

Seasonal adjustment of UK monetary aggregates

By Marco Bianchi of the Bank's Monetary Instruments and Markets Division.

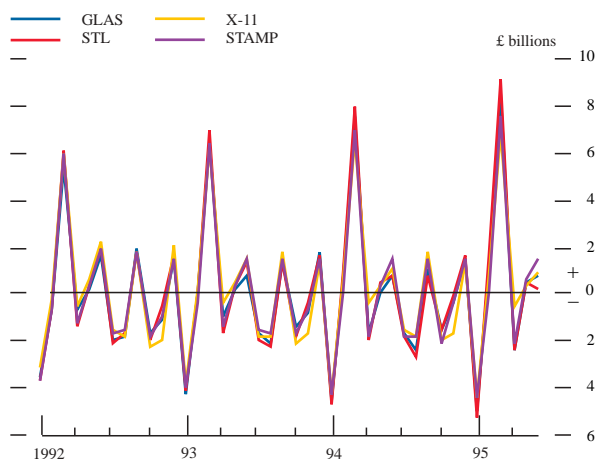
This note describes a study recently published by the Bank on ways to adjust monetary aggregates for seasonal variation.⁽¹⁾

The aim of the research is to provide illustrations of various possible seasonal adjustment methods; it is hoped that this will stimulate comments from official and private-sector readers. The study is confined to technical considerations and does not seek to make recommendations in favour of a particular method. The choice of method needs to take into account other factors such as risks of disruption, maintenance costs, availability of support, and compatibility with techniques used by other agencies.

Four methods of seasonal adjustment are considered in the paper. These are GLAS (the current Bank method), STAMP (a method developed by Professor A Harvey and his collaborators at the London School of Economics), STL (a method developed at AT & T's Bell Laboratories, New Jersey) and X-11 ARIMA (a method developed by Statistics Canada from the original X-11 method developed by the US Census Bureau and recommended by the UK Government Statistical Service). The performance of the different methods was in part evaluated in a 'live test', by monitoring the results of adjusting the monthly M4 series over the period October 1994–June 1995.

The study shows that the different methods generate broadly similar estimates of the seasonal factor, although significant

Results of different methods for estimating the seasonal factor in the monthly change in M4^(a)



(a) Estimated using data from January 1987 to June 1995.

Annualised rates of change in M4

Percentage points

	1994			1995					
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Three-month change									
G (a)	2.60	4.99	6.24	5.61	5.19	8.75	7.79	9.24	8.96
G* (b)	2.54	4.89	5.18	5.54	5.41	9.58	9.08	10.5	7.88
S (c)	2.13	4.97	5.74	6.32	6.43	9.93	9.66	10.3	8.23
Six-month change									
G	2.53	4.17	4.27	3.96	4.83	7.25	7.33	7.75	8.73
G*	2.46	4.12	4.33	3.87	4.86	7.35	7.68	8.20	8.90
S	1.83	3.59	4.14	4.40	5.77	7.99	8.16	8.50	8.93
Twelve-month change									
G	3.97	4.43	4.46	3.89	4.12	5.27	5.08	5.97	6.58
G*	3.97	4.43	4.45	3.88	4.13	5.29	5.10	6.04	6.62
S	3.82	4.33	4.32	4.22	4.46	5.22	5.16	6.09	6.58

(a) G = GLAS without trading-day effects removed.
 (b) G* = GLAS with trading-day effects removed.
 (c) S = STAMP without trading-day effects removed.

differences may occur at certain times (see the chart and table). The study also highlights the potential significance of trading-day effects, due to the varying proportion of particular days of the week in different months, for some monetary series (for example the 'sterling lending to M4 private sector' series, one of the counterparts of M4).

Looking ahead, the Bank intends to carry out new tests using an improved version of GLAS, an improved version of STAMP, and the improved version of X-11 ARIMA known as X-12 ARIMA (which has just been officially released by the US Census Bureau). Particular attention will be given to the scope for removing trading-day effects and the compatibility of this with maintaining the balancing constraint—that is, the requirement that the seasonal factor obtained when adjusting the aggregate series must equal the sum of the seasonal factors used to adjust the components, on the grounds that the same logical relationships should remain after adjustment. The Bank is also considering estimating and possibly publishing trend series, since these are likely to be of particular interest to policy-makers. Finally, the seasonal adjustment of the weekly (Wednesday-observed) M0 series, which has not been considered in the present study, may be examined in future work. Written comments on the paper would be most welcome and should be sent to Marco Bianchi, Monetary Instruments & Markets Division, Bank of England, Threadneedle Street, London, EC2R 8AH.

(1) Bianchi, M (1996), 'A comparison of methods for seasonal adjustment of the monetary aggregates', *Bank of England Working Paper No 44*.