

October 2012

No.104

**UK Defence News, 1920-1938: Estimates Based on Contemporary
Sources**

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WORKING PAPER SERIES

Centre for Competitive Advantage in the Global Economy

Department of Economics

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Abstract

This paper employs the concept of 'defence news' proposed by Ramey (2009) to develop a time series of shocks to UK defence spending in the interwar period at a quarterly frequency. 'Defence news' is the present value of changes to defence spending plans. Information on this is taken from contemporary sources, in particular, *The Economist*. The estimates in this paper can be used as an input to assessing the size of the fiscal multiplier in interwar Britain as in Crafts and Mills (2012).

Keywords: defence spending; interwar period; rearmament

JEL Classification: E62; N14; N44

I am grateful to Mark Harrison and Roger Middleton and George Peden for helpful advice and comments on an earlier draft of this paper. I am responsible for all errors.

1. Introduction

The aim of this paper is to document the construction of a series for changes in the expected present value of government expenditure on defence for the United Kingdom in the interwar period. It is constructed using a similar method to that employed by Ramey (2009) to obtain estimates which are the key ingredient for her method of obtaining estimates of government spending multipliers (Ramey, 2011). The key place from which information was taken is *The Economist* magazine which was published weekly through the interwar period. This source published details of defence estimates which were usually published in government papers in February and March each year but there were sometimes also supplementary estimates. *The Economist* gave a detailed yearly account of actual spending at the time of the annual budget in April and published quarterly running totals at the beginning of January, April, July and October each year and it also regularly commented on the prospects for defence spending in editorials and in featured news items.

The statistical information obtained from *The Economist* has been cross-checked against the detailed descriptions of British budgets in Mallet and George (1929) (1933) and Sabine (1970). Interpretation of the commentary of *The Economist* has been facilitated by the accounts in the major historical studies of military policy such as Ferris (1989) and Peden (1979). As will be apparent, the general pattern of the news is quite clear but, of course, there is a margin of error in the details. At times, there was considerable uncertainty not simply for agents in the private sector but also among policymakers as to what would happen both with regard to magnitudes and timing, especially in the early 1920s and the later 1930s, and judgment calls are unavoidable. Expected values have been calculated at 1938 prices for a horizon of 5 years using a discount rate of 5.1 per cent.¹ Crafts and Mills (2012) show that the 'defence news' variable obtained by this procedure is a good leading indicator of future defence expenditure.

2. News in *The Economist*

November 1, 1919: the Chancellor of the Exchequer has produced a forecast of government expenditure in a 'normal year' at current prices (Cmd. 376). This shows an annual outlay of £135 million (of which Navy = £60 million, Army and Air Force = £75 million). This is based on the notion that there will be no preparations for a major war before 1929 (the 10-year rule).

March 20, 1920: The defence estimates for 1920/1 are now complete and are well above the 'normal year' envisaged in Cmd. 376: Army £125 million, Navy £84.6 million, Air Force 21.1 million.

April 24, 1920: The budget statement confirms that total defence spending for 1920/1 is expected to be £230.4 million.

July 3, 1920: The Chancellor has revisited his estimates of expenditure in a 'normal year' and the defence component is unchanged (Cmd. 779). There is no editorial comment to suggest that this is implausible.

This information allows an initial projection of defence spending based on the concept of the normal year and the apparent pace of cuts carried out during 1919/20 and contemplated for 1920/1. During

¹ Figures in current prices have been converted to constant 1938 prices using the monthly retail price index in Capie and Collins (1983), Table 2.13 and the discount rate is 1.25% per quarter.

1919/20 expenditure was cut at about 30% per quarter; if this falls to 15% per quarter during 1920/1, that year's Defence Estimate will be fulfilled and the steady state ('normal year') will be achieved in 1921/2 when spending at 1938 prices will total £93.5 million. The sequence of spending at 1938 prices is as follows:

		1920 _{Q1}	51.2	1921	26.8
		1920 _{Q2}	43.6	1921 _{Q2}	23.4
1919 _{Q3}	104.6	1920 _{Q3}	37.0	1921 _{Q3} et seq.	23.4
1919 _{Q4}	73.2	1920 _{Q4}	31.4	NPV	461.4

There has been no surprise and so there is no news.

December 18, 1920: A supplementary defence estimate of £48.2 million has been presented this week. *The Economist* believes there will be some additional extra spending on top of this during the financial year. The actual outturn at the end of the fiscal year confirms this with a further £11.6 million.

Already by 1920_{Q4} it is clear that defence spending for 1920/1 has to be revised up. It seems appropriate to assume that the outcome is more or less known. This implies that the sequence of spending becomes the following:

		1921 _{Q1}	46.1
		1921 _{Q2}	23.4
		1921 _{Q3} et seq.	23.4
1920 _{Q4}	48.7	NPV	463.8

At this point, the previous sequence implied an NPV = 427.8 so the **news in 1920_{Q4} = + 36.0**.

December 25, 1920: *The Economist* predicts that defence spending in fiscal 1921/22 can still be reduced to about £200 million (£140 million in 1938 prices). This would, however, mean that the steady-state figure of £93.5 million at 1938 prices will be missed by a long way.

April 30, 1921: The defence estimate for 1921/22 is £193.4 million (£138.7 million in 1938 prices) close to the predictions of *The Economist* already formed at the end of 1920. *The Economist* expresses strong scepticism that serious efforts will be made to reduce expenditure in future. Ferris (1987) notes that the armed forces were in no way reconciled to the Treasury's idea of a normal year's spending and that their ambitions might cost £190 million – something like the 1921/22 estimate – and that the Treasury appeared to be losing this argument given perceived threats to security but had not given up seeking eventually to return to the 1919 commitment to a £135 million normal year. At the same time it is clear that the Treasury cannot give up the fight given the parlous state of British public finances. [Actual expenditure of £189.5 million for 1921/22 turned out to be close to the budget estimate.]

It seems clear that by 1921_{Q1} expectations are switching to a belief that it will take the Treasury a long time to enforce the 'normal year'. This implies that a significant upward revision in expected defence spending is called for but perhaps not that the forces will be able to resist further cuts forever. It is quite difficult to form a projection. The assumptions made here are that it is assumed

further defence cuts beyond the wishes of the armed forces are postponed till 1922/3 and then resume at a slower pace of 2.5% per quarter until the steady state is reached in 1926_{Q1}. This implies the following sequence of defence expenditure at 1938 prices:

1921 _{Q1}	46.1	1923 _{Q1}	31.3	1925 _{Q1}	25.6
1921 _{Q2}	34.7	1923 _{Q2}	30.6	1925 _{Q2}	25.0
1921 _{Q3}	34.7	1923 _{Q3}	29.8	1925 _{Q3}	24.3
1921 _{Q4}	34.7	1923 _{Q4}	29.0	1925 _{Q4}	23.7
1922 _{Q1}	34.7	1924 _{Q1}	28.3	1926 _{Q1} et seq.	23.4
1922 _{Q2}	33.8	1924 _{Q2}	27.6	NPV	551.6
1922 _{Q3}	33.0	1924 _{Q3}	26.9		
1922 _{Q4}	32.2	1924 _{Q4}	26.2		

The previous sequence implied an NPV = 439.2 so the **news in 1921_{Q1} = +112.4**.

August 6, 1921: A committee of businessmen chaired by Sir Eric Geddes will be appointed with a mandate to propose cuts to government expenditure. This was asked to produce economies of £100 million in projected 1922/3 supply services expenditure.

February 4, 1922: The cuts proposed by Geddes, including those for defence, are expected to be diluted.

February 18, 1922: Proposals so far from the Geddes Committee have identified cuts in expenditure of £75 million of which £46.5 million would be on defence. It suggests that Army and Navy manpower should be reduced by 50,000 and 35,000, respectively.

February 25, 1922: The Final Report from the Geddes Committee is to cut £86.8 million but the total will approach £100 million by including £11 million from battleships which will not be built as a result of the Washington Conference.

March 4, 1922: The Chancellor of the Exchequer has announced the government's response to the Geddes Report. Their proposed total reduction in defence expenditure of £58.5 million will be cut back to £38 million.

March 25, 1922: The Defence Estimates for 1922/23 have been published and add up to a total of £138.5 million.

May 6, 1922: The budget provision for defence expenditure in 1922/23 is £138.1 million which is £69.5 million lower than the comparable figure of a year ago. Further cuts in government spending will be needed next year if the budget is to be balanced.

The key issues are at what point the Geddes outcome could be predicted and how far the government's renewed determination to look for cuts brings forward the date of the 'normal year'. These are tricky judgement calls. I assume that the outcome is already predictable in 1921_{Q3} at which point the normal year is now expected to be reached in 1924/25 with the pace of cuts at 5% per quarter during 1923/24. This implies an expectation in 1921_{Q3} of the following sequence of defence spending in 1938 prices:

		1922 _{Q1}	34.7	1923 _{Q1}	29.6	1924 _{Q1}	24.1
		1922 _{Q2}	29.6	1923 _{Q2}	28.1	1924 _{Q2} et seq.	23.4
1921 _{Q3}	34.7	1922 _{Q3}	29.6	1923 _{Q3}	26.7	NPV	483.4
1921 _{Q4}	34.7	1922 _{Q4}	29.6	1923 _{Q4}	25.4		

The previous sequence implied an NPV of £520.1 so the **news in 1921_{Q3} = -36.7**.

October 7, 1922: Figures for defence spending over the first 6 months of the fiscal year show a total of £52.2 million. Allowing for falling prices, this is about 68 per cent of the previous year whereas the projection at the time of the budget had been about 87 per cent.

This is news that defence is being cut more rapidly than expected. The eventual outturn for 1922/3 was £111.0 million which at 1938 prices was £96.5 million or about 81.5% of the budget estimate – the closest the government would ever get to the £93.5 million ‘steady state’ and a little over the full Geddes cut. The spring of 1922 was a period when the Treasury briefly gained the upper hand in its ongoing struggle with the services and at last expects to be able to implement its idea of the 10-year rule (Ferris, 1987). However, in November 1922 the Conservatives won the election after the break-up of the previous coalition government and this may well be seen as good news for the services. It seems best to regard the lower defence spending in 1922/3 as a temporary reduction. This is borne out in the following spring when the defence estimates for 1923/4 are £122 million or £112.3 million at 1938 prices, virtually the same as the £112.5 million projected in 1921_{Q3}.

In 1922_{Q4}, the sequence of defence spending in 1938 prices is now expected to be:

		1923 _{Q1}	23.8	1924 _{Q1}	24.1
		1923 _{Q2}	28.1	1924 _{Q2} et seq.	23.4
		1923 _{Q3}	26.7	NPV	428.3
1922 _{Q4}	24.1	1923 _{Q4}	25.4		

The previous sequence implied an NPV of 439.2 so the **news in 1922_{Q4} is -10.9**.

January 6, 1923: Defence spending in the first 3 quarters of the fiscal year totals £79.0 million. This is what would have been expected on the basis of the first 2 quarters.

March 10, 1923: *The Economist* predicts that the Defence Estimate for 1923/24 will be £125 million based on published figures for the Air Force and the Navy and a guess at the Army figure.

April 21, 1923: The Defence estimate in the budget is £122 million or £112.1 million at 1938 prices. This is a reduction of £16 million compared with the previous year (mostly accounted for by price falls) but £11 million above the outturn for 1922/23.

Ferris (1987) notes that after Baldwin took over as the Prime Minister in May 1923 the Air Force and the Navy successfully argued that the appropriate interpretation of the 10-year rule in their cases was that they should be fully ready for a major conflict by 1929. They persuaded the government to approve rearmament programmes to raise the number of RAF squadrons to 52 and to allow the navy to build 30 cruisers. Ferris (1987) sees Baldwin as approving the greatest rearmament programme of the interwar period prior to 1936. This would imply defence spending rising by £35 million per

year from 1926/27 but a further election was in the offing and it might be supposed unlikely that this programme would go ahead in full if the government lost (as it did). The new government led by MacDonald did not endorse the rearmament programmes in full but allowed them to begin in 1924. It is hard to know exactly what all this means for future defence spending but it seems reasonable to suppose that further cuts are unlikely supposing around half the extra post 1926 spending comes through, and that the 'normal year' will never materialize. The sequence of defence spending in 1923_{Q2} is taken to be £112.1 million at 1938 prices throughout the 5 year horizon so the NPV = 499.6 compared with the previous estimate of 427.2 so the **news is +72.4**.

October 6, 1923: Defence spending in the fiscal year so far is £46.4 million compared with £52.2 million a year earlier.

January 5, 1924: Defence spending is £69.0 million in the first 3 quarters of the fiscal year compared with £79.0 million a year ago. *The Economist* expects that 'very substantial savings' on the Estimate of £122.0 million will be made in the year as a whole. In the end, the outturn is £105.8 million.

The Economist is not predicting that there will be a retreat from the rearmament programme. The previous year's experience suggests that it may be best to see the savings as a temporary reduction. If we suppose that by 1923_{Q4} the rest of the year's savings can be predicted but then spending returns to the new normal, then the sequence of spending at 1938 prices is the following:

		1924 _{Q1}	27.6
		1924 _{Q2} et seq.	28.0
		NPV	498.7
1923 _{Q4}	27.6		

The defence **news in 1923_{Q4} is -0.9**.

March 8, 1924: *The Economist* predicts that the Defence Estimate for 1924/25 to be announced by the new minority Labour government will be £114.5 million with the main saving (£7 million) coming from the Army.

May 3, 1924: The Defence Estimate for 1924/25 announced in the budget is £115.3 million which is £103.9 million at 1938 prices. This year the outturn is almost the same at £114.7 million.

So with a new government we do not seem to be going back to the old steady state but perhaps the new normal is not quite as high as seemed likely last year. How long the minority government will last is unclear (it turns out to be only till the end of October 1924 when the Conservatives win a new election with a large majority). Perhaps it is right to reduce expected spending for 1925/26 onwards slightly and we assume that in 1938 prices it is midway between the old long-run estimate and this year's figure at £108 million in 1938 prices. So the sequence of defence expenditure at 1938 prices is now as follows:

		1925 _{Q1}	26.0
1924 _{Q2}	26.0	1925 _{Q2}	27.0
1924 _{Q3}	26.0	1925 _{Q3} et seq.	27.0
1924 _{Q4}	26.0	NPV	477.5

The previous estimate was 499.6 so the **news in 1924_{Q2} = -22.1**.

February 7, 1925: The navy is asking for the construction of 8 more cruisers to add to the 5 authorized by the previous government. It is thought that the Air Force and Navy are asking for an additional £3 million and £10 million, respectively.

March 14, 1925: Estimated expenditure of defence in the next fiscal year is now £120.5 million, an increase of £5.2 million, mostly on the Navy. This is the actual figure in the budget presented on April 28 and is equivalent to £107.8 million at 1938 prices. The outturn is £119.4 million.

This suggests the assumptions of a year ago remain valid. The cabinet now accepts the Treasury's interpretation of the 10 year rule (Ferris, 1987) and its application is to be extended indefinitely in 1928 (Peden, 1979). In sum, there is **no news in 1925_{Q2}** and the NPV remains at 481.4 based on a constant £108 million at 1938 prices.

March 6, 1926: The Defence Estimates show a reduction for next year of about £4 million.

May 1, 1926: This is confirmed in the budget where defence spending for the year 1926/27 is estimated at £116.6 million or £105.7 million at 1938 prices. The outturn is £116.7 million.

The absence of any substantive announcement about future plans suggests that we regard this as **no news**.

March 12, 1927: The Defence Estimates for 1927/28 are £115.1 million or £108.4 million at 1938 prices.

April 16, 1927: The budget confirms a Defence Estimate of £115.1 million. *The Economist* comments that the Chancellor (Churchill), in effect, 'threw up the sponge' with regard to trying to reduce armaments expenditure. It is noted that there may have to be a supplementary estimate of a few millions to pay for an expeditionary force in China. The outturn is £117.4 million.

June 25, 1927: *The Economist* discusses the implication of recent parliamentary reviews of the armed forces. The bottom line is that there is no scope for further economies unless there is a change of policy.

This confirms that it continues to be reasonable to maintain an assumption of steady-state spending maintained at £108 million per year in 1938 prices. The **news in 1927_{Q2}** is no change in the medium term but a small supplement this year; we assume this is **+ £2.2 million** at 1938 prices, the excess of the outturn over the estimate.

April 28, 1928: The budget contains Defence Estimates of £114.6 million equivalent to £108.1 million at 1938 prices. The individual services are little changed. The eventual outturn is £113.5 million.

There is **no news in 1928_{Q2}**.

July 7, 1928: *The Economist* comments that in the absence of a change in policy there is no scope for a reduction in real defence spending.

April 13, 1929: The Defence Estimates in the budget next week add up to £112.6 million equivalent to £107.1 million at 1938 prices. *The Economist* comments that 'the gigantic cost of armaments has undergone disappointingly small reduction over the last 5 years'.

There is **no news in 1929**_{Q2}.

March 8, 1930: There is some uncertainty about future shipbuilding programmes until the results of the Naval Conference are known. Next year's construction of ships has been reduced by £3 million.

April 19, 1930: The Defence Estimates in the budget are as expected and total £110.1 million equivalent to £109.8 million at 1938 prices. The eventual outturn is £110.5 million.

There is no change in policy and the only issue is how far nominal expenditure adjustments match price changes. It seems reasonable to conclude that there is **no news in 1930**_{Q2}.

February 14, 1931: Amidst serious concern about a deterioration of the public finances resulting from the recession, the Chancellor of the Exchequer (Snowden) of the minority Labour government has announced that there will be a new 'Geddes Axe' committee to propose cuts in public expenditure.

March 7, 1931: The Navy estimates show construction of new ships to continue at the reduced 1930/13 level.

March 21, 1931: The members of the committee to review public expenditure have been announced and the Chairman is Sir George May. The terms of reference are 'satisfactorily wide'; the committee is to make recommendations for all possible reductions in expenditure on supply services. There is a prospective deficit of £47 million for 1931/32. *The Economist* thinks this should be addressed through raising taxes and in due course reducing unemployment benefits.

April 18, 1931: The budget on April 27 will contain Defence Estimates of £109.6 million equivalent to £117.6 million at 1938 prices. (After autumn cuts, the outturn is £107.3 million. This is equivalent to £115.1 million at 1938 prices.)

These are mixed messages. Real expenditure is rising but the May Committee could well address this during the year. At this point, it seems reasonable to guess that the constant prices £108 million will be exceeded this year by the actual £7.1 million but that subsequently the steady state will be re-imposed. The defence news in 1931_{Q2} is that **NPV is 488.4 (+7.0)**.

August 8, 1931: The proposals of the May Committee include immediate reductions in annual pay for the armed services of £2.9 million and sundry reductions in annual defence expenditures of about £1 million.

September 12, 1931: A White Paper (Cmd. 3952) to accompany the supplementary budget of September 10 has been issued on behalf of the new National Government which indicates the effects of proposed economies in the full financial year 1932/33. Defence expenditure will be reduced by £5 million in addition to cuts in pay and pensions of £3.6 million.

We assume that there is no news here given the adjustment already made in 1931_{Q2}.

April 9, 1932: The Defence Estimates for the April 19 budget are £104.4 million which is equivalent to £115.0 million at 1938 prices. This is only £5.2 million below the figure of a year earlier even though the economies in the supplementary budget have in the main been realized. The major reason for this discrepancy is an increase in expenditure on naval construction programmes. The eventual outturn for 1932/33 is £103.0 million or £113.5 million at 1938 prices.

This suggests that medium-term assumptions may need to be revised. In March 1932 a cabinet committee recommended that the 10-year rule should be cancelled, following the invasion of Manchuria and attack on Shanghai by Japan. (German rearmament is not yet an issue.) The Chancellor of the Exchequer (Chamberlain) seems to have expected that defence expenditure would rise by about 10% to £115 million by 1935 (Peden, 1979) and naval construction is back on the agenda. We assume that the 1932/33 outcome is anticipated followed by a steady build-up to a 10% higher level in 1935/36. The sequence of defence expenditure at 1938 prices then becomes the following:

		1933 _{Q1}	28.2	1934 _{Q1}	29.2	1935 _{Q1}	30.2
1932 _{Q2}	28.2	1933 _{Q2}	29.2	1934 _{Q2}	30.2	1935 _{Q2} et seq.	31.2
1932 _{Q3}	28.2	1933 _{Q3}	29.2	1934 _{Q3}	30.2	NPV	533.4
1932 _{Q4}	28.2	1933 _{Q4}	29.2	1934 _{Q4}	30.2		

The NPV of 533.4 replaces an estimate on previous steady-state assumptions of 481.4 so the **news in 1932_{Q2} is + 52.0**.

March 11, 1933: *The Economist* comments on 'the retrograde tendency towards an increase in defence expenditure' which is highlighted by the Navy Estimates which have risen by £3 million and entail a construction programme for 1933 which includes 4 cruisers, 9 destroyers and 3 submarines even though the First Lord thinks these do not fully provide for the potential needs of the Navy.

April 15, 1933: The Defence Estimates to be included in the budget add up to £108.9 million equivalent to £121.0 million at 1938 prices and about £6 million above last year's spending. Any impact of the May Committee on defence spending has been temporary as is illustrated by the Army Estimate. *The Economist* notes that this is only £0.6 million at current prices below the expenditure on the Army in 1931/32 (a small increase in real terms) whereas the proposal of September 1931 would have cut £3.5 million. The outturn is £107.9 million.

This level of expenditure surely confirms that there has been a permanent shift upwards compared with the normal level of the late 1920s. The acceleration is a bit more than that envisaged in the projection of a year ago but probably within the noise. Leave NPV unchanged – there is **no news in 1933_{Q2}**.

March 10, 1934: The Defence Estimates have been published; they show an increase of £4.8 million. *The Economist* thinks that the Air Estimates are the most interesting to watch for signs of impending rearmament and 2 new squadrons are to be added.

April 14, 1934: the Defence Estimates at £113.7 million for 1934/35 are £4.1 million above the original estimate for 1931/32 and equivalent to £124.5 million at 1938 prices. The eventual outturn is £113.9 million.

The growth in defence spending is still ahead of the schedule assumed 2 years ago but not by much and with no major announcements of new commitments. The Cabinet had been presented with a proposal (which was still under discussion) by the Defence Requirements Committee to raise expenditure by £77 million in the next 5 years to remedy the worst deficiencies in the armed forces (Peden, 1979). It is a judgement call but this is taken to be **no news in 1934_{Q2}**.

July 28, 1934: The government has announced that it will increase the Air Force by 41 squadrons over the next 5 years.

The signs that *The Economist* has been looking for are now apparent. Peden (1979) reports that the Cabinet had agreed to a 5-year £57 million spending programme (scaled down from £77 million). The next year's Defence Estimate will reflect this with spending equivalent to £136 million at 1938 prices in 1935/36. It seems reasonable to assume that this will be the new normal. The sequence of defence spending at 1938 prices is now assumed to be the following:

		1935	31.1
		1935 _{Q2} et seq.	34.0
1934 _{Q3}	31.1	NPV	597.5
1934 _{Q4}	31.1		

The previous assumptions entailed NPV = 553.2 so the **news in 1934_{Q3} is + 44.3**.

December 1, 1934: Churchill has made a high-profile speech asking the government what it intends to do to counter the German rearmament of the last 18 months. The reply (from Baldwin) is that the air programme will be accelerated and 22 squadrons will be formed in 1935 and 1936.

March 9, 1935: The Defence Estimates have been published and show an increase of £10.5 million is planned. This includes the previous announcements of new squadrons for the RAF. *The Economist* notes that these come in the wake of the government's decision to abandon hope of disarmament and comments that 'Within the limits of the policy of rearmament this year's increase is fairly moderate...What the bill may be next year is another matter'.

March 16, 1935: *The Economist* reviews the future of defence spending in a lead editorial following Defence Estimates and a Defence White Paper of March 11, 1935 (Cmd. 4827). This paper has announced a new policy of rearmament but with no spending commitments. It simply said that additional expenditure on the armaments of the defence services could no longer safely be postponed. *The Economist* thinks that this will entail a change of gear such that 'it is certain that the Defence Vote will show a further big increase next year'

April 13, 1935: The budget plans envisage total estimated expenditure on defence of £124.2 million equivalent to £136 million at 1938 prices, as noted already. The outturn is £136.9 million as spending jumps in 1935_{Q3}.

It seems to be rearmament ... but it is unclear as to how much and how soon? It is difficult to believe that anyone could at this stage be sure of the massive additional defence spending that would occur by 1938 but equally everyone should be expecting a considerable increase during the next fiscal year that will be sustained rather than transitory. Chambers (2010) underlined the importance of rearmament for IPOs in aircraft manufacturing at this time. On previous assumptions, in 1935_{Q2} the projection was a constant expenditure of £34.0 million at 1938 prices with an NPV of 606.2. By 1935_{Q3} defence spending at current prices is running at an annual rate of about 30% higher than a year ago (and this carries on to the end of the fiscal year). It is apparent that rearmament will be a lengthy process – say, at least 5 years. In the light of *The Economist's* commentary it does not seem excessive to suppose that agents expect the 1935/6 increase at this point and believe it will be maintained for the forecast horizon even though actual spending does not yet reflect the new policy stance. So, the expected sequence of defence expenditure at 1938 prices in 1935_{Q2} is taken to be £44.0 million each quarter over the horizon with an **NPV = 784.4 so the news is +178.2.**

July 20, 1935: A supplementary Defence Estimate of £5.3 million has been announced to cover a faster build-up of the Air Force. *The Economist* remarks that this is 'striking evidence of the scope and rapidity of this year's expansion'.

September 28, 1935: In a recent speech Chamberlain (Chancellor of the Exchequer) has stressed that the UK's defence forces have fallen to a dangerously low level and that greatly increased expenditure on the Navy and Air Force is required. The Conservative Party conference is expected to recommend the immediate financing of such expenditure by a national defence loan of £150 to £250 million. *The Economist* strongly disapproves of this proposal.

October 5, 1935: Defence spending has sharply increased in the last quarter to £32.6 million (31% above the same quarter a year ago).

January 4, 1936: Defence spending in 1935_{Q4} was £37.2 million (29% above the same quarter a year ago).

February 8, 1936: *The Economist* features a special report on 'Britain's Air Programme'. This suggests that it is now possible to get a fairly accurate idea of the cost of the expansion programme. Spending on the Air Force in 1935/36 will be £29.2 million compared with £20.2 million in 1934/35. Expenditure in 1936/37 will be £52 million. From then on, there will be extra annual running costs of £10 million to add to the £20 million of 1934/35, the last 'normal' year.

February 15, 1936: It has been widely reported in the press that a large defence loan is in prospect - £285 million according to *The Times* which seems well-informed. *The Economist* also features a special report on 'Britain's Naval Expenditure'. This suggests that the period of 'truce' under the Washington Treaty will end and foresees an 'extraordinary' programme of naval construction, including the replacement of 7 battleships, which might cost about £110 million over some years. However, it is not yet possible to provide an accurate forecast.

February 22, 1936: A further Supplementary Defence Estimate for £7.8 million has been issued bringing the fiscal year's total to £13.1 million. *The Economist* provides a review of defence policy in a lead editorial. This notes that the press is agreed that there will be capital expenditure on defence

services amounting to £280 million over the next 3 or 4 years, as proposed by the Cabinet's Defence Requirements Committee. However, the situation with regard to the Navy is not yet clear and it may be that we can hang on to something like the status quo in terms of international agreements.

March 7, 1936: It is understood that the Defence Estimates will increase by £31 million next year. There will also be Supplementary estimates during the year which are hard to predict but could be £50 million and seem sure to be at least £25 million. The latest 'Statement Relating to Defence' (Cmd. 5107) has been published on March 3. In a lead editorial, *The Economist* describes this as a 'declaration of Governmental intentions, in broad and vague outline, without any indication of the cost of realising them' and comments that 'Gone, therefore, are those hopes, or fears, of the publication of a fully-fledged, detailed Government Defence Programme, including expenditure, over many years, amounting to hundreds of millions of pounds.' Some aspects of the plans are visible in the White Paper and *The Economist* notes that 2 battleships will be built each year, 20 more cruisers will be added to the fleet, total strength in first line aircraft will rise in 1937 from 2000 to 2400, and the Army will be enlarged by 4 new infantry battalions.

March 14, 1936: The Defence Estimates for 1936/37 have been published and at £158.2 million show an increase over the original Estimate for 1935/36 of £33.9 million. *The Economist* points out that these figures do not include any allowance for the cost of the White Paper rearmament scheme which might require £40 million or even £80 million.

April 4, 1936: Final figures for defence expenditure in 1935/36 were £136.9 million. *The Economist* comments that this information does not change the outlook as discussed on March 14.

April 25, 1936: The budget has confirmed a Defence Estimate of £158.2 million for 1936/37 which is equivalent to £167.7 million at 1938 prices. The Chancellor of the Exchequer (Chamberlain) stated that additional expenditure on rearmament would exceed £20 million. He also made an important policy announcement, namely, that he considered it proper to meet some of the costs of expanding the defence forces (though not maintaining them) by borrowing rather than from taxation.

It seems clear that defence spending will continue to rise on a sustained basis but magnitudes are still unclear. Given known spending next year of £167.7 million and supplementary estimates expected to be at least £25 million, it seems reasonable to think that annual spending for the medium term will be around £200 million, equivalent to £212 million at 1938 prices. This means **NPV = 944.4** compared with 784.4 on previous assumptions) so the **news in 1936_{Q1} is +160.0**. Historical research reveals that in February 1936, the Cabinet had agreed a programme of defence spending over the 5 years 1936-1940 of £1016 million (Peden, 1979) which is very similar.

July 11, 1936: Supplementary estimates amounting to £20 million have been presented this week. Defence expenditure will be at least £54 million more than last year.

November 28, 1936: A recently issued brokers' circular predicts that next year's Defence Estimate will be £220 million which *The Economist* describes as 'not prima facie unreasonable'.

January 2, 1937: Given that total expenditure in the first 3 quarters of the fiscal year has been announced as £126.7 million, *The Economist* says that is unlikely that defence spending in 1936/37 will exceed £178.2 million.

January 23, 1937: *The Economist* in a lead editorial, notwithstanding that it thinks that Britain is on the verge of enormous expenditures on rearmament, fiercely opposes the idea of a Defence Loan which it says is now widely believed will be announced imminently, probably for £150 millions.

February 13, 1937: The government has announced that it will introduce a bill (the Defence Loans Act) to permit it to borrow up to £400 million for defence expenditure over a period not exceeding 5 years. *The Economist* comments that the 'effect will be to bring the country face to face with the stupendous scale of the preparations on which we are now embarked'.

February 20, 1937: The government has published another White Paper, 'Statement Relating to Defence Expenditure' (Cmd. 5374). This offers little precise information on the acceleration of the rearmament programme but says that it would be imprudent to expect total expenditure on defence in the next 5 years to be much less than £1500 million and that the level of expenditure in the next 2 or 3 years will be very much heavier than in the current year.

March 13, 1937: Defence expenditure announced for next year to be financed either by borrowing or taxation is £277.7 million but there may well be additions to these estimates during the year.

March 20, 1937: In a leading editorial, *The Economist* reflects on the details of future defence spending and comments that 'the staggering scale of our war preparations begins to loom larger and larger'.

There seems every reason to believe that future expenditure will be at £300 million per year (£300.2 million in 1938 prices). The new NPV = 1337.4 so the **news in 1937_{Q1} is +393.0**.

April 3, 1937: Defence expenditure in the last fiscal year comes in at £186.1 million.

April 24, 1937: The budget has confirmed defence expenditure for 1937/38 is expected to be £278.3 million of which £80 million will be financed by borrowing. The Chancellor (Chamberlain) does not expect any supplementary estimates this year.

There is **no news in 1937_{Q2}**.

January 8, 1938: *The Economist* notes that defence expenditure in the first 3 quarters of the fiscal year has totalled £172.9 million and, even assuming that expenditure surges in the last quarter in a similar way to last year, the total for the year 1937/38 seems likely to be at least £20 million below what was expected at the time of the budget.

March 5, 1938: Another 'Statement Relating to Defence' (Cmd. 5682) has been published. For 1938/39, the Defence Estimates show expenditure of £343.2 million, of which £90 million will be financed by borrowing. The White Paper also states that 1939/40 is expected to be the peak year and that total spending over the financial years 1937-41 will exceed £1500 million.

March 12, 1938: The Prime Minister (Chamberlain) has warned the House of Commons in a defence debate that expenditure levels will be substantially above the £1500 million envisaged in 1937.

April 9, 1938: In its Budget preview, *The Economist* suggests that events in Europe since the Defence Estimates were published will mean that actual expenditure in 1938/39 will exceed £343.2 million and there will be 'heavy' Supplementary Estimates during the year.

April 30, 1938: In his budget speech, the Chancellor of the Exchequer (Simon) stated that there might be heavy additional borrowing later in the year to finance the acceleration in the defence programme decided upon since the publication of the estimates in March.

It is now clear that projections for defence spending have to be revised again. There is a greater scale of rearmament and even in a new steady state spending in 1942/43 would be at least double the pre-1936 normal given the much increased size of the armed forces. If we assume that the total through 1942/43 is £1600 million and the peak year is 1939/40, the expected sequence at 1938 prices might look like this:

		1939 _{Q1}	85.8	1940 _{Q1}	93.8	1941 _{Q1}	79.0	1942 _{Q1}	79.0
1938 _{Q2}	85.8	1939 _{Q2}	93.8	1940 _{Q2}	79.0	1941 _{Q2}		1942 _{Q2} et seq.	62.5
1938 _{Q3}	85.8	1939 _{Q3}	93.8	1940 _{Q3}	79.0	1941 _{Q3}			
1938 _{Q4}	85.8	1939 _{Q4}	93.8	1940 _{Q4}	79.0	1941 _{Q4}			

The NPV = 1436.2 so the **news in 1938_{Q2} is + 98.8.**

July 16, 1938: A Supplementary Estimate of £22.9 million for the RAF has been announced.

The outturn for defence expenditure in the fiscal year 1938/39 would be £382.5 million about £40 million above the budget figure. We assume that this is predicted at this point in the year in the light of this extra spending on the air force and the Chancellor's comments in the budget. This implies a new NPV of 1445.8 and that the **news in 1938_{Q3} is + 29.1.**

The time series for Defence News is reported in Table 1.

Table 1. Defence News: Estimates of Changes in Net Present Value of Expected Defence Expenditure (£ million, 1938 prices).

1920 _{Q1}		1927 _{Q1}		1934 _{Q1}	
1920 _{Q2}		1927 _{Q2}	+2.2	1934 _{Q2}	
1920 _{Q3}		1927 _{Q3}		1934 _{Q3}	+44.3
1920 _{Q4}	+36.0	1927 _{Q4}		1934 _{Q4}	
1921 _{Q1}	+112.4	1928 _{Q1}		1935 _{Q1}	
1921 _{Q2}		1928 _{Q2}		1935 _{Q2}	+178.2
1921 _{Q3}	-36.7	1928 _{Q3}		1935 _{Q3}	
1921 _{Q4}		1928 _{Q4}		1935 _{Q4}	
1922 _{Q1}		1929 _{Q1}		1936 _{Q1}	+160.0
1922 _{Q2}		1929 _{Q2}		1936 _{Q2}	
1922 _{Q3}		1929 _{Q3}		1936 _{Q3}	
1922 _{Q4}	-10.9	1929 _{Q4}		1936 _{Q4}	
1923 _{Q1}		1930 _{Q1}		1937 _{Q1}	+393.0
1923 _{Q2}	+72.4	1930 _{Q2}		1937 _{Q2}	
1923 _{Q3}		1930 _{Q3}		1937 _{Q3}	
1923 _{Q4}	-0.9	1930 _{Q4}		1937 _{Q4}	
1924 _{Q1}		1931 _{Q1}		1938 _{Q1}	
1924 _{Q2}	-22.1	1931 _{Q2}	+7.0	1938 _{Q2}	+98.8
1924 _{Q3}		1931 _{Q3}		1938 _{Q3}	+29.1
1924 _{Q4}		1931 _{Q4}		1938 _{Q4}	
1925 _{Q1}		1932 _{Q1}			
1925 _{Q2}		1932 _{Q2}	+52.0		
1925 _{Q3}		1932 _{Q3}			
1925 _{Q4}		1932 _{Q4}			
1926 _{Q1}		1933 _{Q1}			
1926 _{Q2}	+0.9	1933 _{Q2}			
1926 _{Q3}		1933 _{Q3}			
1926 _{Q4}		1933 _{Q4}			

Source: own calculations, see text.

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