to the nearest 10 and the early estimates rounded to the nearest 5,000. Percentage differences in the tables below have been calculated using unrounded figures.

Income Support Lone Parent's Client Group

Date	National Statistic	Early Estimate	Percentage difference between Estimates and National Statistics
31-Aug-08	744,680	745,000	-0.4
30-Nov-08	728,980	735,000	-0.5
28-Feb-09	736,040	735,000	-0.1
31-May-09	720,480	720,000	0.2

Employment and Support Allowance and Incapacity Benefits Client Group

Date	National Statistic	Early Estimate	Percentage difference between Estimates and National Statistics
31-Aug-08	2,590,610	2,600,000	-0.3
30-Nov-08	2,605,510	2,605,000	0.1
28-Feb-09	2,603,540	2,600,000	0.1
31-May-09	2,621,430	2,615,000	0.3

Appendix B

Following the phase two investigations the methodology developed in phase one, of using a rating factor computed from the ratio between the National Statistics and the GMS caseloads, was found to be the most accurate method when used with monthly data. Other methods tested were a simple linear regression model and linear regression models including other variables that it was felt might help to explain some of the difference between the National Statistics and the GMS scan caseloads. The main changes between the phase one estimates and the new phase two estimates are listed below:

- The approach uses monthly time series, with the extra figures being generated using the same methodology as the published quarterly National Statistics
- The rating factors are now 12 month rolling medians calculated four months ahead
- Monthly estimates are now rounded to 5,000 which reflects the increased accuracy achieved with the improved methodology
- Rather than presenting the early estimates with a range within which we expect the final National Statistic to lie, we now give an indication of the accuracy of the early estimates by reporting the average revision between the early estimate and final National Statistic over the past 12 months, and supplement this with the range of revisions observed.

Appendix C

Accuracy of Early Estimates Compared to Quarterly National Statistics

The tables below show the percentage difference between the monthly early estimates and the corresponding quarterly National Statistics figures which are the final figures for the period. National Statistics are published rounded to the nearest 10 and the early estimates rounded to the nearest 10,000. From November 2009 onwards the early estimates will be rounded to the nearest 5,000. Percentage differences in the tables below have been calculated using unrounded early estimate figures.

Income Support Lone Parent's Client Group

Date	National Statistic	Early Estimate	Percentage difference between Estimates and National Statistics
31-Aug-11	595,290	590,000	-0.50
30-Nov-11	581,620	580,000	-0.08
29-Feb-12	584,170	580,000	-0.44
31-May-12	577,080	575,000	-0.14
31-Aug-12	545,240	545,000	0.23
30 Nov-12	510,060	510,000	0.12
28-Feb-13	504,890	505,000	0.01
31-May-13	499,730	500,000	-0.21
31-Aug-13	497,540	500,000	0.10
30-Nov-13	485,000	485,000	0.15
28-Feb-14	480,090	480,000	0.11
31-May-14	474,730	475,000	-0.19
31-Aug-14	470,820	470,000	0.20
30-Nov-14	455,530	455,000	0.16
28-Feb-15	448,110	450,000	0.37
31-May-15	441,620	440,000	0.05
31-Aug-15	437,380	440,000	0.43
30-Nov-15	424,560	425,000	0.20
29-Feb-16	420,340	420,000	-0.04
31-May-16	416,490	415,000	-0.22
31-Aug-16	414,700	415,000	-0.17

Employment and Support Allowance and Incapacity Benefits Client Group

Date	National Statistic	Early Estimate	Percentage difference between Estimates and National Statistics
31-Aug-11	2,582,180	2,570,000	-0.53
30-Nov-11	2,575,600	2,565,000	-0.36
29-Feb-12	2,557,680	2,550,000	-0.39
31-May-12	2,528,140	2,520,000	-0.27
31-Aug-12	2,517,070	2,500,000	-0.68
30 Nov-12	2,499,960	2,485,000	-0.61
28-Feb-13	2,475,670	2,470,000	-0.29
31-May-13	2,456,470	2,455,000	-0.01
31-Aug-13	2,440,800	2,430,000	-0.34
30-Nov-13	2,456,360	2,465,000	0.40
28-Feb-14	2,459,310	2,465,000	0.18

31-May-14	2,470,210	2,480,000	0.49
31-Aug-14	2,508,080	2,520,000	0.38
30-Nov-14	2,520,270	2,520,000	0.05
28-Feb-15	2,533,220	2,530,000	-0.06
31-May-15	2,521,170	2,525,000	0.19
31-Aug-15	2,512,090	2,515,000	0.07
30-Nov-15	2,498,790	2,495,000	-0.17
29-Feb-16	2,485,330	2,485,000	-0.10
31-May-16	2,471,320	2,470,000	-0.04
31-Aug-16	2,466,490	2,460,000	-0.23

1 Version two of technical document

2 Benefit claimants are assigned to a client group based on a hierarchy. A person who fits into more than one category will only appear in the top-most one for which they are eligible. The hierarchy is shown below:

- Job Seeker: claimant on Jobseekers Allowance;
- Employment and Support Allowance and Incapacity Benefits: from November 2008 the "incapacity benefits group" includes Employment and Support Allowance (ESA). ESA replaced Incapacity Benefit and Income Support paid on the grounds of incapacity for new claims from 27th October 2008. Prior to this the "incapacity benefits group" referred to claimants of Incapacity Benefit or Severe Disablement Allowance including people claiming IS on the grounds of Incapacity.
- Lone Parent: claimant on Income Support with child under 16 and no partner;
- Carer: claimant entitled to Carer's Allowance;
- Other Income Related Benefit: claimant on Income Support or Pension Credit;
- Disabled: claimant on Attendance Allowance or Disability Living Allowance;
- Bereaved: claimant on Bereavement Benefit or Widow's Benefit;
- Claiming State Pension only: claimant on State Pension.