

# Seasonal adjustment review of the claimant count series

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## Key points

- ONS has conducted its annual review of seasonal adjustment of the monthly claimant count series and made subsequent revisions.
- A few modifications have been made to the model settings and Easter prior adjustments, and the series have been revised back three years in light of these amendments and the routine updating of the seasonal factors.
- Revisions to the series are generally small.
- New seasonally adjusted series of claimant count stocks by age and duration have been introduced.

***This article explains revisions to the seasonally adjusted claimant count arising from this year's seasonal adjustment review, and introduces new seasonally adjusted series by age and duration.***

## Introduction

THE CLAIMANT count series, like many time series, are difficult to analyse using the raw data because short-term movements are dominated by seasonal effects. The series are therefore seasonally adjusted by identifying and removing the seasonal component, leaving the trend and irregular components.

The monthly claimant count series include stocks, inflows and outflows for men and women for 12 Government Office Regions. Every year, the seasonal adjustment of the claimant count is reviewed (see pp257-9, *Labour Market Trends*, May 2003 for the previous annual review). This involves looking at each series individually to determine the type of adjustment to be used, identifying the seasonal pattern, and investigating any other effects in the data that are not strictly seasonal. Factors used to adjust for the seasonal pattern are updated monthly by the adjustment

program. Other effects in the series that are not strictly seasonal have to be investigated and quantified outside the program.

The program used for the seasonal adjustment is X-11 ARIMA, which is detailed in *Box 1*.

As part of this year's review, ONS has introduced a new set of UK stocks series, seasonally adjusted by age and duration.

### Box 1 Seasonal adjustment using X-11 ARIMA

Seasonal adjustment is the process of identifying and removing the seasonal component from a series leaving the trend and irregular components.

The program used for seasonal adjustment throughout ONS and most of the Government Statistical Service is X-11 ARIMA. The program splits the series into trend, seasonal, and irregular components. If the series is modelled additively, summing the three parts gives the unadjusted data. If it is modelled multiplicatively, the raw data are the product of the three components. The seasonal component cannot be found without knowing the trend component, yet the trend component cannot be found without knowing the seasonal component. Thus, the X-11 ARIMA performs a series of iterations, obtaining a better estimate for the trend and seasonality with each one.

The program fits an autoregressive integrated moving average model to the data, using forecasts for one year to improve the estimation of the seasonal factors at each end of the series.

### Recommendations from this year's review

The review resulted in a few minor modifications to the seasonal adjustment modelling options. There have been some changes to the ARIMA models, and prior adjustments for Easter have been updated in the light of the latest data. Otherwise, previous settings have been retained.

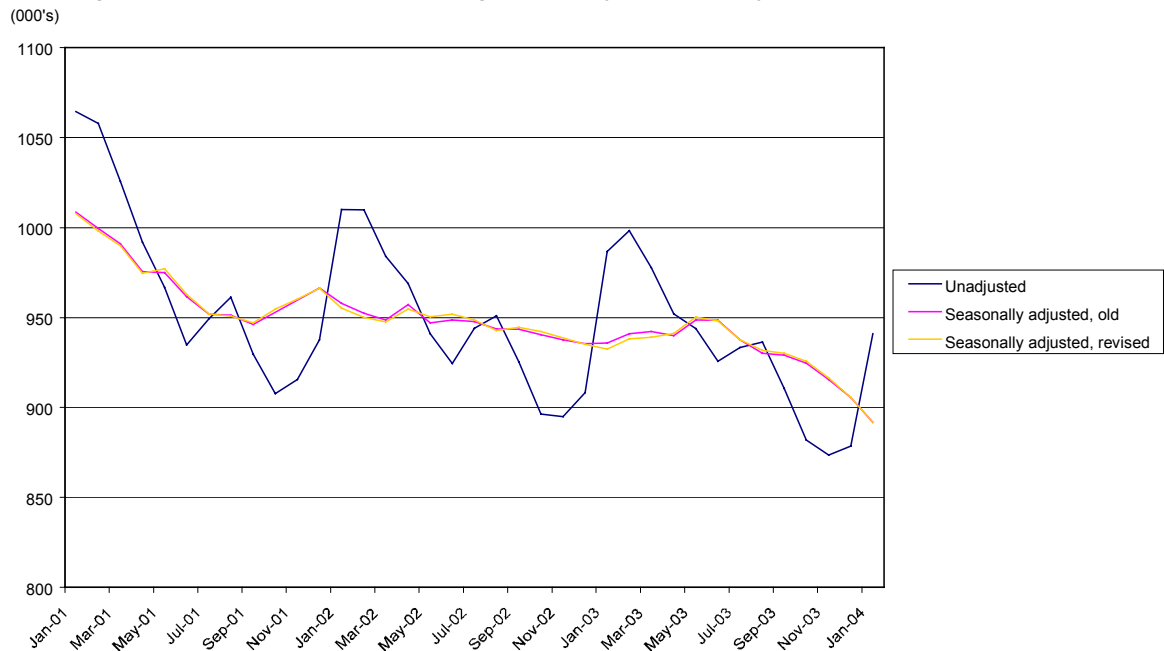
The seasonally adjusted series have been revised for the past three years, which is the standard for ONS series. *Table 1* shows the revised seasonally adjusted series for the claimant count and also shows the size of these revisions. The revisions made to the series are in general fairly small – rather less than 1 per cent of the level – and they do not have an impact on the assessment of the latest trends. *Figure 1* further

illustrates this by showing the unadjusted claimant count, the old seasonal adjustment, and the revised seasonal adjustment.

**Table 1 Revisions to seasonally adjusted claimant count series; United Kingdom; January 2001 to January 2004**

date	Stocks			Inflows			Outflows			Thousands
	Revised series	Change	Per cent	Revised series	Change	Per cent	Revised series	Change	Per cent	
2001 January	1008.6	0.9	0.1	233.9	0.3	0.1	249.5	2.8	1.1	
February	999.5	1.4	0.1	233.0	-1.0	-0.4	243.6	0.4	0.2	
March	990.9	1.1	0.1	227.3	-0.2	-0.1	237.9	0.0	0.0	
April	975.5	0.9	0.1	225.1	0.1	0.0	235.3	-2.3	-1.0	
May	974.9	-2.1	-0.2	221.6	1.0	0.5	228.9	6.0	2.7	
June	961.6	-1.3	-0.1	221.9	-0.8	-0.4	232.9	-1.8	-0.8	
July	951.8	-0.2	0.0	220.7	0.6	0.3	227.2	-1.3	-0.6	
August	951.2	0.4	0.0	222.8	1.1	0.5	221.8	-0.1	0.0	
September	946.1	-0.9	-0.1	221.0	-0.5	-0.2	223.9	-1.2	-0.5	
October	953.0	-1.7	-0.2	228.2	0.1	0.0	224.7	0.2	0.1	
November	959.7	-0.6	-0.1	231.3	-0.4	-0.2	223.8	-0.3	-0.1	
December	966.5	0.3	0.0	229.9	0.2	0.1	224.9	-0.8	-0.4	
2002 January	957.9	2.7	0.3	229.5	0.9	0.4	231.3	3.8	1.7	
February	952.4	2.3	0.2	221.7	-1.3	-0.6	226.4	0.1	0.0	
March	948.5	0.9	0.1	227.0	-0.7	-0.3	230.4	0.0	0.0	
April	957.1	2.4	0.3	231.1	-0.9	-0.4	226.4	-2.2	-1.0	
May	947.0	-3.5	-0.4	233.4	1.9	0.8	244.8	6.8	2.9	
June	948.7	-3.1	-0.3	227.9	-3.0	-1.3	225.9	-3.3	-1.4	
July	947.8	-0.7	-0.1	230.1	0.8	0.3	228.9	-2.3	-1.0	
August	943.6	0.9	0.1	230.6	1.8	0.8	234.1	0.4	0.2	
September	943.5	-1.1	-0.1	227.3	-1.6	-0.7	226.5	-2.3	-1.0	
October	940.4	-1.8	-0.2	225.7	0.4	0.2	229.6	0.9	0.4	
November	937.6	-1.0	-0.1	226.0	0.2	0.1	227.5	-0.5	-0.2	
December	935.5	0.4	0.0	228.4	0.5	0.2	227.7	-0.8	-0.4	
2003 January	935.9	3.5	0.4	228.4	2.5	1.1	219.7	4.6	2.1	
February	940.9	2.8	0.3	226.8	-1.3	-0.6	223.7	1.0	0.4	
March	942.3	3.3	0.4	226.3	-0.8	-0.4	224.3	-1.1	-0.5	
April	939.9	-1.2	-0.1	225.7	-0.6	-0.3	229.9	1.0	0.4	
May	948.5	-1.8	-0.2	223.8	-1.5	-0.7	217.4	-0.2	-0.1	
June	948.4	0.4	0.0	227.2	-0.9	-0.4	228.0	0.1	0.0	
July	937.6	-0.1	0.0	218.0	-0.1	0.0	228.0	0.5	0.2	
August	930.2	-1.5	-0.2	215.5	-1.0	-0.5	221.9	-0.7	-0.3	
September	929.1	-1.1	-0.1	219.5	-1.2	-0.5	225.6	-0.2	-0.1	
October	924.6	-1.1	-0.1	214.8	-0.6	-0.3	219.0	-0.5	-0.2	
November	915.5	-1	-0.1	213.2	-0.9	-0.4	220.1	-0.7	-0.3	
December	905.5	0	0.0	211.6	0.3	0.1	219.3	-0.1	0.0	
2004 January	891.7	-0.1	0.0	207.6	-0.2	-0.1	213.7	0.6	0.3	

**Figure 1 : Claimant count levels, United Kingdom; January 2001 to January 2004**



## New seasonally adjusted series by age and duration

Unadjusted data by age and duration are currently published on a monthly basis. Seasonally adjusted data make it easier to interpret trends and provide an extra insight into movements in the count. However, there have been difficulties in the past over producing seasonally adjusted series by age and duration. Various administrative effects, such as the introduction of Jobseeker's Allowance in late 1996 to early 1997, have led to changes in the seasonal pattern and level of the count. Adjustments for these discontinuities were made for the main series according to sex and region, but no estimates have been made of the effects by age and duration.

An additional complication arises because the monthly age and duration data are only available for computerised claims; that is, they exclude around 1 per cent of claims that are processed clerically.<sup>1</sup> While this proportion has been fairly stable for some time, it has been much higher (up to around 10 per cent) until the early 1990s. This would present further difficulties in producing an extended back series. To avoid the discontinuities associated with the introduction of Jobseeker's Allowance and earlier changes in the coverage of the count, the seasonally adjusted age and duration series begin in April 1997.

As for the unadjusted monthly age and duration data, the seasonally adjusted series relate to computerised claims only. This presently makes little difference to the general picture shown by the series. The changes in the number of clerical claims result in only a small difference between the movements in the aggregated age and duration series and the overall count. However, this position could change if, for example, the number of clerical claims were to increase markedly at some stage in the future from the present level of around 1 per cent. This could lead to some distortion to the monthly age and duration series making it difficult to interpret the trends.

It may therefore be necessary to review the methodology for the series, for example, to make monthly estimates of the numbers of clerical claims in each age and duration group, which could be added to the seasonally adjusted series to represent the full claimant count.

The data are seasonally adjusted for men and women for three age groups (18-24, 25-49, and 50 and over), and for six duration groups (0-3 months, 3-6 months, 6-12 months, 12-18 months, 18-24 months, and over 24 months).

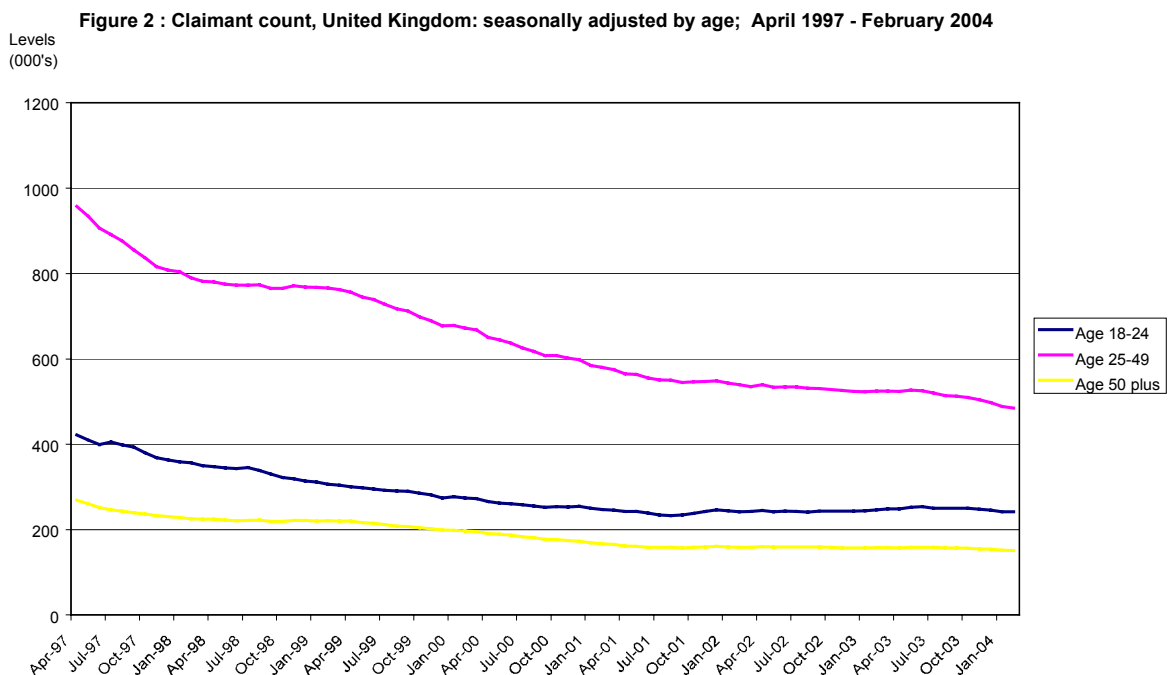
The methodology for the new series was investigated as part of the seasonal adjustment review for the main existing series. As for the existing regional series, the series by age and duration are seasonally adjusted using X-11 ARIMA. The 0-3 month categories for women are prior adjusted for Easter.

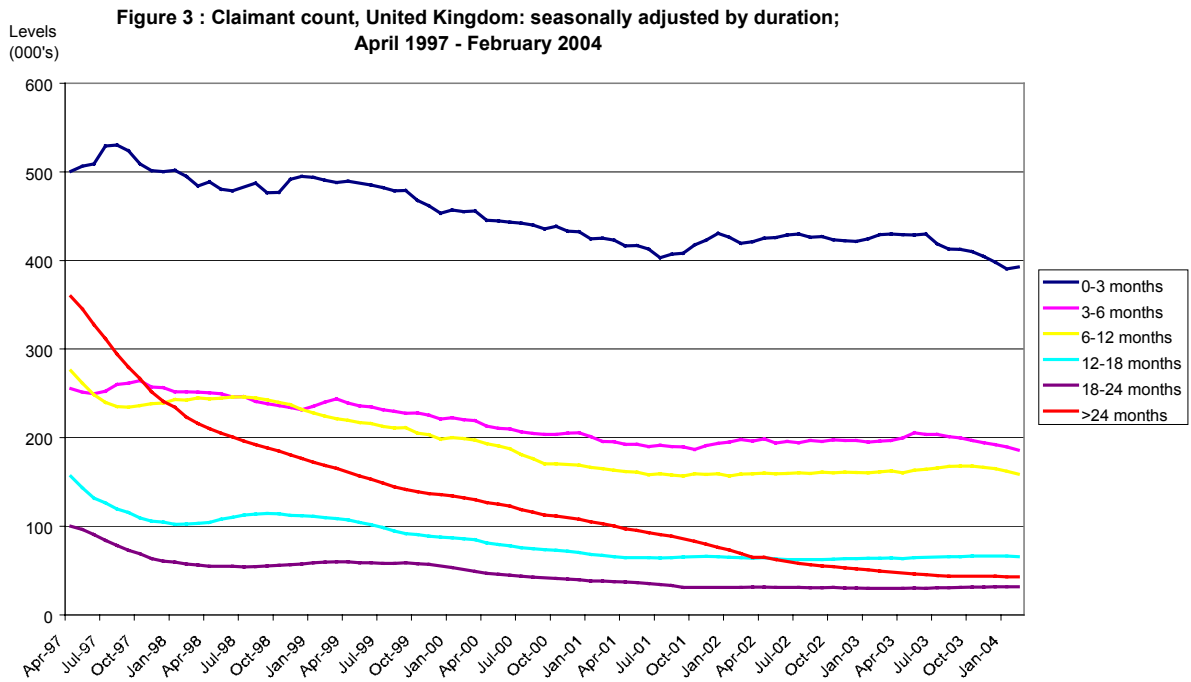
The age and duration series use similar modelling options to the regional series where possible. They are modelled using an additive decomposition model, with a separate ARIMA model for each series (as with regional series). The seasonal adjustment for most age and duration series is of good quality, although some of the longer-duration series show little seasonality.

After seasonal adjustment the results by age and duration<sup>2</sup> are scaled slightly, to correspond with the sum of the main published seasonally adjusted totals minus the number of clerical claims.

## Results of age and duration analysis

*Figure 2* shows the results by age and *Figure 3* shows the results by duration. The charts show that the seasonally adjusted recent falls in the claimant count have been concentrated in the 25-49 age group and the shorter duration groups. *Figure 3* also shows a sharp fall in the number of claimants claiming for over 24 months, partly as a result of the New Deal.





## Available series

The seasonally adjusted series are available by region and gender for the claimant count stocks, inflows, and outflows, and by age, duration and gender for stocks at the UK level. The main stocks series are available from January 1971 (from 1974 for the regions), and the flows series from November 1988. The seasonally adjusted stocks by age and duration are available from April 1997. Both unadjusted and adjusted claimant count data are available from Nomis<sup>®</sup>. Recent seasonally adjusted age and duration data are now also included in Table F.2 in the labour market data section of *Labour Market Trends* (for the May 2004 issue onwards), and are also available on the National Statistics website.

### **Further information**

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### **Notes**

- 1 The monthly count of Jobseeker's Allowance claimants is mostly derived directly from the Jobcentre Plus computer records. For various reasons, for example, when a claimant's National Insurance number is not known, some claims have to be dealt with manually by local offices.
- 2 The seasonally adjusted series relate only to claimants aged 18 and over.