

MONETARY BASE CONTROL

PART 2

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Effects of Fiscal and Monetary Policy Changes
Document

Consequently, long rates need to rise eventually by more in the second case than the first and - since markets are forward - looking - this increase takes place immediately.

35. Columns 3 and 4 of Table D show the effects of bringing about faster growth in money GDP solely by either fiscal or monetary expansion (though markets expect a switch to sustainable, "balanced", expansion beyond year 5). Compared to the case of "balanced" expansion, fiscal expansion implies higher interest rates and a higher exchange rate, whereas monetary expansion leads to lower interest rates and a lower exchange rate. As far as output and inflation are concerned, the combination of a lower exchange rate and lower short rates leads to a rather better output - inflation split than the reverse. This is partly because some of the initial inflationary impact of a lower exchange rate is offset by a reduction in mortgage rates (and hence, through the RPI, lower earnings growth). But monetary expansion (with a fixed PSBR) also implies much smaller debt sales than either "balanced" or fiscal expansion. The resulting fall in long-term interest rates adds to the output gains from a lower exchange rate and short-term interest rates.

36. Across all four simulations in Table D however, the similarities are probably more important than the differences. The essential features common to all are that:

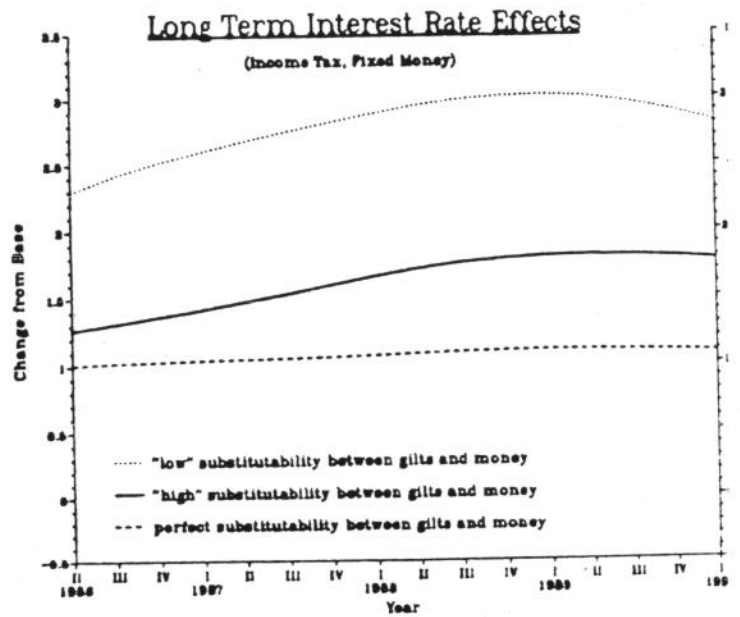
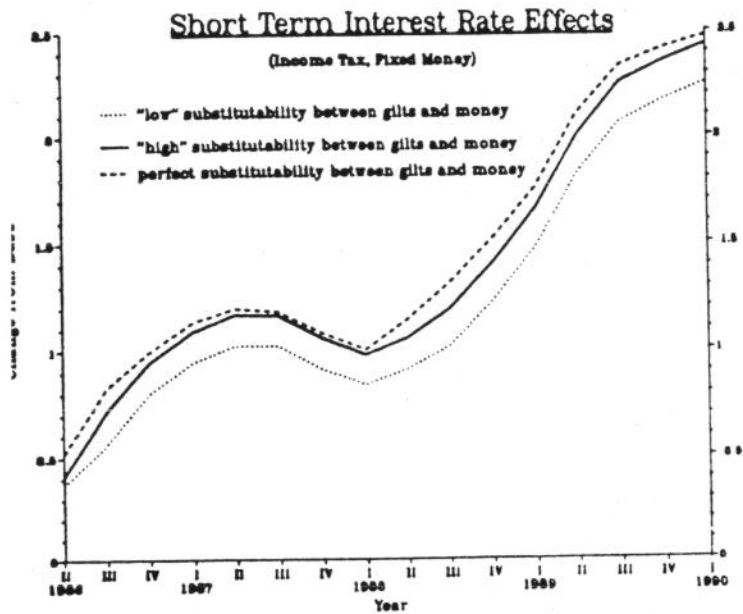
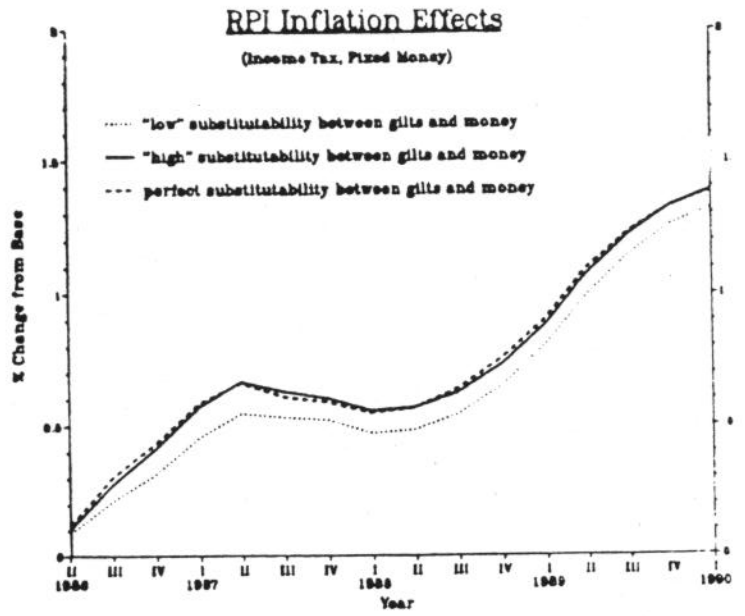
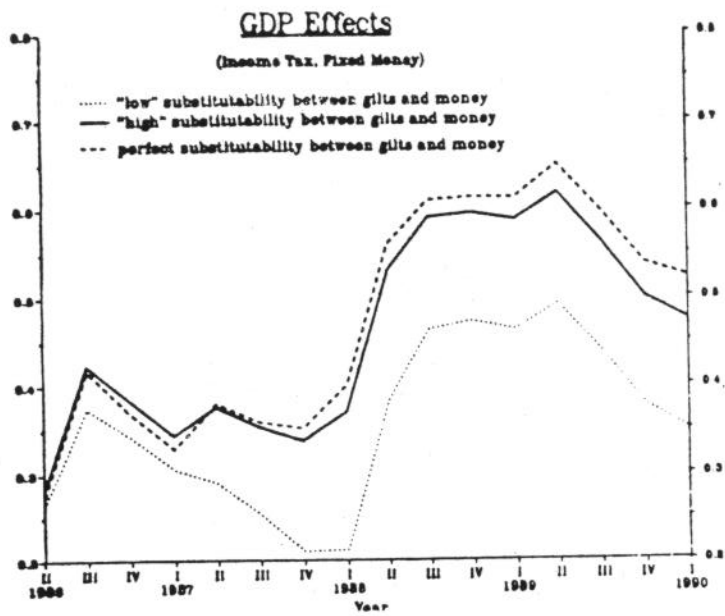
- a. there is an initial gain to output, which is beginning to fade by year 4, and
- b. inflation quickly rises to its new steady-state level, one point above base.

Alternative Assumptions about Substitutability between Domestic Financial Assets

37. The charts below compare the results of increasing the PSBR by 1 per cent of GDP, using income tax and keeping the money supply fixed, assuming "low", "high" and infinite degrees of substitutability between gilts and money. "Low" substitutability is characterized by the standard model equation for £M3 , as used in our main case; "high" substitutability by a £M3 equation in which the coefficients on the relative return variable are doubled.

38. The effects can be summarized as follows:

- i. the increase in the long rate required to fund the higher PSBR is smaller the higher the degree of substitutability
- ii. this implies a smaller increase in the cost of capital and so less crowding - out of output
- iii. it also means higher wealth (smaller negative revaluations) - consequently, £M3 falls by less and short-term interest rates have to rise by more to keep the weighted monetary aggregate unchanged.

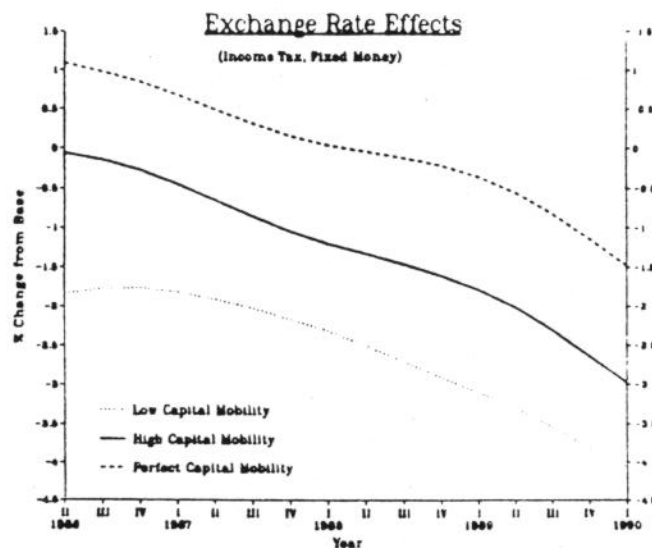
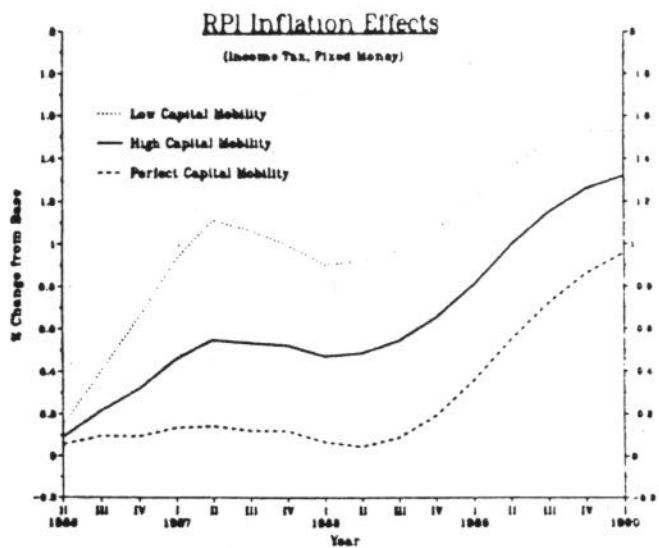
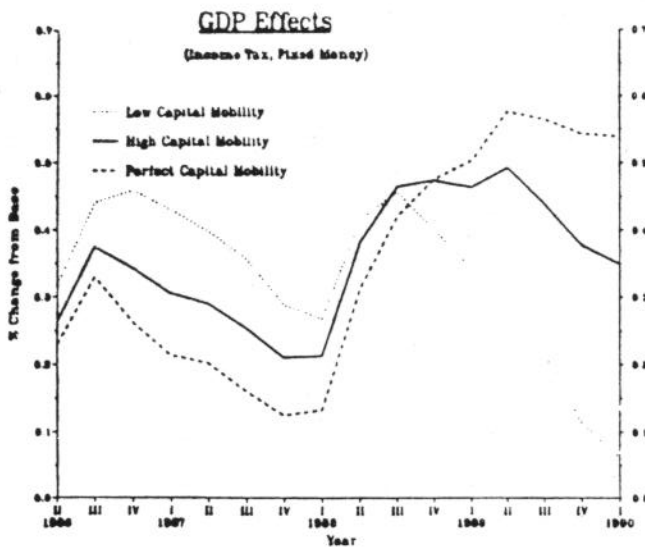


Alternative Assumptions about Capital Mobility

39. The role of capital mobility in the exchange rate equation, and the reasons why it might - in principle - be important for simulation results, were set out in paragraph 7. The purpose of this section is to indicate to what extent our assumptions about the degree of capital mobility are important in practice.

40. The charts below show the results of increasing the PSBR by 1 per cent of GDP, using income tax and keeping the money supply fixed, under a range of assumptions about capital mobility.

41. "Low" capital mobility refers to the parameters in the 1986 Public Treasury model; "high" capital mobility is the assumption used in our "main case" simulation (Table A); and perfect capital mobility gives no role at all for current and lagged values of the basic balance in determining the exchange rate (though future values do still have a role, via the terminal condition).



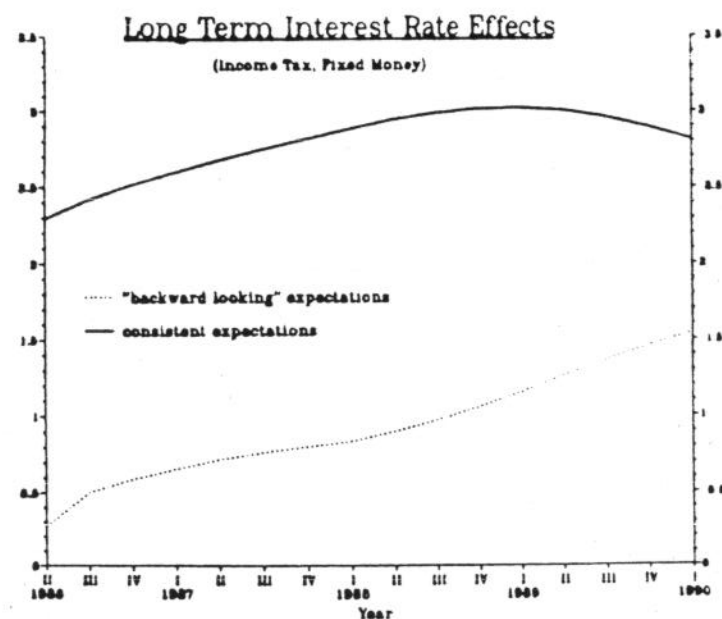
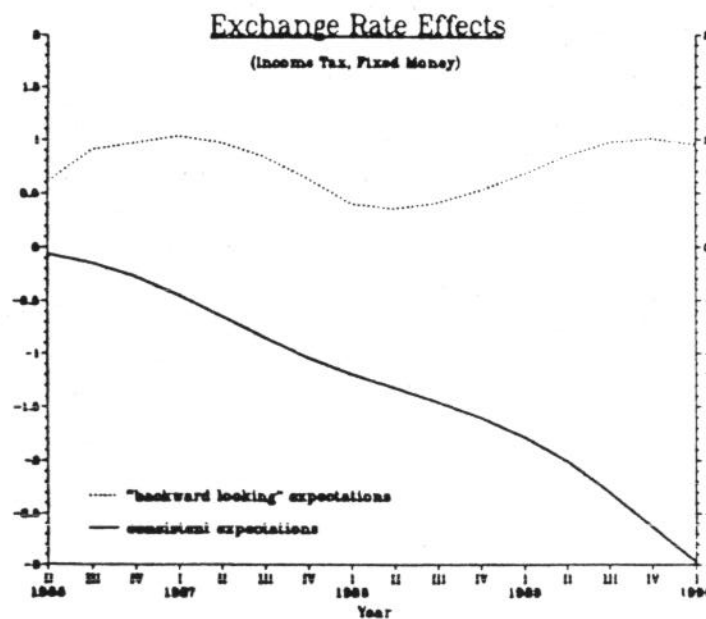
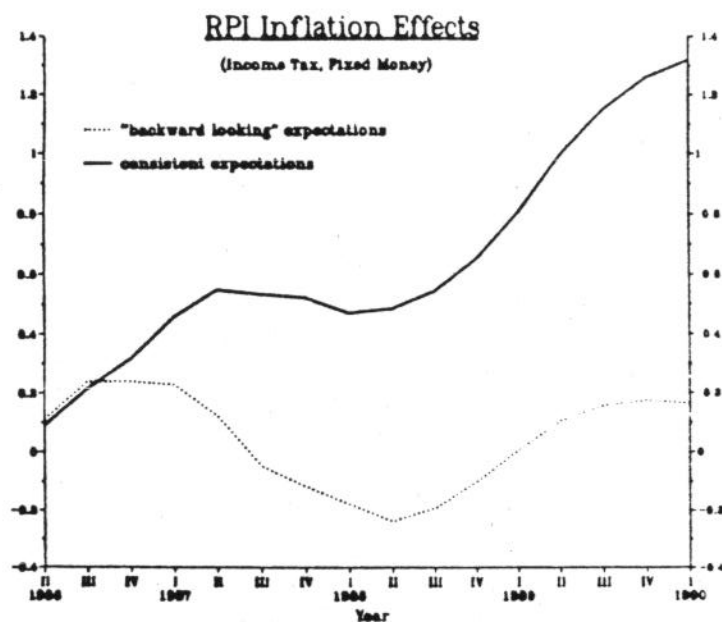
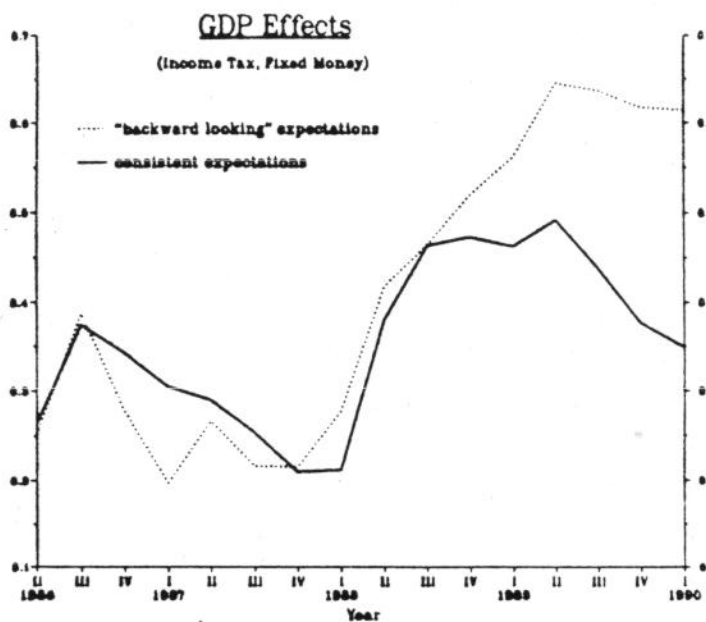
42. The results show that simulation properties are significantly affected by the assumed degree of capital mobility. Consider first the exchange rate. With perfect capital mobility, we get the standard overshooting results. The covered interest parity condition requires that, with higher domestic interest rates, the nominal exchange rate should depreciate steadily over time. Given that, as explained in paragraph 26, the long-run equilibrium value of the real exchange rate in this simulation is roughly unchanged from base, the nominal exchange rate jumps up (by about 2 per cent) in order to depreciate steadily to a point (after four years) at which prices and the nominal exchange rate are little changed from base.

43. When capital is less-than-perfectly mobile, however, the current level of the exchange rate is determined not only by the interest parity condition but also by the current level of the basic balance. Under a fiscal shock, the basic balance typically goes (further) into deficit on impact, as the demand for imports rises. This dampens the size of the initial upward jump in the exchange rate and can, as in our "low" capital mobility case, reverse its sign.

44. Consequently, at least for the particular shock considered here, the higher the degree of capital mobility, the lower are the real output and inflation responses from fiscal expansion.

Alternative Models of Expectations

45. The assumption we have used that expectations are formed rationally and with perfect foresight (so that expectations and outturns are identical), though theoretically attractive, could be regarded as being rather unrealistic. The equation for determining expectations in the Treasury model, rudimentary as they are, represent the opposite



extreme. They are purely "backward-looking", in the sense that expectations are based only on current or past values of expectational and other variables, rather than on some extrapolation towards a future long run equilibrium. Thus, expected future long rates are assumed to depend on current and lagged long rates (if long rates rise in the current period, they are expected to fall in the next), current short rates (if short rates rise now, long rates are expected to follow in the next period) and terms in expected inflation and the PSBR (the latter being an attempt to capture gilt-supply effects). Expected exchange rates depend on current exchange rates, the uncovered interest differential vis-a-vis the rest of the world, relative costs and money supplies at home and abroad, and the value of North Sea reserves.

46. The charts above show how the simulation results of increasing income tax with fixed money supply are affected if we drop the assumption of consistent expectations and allow these "backward-looking" equations to operate.

47. The results show (a) how important the assumed model of expectations is for the determination of exchange rates and long interest rates and (b) how these variables in turn affect the simulation properties of the whole model. Without the assumption that foreign exchange markets will anticipate a path for the exchange rate consistent with an unchanged basic balance in the long-run, it is clear that, for this simulation, the profile of a steadily declining nominal exchange rate no longer holds. Instead, the nominal rate remains within $\frac{1}{2}$ -1 per cent of base levels over the whole four years. Similarly, when money markets fail to take account of a higher level of future interest rates in setting current long rates, the jump in long rates when fiscal policy changes is significantly reduced.

48. The net result for GDP from these two effects is ambiguous, a priori. The higher exchange rate under "backward-looking" expectations depresses output via the trade account, while lower long rates tend to boost investment. But, probably because the higher exchange rate unambiguously reduces inflation (generating positive wealth effects on output), the net output response by the last year of the simulation reported here is increased when "backward-looking" expectations are assumed.

49. It might also be useful here to compare results under consistent expectations with those produced by the "announcement effects" methodology described in paragraph 9. Table F shows results from the simulation of lower income tax with fixed money under the two expectations mechanisms. As explained earlier, "announcement effects" are a forward-looking concept which essentially attempt to proxy consistent expectations, and so we would not necessarily expect the results to differ qualitatively. However, the "announcement effects" methodology gives no weight to the long-run basic balance when monetary policy is non-accommodating, and so no forward-looking effect was applied to the exchange rate in this particular simulation. Consequently, the exchange rate follows a very different path from the consistent-expectations solution.

TABLE F PSBR/GDP RATIO INCREASED BY 1 PER CENT WITH FIXED MAGGWT

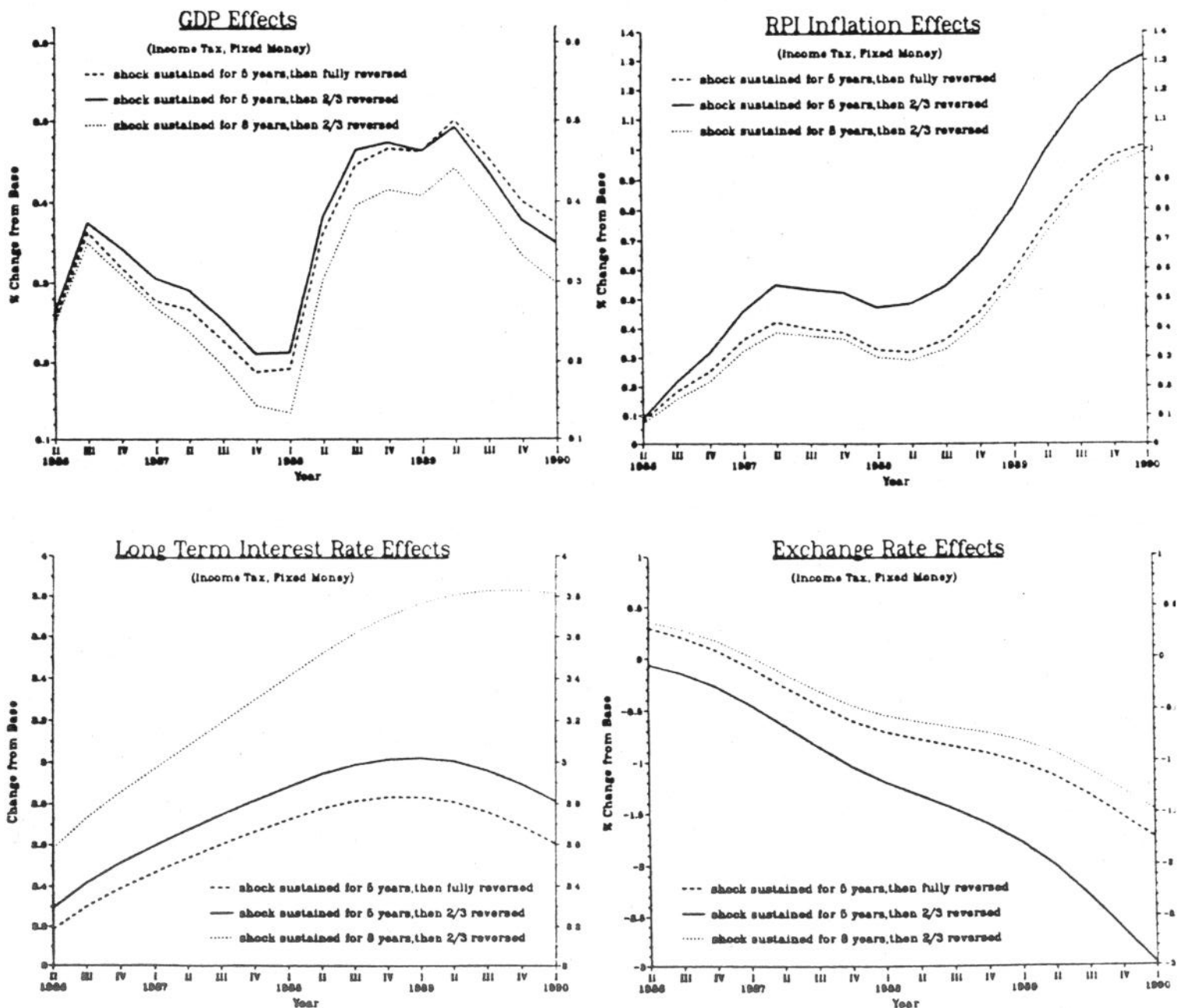
% change from base in:	<u>Consistent Expectations</u>	<u>"Announcement Effects"</u>
<u>Real GDP</u>		
Year 1	+ .3	+ .3
Year 2	+ .2	+ .1
Year 3	+ .4	+ .3
Year 4	+ .4	+ .4
<u>RPI Inflation</u>		
Year 1	+ .3	+ .2
Year 2	+ .5	+ .1
Year 3	+ .6	0
Year 4	+1.2	+ .3
<u>Nominal Exchange Rate</u>		
Year 1	- .2	+ .6
Year 2	- .9	+ .7
Year 3	-1.5	+ .5
Year 4	-2.5	+1.0
<u>Long-Term Interest Rates</u>		
Year 1	+2.5	+2.6
Year 2	+2.8	+2.8
Year 3	+3.0	+3.0
Year 4	+2.9	+3.4

50. Given the different exchange rate profiles, we naturally get a larger inflation response, and some extra output, when using consistent expectations rather than "announcement effects". Effects on the long-term interest rate path seem to be negligible, at least in the first three years of the simulation.

51. One further aspect of expectations assumptions was discussed in paragraphs 14 and 15 - namely how agents form expectations about potentially unsustainable policies. Of the variety of possible assumptions, we have considered two alternatives to the standard assumption used in our "main case":

- i. that the fiscal shock is fully reversed, with no monetary accommodation
- ii. that the fiscal shock is $\frac{2}{3}$ reversed, as in the main case, but after 8 years rather than 5 years.

A comparison of the results under the three assumptions is illustrated in the charts below.



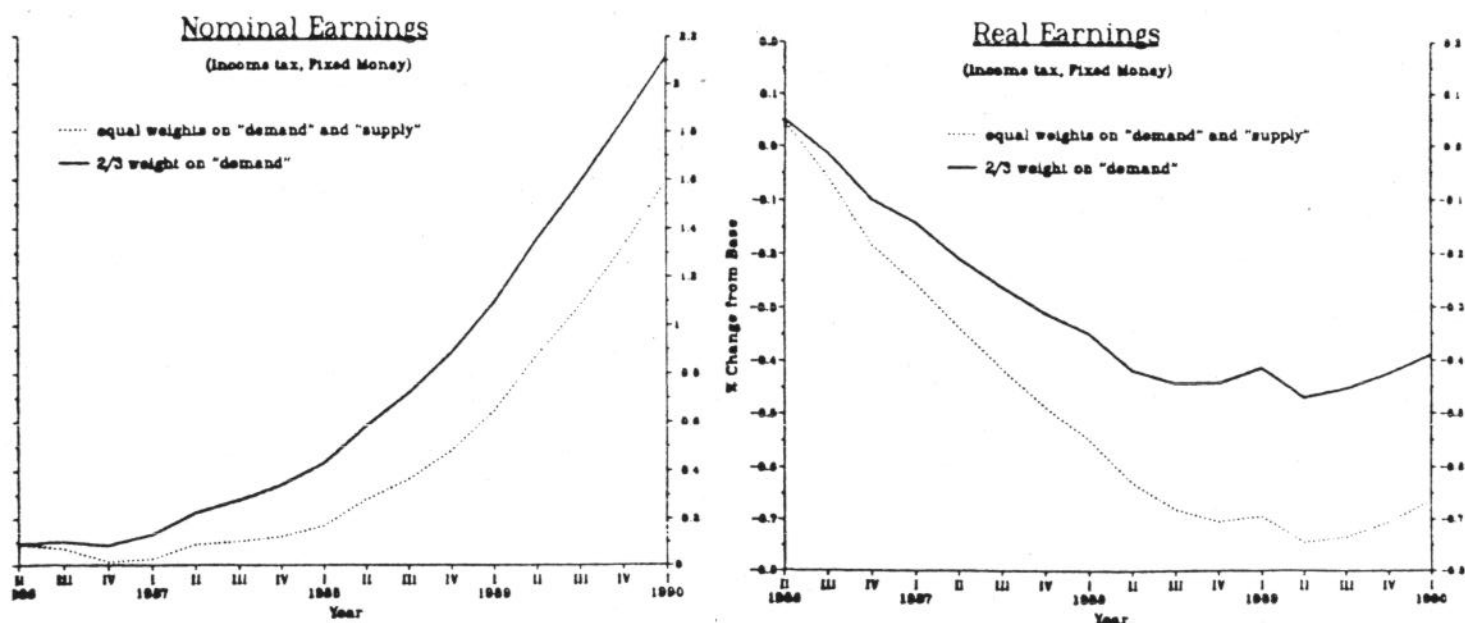
52. Not surprisingly, the fall in the exchange rate over the simulation period is greater a. the more the fiscal expansion is expected to be accommodated, rather than reversed, beyond the initial stage of the simulation and b. the sooner that accommodation is assumed to take place. The rise in the long-term interest rate, on the other hand, depends on what is expected to happen to the debt-income ratio in the long run. Consequently, full fiscal reversal produces a smaller rise in long rates than $2/3$ reversal, but a bigger rise occurs if the initial fiscal shock is maintained for a longer period.

53. The inflation response is related most closely to the effects on the exchange rate, so that the more monetary accommodation there is assumed to be in the future, and the sooner it occurs, the greater the increase in inflation over the initial period. The effects on output, however, appear to be more or less offsetting, so that the precise assumption about future policy realignment has little net effect.

Alternative Earnings Equations

54. In this section we look briefly at how simulation properties are affected by changing the weights on "demand" and "supply" factors (ie the consumption wage versus the product wage) in the earnings equation, to reflect the view that employees' bargaining power may have weakened relative to employers' in recent years. (see paragraph 7(iii)). We also show the effects of using alternative measures of pressures-of-demand in the labour market.

55. As the charts below show, both nominal and real earnings grow more quickly in response to a cut in income tax (with fixed money) when "demand" factors are given more weight at the expense of "supply". This simply reflects the fact that one element



of the labour "supply" term in the earnings equation is the retention ratio, which is in turn directly related to the level of personal income taxes. The lower the weight on supply, the weaker is the restraining influence of the retention ratio on earnings growth. The effects on output and inflation are given in the first two columns of Table G below, and show that the higher the weight on "demand" (ie the less important the retention ratio), the faster is the "crowding out" of the output effect in an income tax simulation and the higher (marginally) is inflation.

56. The same story, qualitatively, may well apply to VAT and NICs changes as to changes in income tax. Although the weight on NICs is being increased, whereas that on VAT and income tax is reduced, changes in NICs have the opposite effect on earnings (lower NICs tend to raise earnings growth). The probability is, therefore, that a higher weight on "demand" factors in the earnings equation will increase the speed of "crowding out" for all three tax instruments. The effects of an increase in central government investment, on the other hand, will not be significantly altered by changing the weights on "demand" and "supply" factors, since CG investment does not directly alter the consumption wage relative to the product wage.

TABLE G EFFECTS OF 1 PER CENT INCREASE IN PSBR/GDP RATIO WITH DIFFERENT EARNINGS EQUATIONS

% change from base in:	<u>Equal Weights on Demand and Supply</u>	<u>2/3 Weight on Demand 1/3 Weight on Supply</u>	<u>Unemployment as measure of pressure of-demand</u>
<u>Real GDP</u>			
Year 1	+ .3	+ .3	+ .3
Year 2	+ .2	+ .2	+ .1
Year 3	+ .4	+ .3	+ .2
Year 4	+ .4	+ .3	0
<u>RPI Inflation</u>			
Year 1	+ .3	+ .3	+ .2
Year 2	+ .5	+ .6	+ .6
Year 3	+ .6	+ .7	+ .9
Year 4	+ 1.2	+ 1.3	+ 1.6
<u>Unemployment</u>			
Year 1	- .1	- .1	- .1
Year 2	- .3	- .3	- .3
Year 3	- .5	- .5	- .4
Year 4	- .8	- .6	- .5

57. The third column in Table G shows the results when pressure-of-demand is represented in the earnings equation by unemployment rather than the level of output.

This reflects the view that unemployment may be a better proxy of (negative) excess demand in the labour market than output, and it has important implications for the nature of crowding-out in the model. The figures in Table G show that, in our "standard" simulation (column 1), unemployment falls by proportionately more than output rises - mainly because of an increase in the relative cost of capital. It follows that if wage pressure were a function of the proportionate change in unemployment, rather than in output, the degree of crowding-out via higher real wages would be increased. Column 3 of Table G confirms that this is the case. (It should be emphasized that this simulation is purely illustrative; strictly speaking, the alternative earnings equation should be derived from a coherent theoretical model and then re-estimated. Moreover, there are a number of reasons why unemployment, though perhaps better than output as a proxy for pressure-of-demand, is unsatisfactory for that purpose - the most important reason being that it takes no account of shifts in the natural rate of unemployment, which is the appropriate benchmark against which excess demand should be measured, and which might be affected by, for example, cuts in income tax.)

Conclusions

58. This paper has considered how the estimated effects of monetary and, particularly, fiscal changes vary according to the policy instrument used, the underlying policy framework, and over different assumptions about certain key equations and parameters in the model. The sensitivity of simulation results to model specification is of particular interest because those areas of the model where we have considered alternative equations are, generally speaking, extremely difficult to "pin down" empirically. The exchange rate equation is the most extreme example of this.

59. Considering instruments and policy assumptions first, the main conclusions will be fairly familiar:

- i. the ranking of instruments according to their impact effects on domestic demand is determined by the sum of marginal propensities to save and import, so that public investment is the most "effective", followed by VAT, NICs and personal income tax. The higher the initial impact on demand, the greater the effect on inflation and the faster is the initial stimulus "crowded out".
- ii. the ranking of instruments according to their effects on employment for given output (ie on productivity) appears to be determined largely by their direct impact on labour costs. Cuts in NICs and income tax create more jobs per unit of output than increases in public expenditure or cuts in VAT. Indirect effects on relative factor prices across instruments tend to be broadly offsetting (when earnings are higher, so is the cost of capital)

iii. although output effects are larger when monetary policy is accommodating than when it is not, "crowding-out" is apparent by year 4 of any simulation even when real interest rates are fixed. This seems to occur because of the direct effects of higher inflation on real wealth.

60. A summary of the effects of changing the specification of the model on simulation properties is given in Table H. In this context, it is clear that by far the most important model parameter, of those considered here, is the coefficient on the basic balance in the exchange rate equation - that is, the assumed degree of capital mobility. With few exceptions, the upper and lower limits on the range of possible responses (last column of Table H) are all generated by the two capital mobility variants.

61. The differing profiles for short-term interest rates mainly reflect the behaviour of the exchange rate when the money supply is fixed. The greater the fall in the exchange rate, the higher is money GDP growth, the greater the demand for money and so the higher are short term interest rates.

62. Of the variants considered, the degree of substitutability between gilts and money (which, in conjunction with the zero-overfunding requirement, determines movements in the yield gap) appears to be of little quantitative significance. Though long rates rise by less when the assumed degree of substitutability is increased, the consequent effects on output and inflation are small (and employment effects are smaller still, with output and relative factor prices acting in opposite directions).

63. Assuming "backward-looking" expectations also has only a minor impact on the output response, with offsetting effects from a higher exchange rate and lower long rates. Since the exchange rate change switches sign, however, the effect on inflation is very marked - virtually all the inflation response in the "main case" disappears.

64. Increasing the "demand" effects in the earnings equation (that is, those factors, such as producer prices and employers' labour taxes, which affect firms' demand for labour) has the least impact of all, though, as we would expect for a cut in income tax, and probably for other tax cuts too, there are signs that this increases the speed of "crowding out".

TABLE H RANGE OF EFFECTS OBTAINED FROM A SIMULATION OF A 1 PER CENT INCREASE IN THE PSBR/GDP RATIO USING INCOME TAX, WITH FIXED MAGGWT

% change from base in:	"Main Case"	Perfect Capital Mobility	Higher Substitut- ability between gilts and Money	Backward Looking Expecta- tions	Unemployment as measure of pressure- of-demand	Higher Demand Effect in Earnings Equation	Range	
							L	U
<u>Real GDP</u>								
Year 1	+ .3	+ .3	+ .3	+ .3	+ .3	+ .3	+ .3	+ .3
Year 2	+ .2	+ .2	+ .3	+ .2	+ .1	+ .2	+ .1	+ .3
Year 3	+ .4	+ .4	+ .5	+ .5	+ .2	+ .3	+ .2	+ .5
Year 4	+ .4	+ .6	+ .5	+ .6	0	+ .3	0	+ .6
<u>PI Inflation</u>								
Year 1	+ .3	+ .1	+ .3	+ .2	+ .2	+ .3	+ .1	+ .3
Year 2	+ .5	+ .1	+ .6	- .1	+ .6	+ .6	- .1	+ .6
Year 3	+ .6	+ .2	+ .7	- .1	+ .9	+ .7	- .1	+ .9
Year 4	+1.2	+ .8	+1.2	+ .2	+1.6	+1.3	+ .2	+1.6
<u>Nominal Exchange Rate</u>								
Year 1	- .2	+ .9	- .4	+ .9	+ .3	- .1	- .4	+ .9
Year 2	- .9	+ .3	-1.2	+ .7	- .4	- .8	-1.2	+ .7
Year 3	-1.5	- .2	-1.9	+ .5	-1.0	-1.4	-1.9	+ .5
Year 4	-2.5	-1.0	-2.9	+1.0	-2.1	-2.4	-2.9	+1.0
<u>Short-term Interest Rate</u>								
Year 1	+ .7	+ .6	+ .8	+ .9	+ .7	+ .7	+ .6	+ .9
Year 2	+1.0	+ .5	+1.1	+ .5	+1.0	+1.0	+ .5	+1.1
Year 3	+1.2	+ .5	+1.3	+ .4	+1.3	+1.3	+ .4	+1.3
Year 4	+2.1	+1.3	+2.2	+ .8	+2.5	+2.2	+ .8	+2.5

65. The main effect of assuming perfect capital mobility is to reduce the inflationary impact of a fiscal expansion. The higher the degree of capital mobility, the less is the influence of current trade deficits on the level of the exchange rate. Consequently, the exchange rate falls by less, implying a smaller increase in inflation than in the "main case." The output response, however, is little different, since the direct (adverse) effect of a higher exchange rate is largely offset by the indirect (beneficial) effect from lower inflation.

66. The most crucial assumption of all, for both output and inflation responses, relates to the pressure-of-demand term in the earnings equation. This determines the extent to which the degree of "tightness" in the labour market feeds back onto earnings growth, and is proxied in the standard model equation by the level of output (implicitly relative to trend). Using changes in unemployment rather than output as the measure of pressure-of-demand significantly increases the speed of crowding out with a correspondingly bigger inflation effect. Although, as we explained in the previous section, this particular variant should not be taken too seriously, it will always be the case that simulation results of fiscal and monetary policy changes are crucially dependent on what is assumed about the output-inflation (or employment-inflation) trade off in the short and long run. The pressure-of-demand term in the earnings equation is a key factor in determining the nature of this trade off.

67. Finally, it is interesting to see where last year's EEPM simulation results stand in relation to Table H. A full comparison of fiscal shocks, with both accommodating and non-accommodating monetary policy, is given in Table I and J. Although there have been several other changes to the model since last year which make comparison difficult, it is clear that the switch to consistent expectations for the exchange rate has had the greatest impact. The differences are less pronounced in the case of fixed real interest rates, since the "announcement effects" methodology, for this case only, did "jump" the exchange rate in a quasi-consistent manner (though by less than in the fully consistent solution). For non-accommodating monetary policy, however, the consistent path for the exchange rate is very different from the "backward-looking" solution used last year, and consequently this year's results exhibit higher inflation responses and faster crowding out.

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30 July 1986

TABLE I

**FISCAL POLICY SHOCKS: COMPARISON WITH 1985 EEPM RESULTS
FIXED MAGGWT**

FISCAL INSTRUMENT	PERSONAL INCOME TAX		CENTRAL GOVT INVESTMENT EXP		VAT RATE		EMPLOYERS' NICs RATE	
	1985	1986	1985	1986	1985	1986	1985	1986
EEPM YEAR	1985	1986	1985	1986	1985	1986	1985	1986
% change from base in:								
<u>REAL GDP</u>								
Year 1	+ .3	+ .3	+1.1	+1.5	+ .6	+ .5	+ .5	+ .7
Year 2	+ .3	+ .2	+1.0	+1.4	+1.0	+ .7	+ .6	+ .8
Year 3	+ .5	+ .4	+ .8	+1.0	+1.2	+1.1	+ .6	+ .9
Year 4	+ .6	+ .4	+ .3	+ .1	+1.0	+1.0	+ .4	+ .6
<u>MONEY GDP</u>								
Year 1	+ .2	+ .5	+ .7	+1.3	- .7	- .9	- .2	- .2
Year 2	- .2	+ .8	+ .9	+2.4	- .9	- .9	- .3	+ .1
Year 3	- .4	+1.5	+1.3	+3.9	- .9	- .1	- .2	+1.1
Year 4	- .4	+2.3	+1.5	+5.1	- .7	+ .8	0	+2.4
<u>EMPLOYMENT</u>								
Year 1	+ .1	+ .2	+ .3	+ .7	+ .2	+ .3	+ .3	+ .4
Year 2	+ .4	+ .5	+ .7	+1.5	+ .6	+ .8	+ .7	+1.1
Year 3	+ .6	+ .9	+ .9	+1.7	+1.0	+1.5	+ .9	+1.7
Year 4	+ .8	+1.2	+ .7	+1.1	+1.2	+1.9	+ .9	+1.8
<u>RPI INFLATION</u>								
Year 1	0	+ .3	+ .2	+ .5	-1.5	-1.6	- .5	- .9
Year 2	- .3	+ .5	+ .4	+1.6	- .5	- .1	- .1	+ .4
Year 3	- .2	+ .6	+ .7	+2.1	- .1	+ .5	+ .2	+1.2
Year 4	0	+1.2	+ .7	+2.1	+ .3	+1.6	+ .4	+1.8
<u>NOMINAL EXCHANGE RATE</u>								
Year 1	+ .7	- .2	0	-2.4	- .3	- .1	+ .5	- .6
Year 2	+ .7	- .9	- .3	-2.6	- .1	- .8	+1.1	- .4
Year 3	+ .6	-1.5	- .3	-3.4	+ .1	-1.2	+1.2	-1.1
Year 4	+1.0	-2.5	- .2	-4.2	+ .4	-2.2	+1.2	-2.0
<u>SHORT TERM INTEREST RATES</u>								
Year 1	+ .7	+ .7	+ .6	+ .2	0	+ .6	+ .2	- .5
Year 2	+ .7	+1.0	+1.0	+1.8	+ .3	+ .9	+ .8	+ .9
Year 3	+ .9	+1.2	+1.4	+2.5	+ .6	+1.3	+1.1	+1.4
Year 4	+1.2	+2.1	+1.8	+3.1	+1.1	+2.7	+1.4	+2.4

TABLE J

**FISCAL POLICY SHOCKS: COMPARISON WITH 1985 EEPM RESULTS
FIXED REAL SHORT RATES**

FISCAL INSTRUMENT	PERSONAL INCOME TAX		CENTRAL GOVT INVESTMENT EXP		VAT RATE		EMPLOYERS' NICs RATE	
EEPM YEAR	1985	1986	1985	1986	1985	1986	1985	1986
<u>% change from base in:</u>								
<u>REAL GDP</u>								
Year 1	+ .5	+ .6	+1.4	+1.7	+1.1	+ .9	+ .7	+ .9
Year 2	+1.0	+ .9	+2.0	+2.1	+2.1	+1.8	+1.2	+1.7
Year 3	+1.6	+1.2	+2.3	+2.4	+2.8	+2.6	+1.6	+2.0
Year 4	+1.6	+1.2	+1.6	+1.5	+2.6	+2.6	+1.4	+1.6
<u>MONEY GDP</u>								
Year 1	+ .7	+1.0	+1.4	+1.8	- .1	- .2	0	+ .2
Year 2	+1.8	+2.8	+3.9	+5.2	+1.2	+1.9	+1.0	+2.3
Year 3	+3.3	+5.3	+6.9	+9.9	+2.4	+4.7	+2.2	+5.0
Year 4	+4.4	+7.8	+8.9	+14.3	+3.5	+8.0	+3.2	+8.2
<u>EMPLOYMENT</u>								
Year 1	+ .2	+ .3	+ .4	+ .7	+ .4	+ .3	+ .4	+ .4
Year 2	+ .9	+ .9	+1.4	+1.9	+1.3	+1.5	+1.1	+1.7
Year 3	+1.5	+1.6	+2.1	+2.7	+2.3	+2.8	+1.7	+2.7
Year 4	+1.9	+1.9	+2.4	+2.4	+2.7	+3.4	+1.9	+2.9
<u>RPI INFLATION</u>								
Year 1	+ .6	+1.0	+1.3	+1.7	-1.2	- .6	- .2	0
Year 2	+ .9	+1.9	+2.5	+3.7	+ .4	+1.6	+ .6	+1.8
Year 3	+1.0	+2.2	+2.5	+4.5	+ .5	+2.0	+ .8	+2.6
Year 4	+1.0	+2.7	+2.6	+5.2	+1.0	+3.5	+1.1	+3.7
<u>NOMINAL EXCHANGE RATE</u>								
Year 1	-4.0	-4.9	-7.2	-8.5	-6.4	-7.1	-2.6	-5.4
Year 2	-5.0	-6.0	-7.9	-10.2	-6.0	-8.5	-3.1	-5.9
Year 3	-5.5	-7.8	-8.3	-13.0	-6.5	-10.6	-3.2	-7.6
Year 4	-5.6	-10.1	-8.7	-16.7	-6.0	-13.5	-3.3	-10.2
<u>SHORT TERM INTEREST RATES</u>								
Year 1	+ .5	+ .8	+1.0	+1.4	-1.0	+1.0	- .2	0
Year 2	+ .8	+1.6	+2.0	+3.1	+ .2	+1.8	+ .4	+1.4
Year 3	+ .9	+2.0	+2.3	+4.2	+ .4	+2.6	+ .7	+2.3
Year 4	+ .9	+2.5	+2.3	+4.9	+ .8	+3.4	+1.0	+3.2

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MONETARY CHANGES

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FASTER MONEY GDP

Table 6	One point increase in money GDP growth rate	a) Balanced expansion b) Fiscal expansion c) Monetary expansion
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VARIANTS ON INCOME TAX SHOCK WITH FIXED MAGGWT

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Table 1a PERSONAL INCOME TAX, FIXED REAL STOCK MARKET

EEPM SUMMARY DIFFERENCE TABLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Real GDP	Money GDP	Change in RPI infln rate	EMPLOYMENT	UNEMPLOYMENT	change in	Real labour costs	Cost of capital inputs	Real home pay	Real exch. rate	Competitive rate	PSBR	Trade balance	% of GDP	Current a/c
	%	%	%	000s	%	Rate	%	%	%	%	%	%	%	%	%
1986/87	.63	1.00	.99	60	.28	-.17	5.28	-.56	2.21	-4.49	-4.70	1.00	-.28		-.30
1987/88	.91	2.81	1.94	204	.92	-.57	2.64	-1.59	2.15	-4.16	-4.53	1.00	-.02		-.08
1988/89	1.23	5.27	2.20	350	1.57	-.97	1.10	-2.29	2.56	-3.99	-4.00	1.00	.02		-.07
1989/90	1.15	7.80	2.68	431	1.93	-1.20	.03	-2.78	2.74	-4.07	-3.62	1.00	.05		-.11

	1	2	3	4	5	6	7	8	9	10	11
	GDP deflator (mkt prices)	Nominal exchange rate	Average earnings	Money GDP	MAGGWT	EM3	MO	Change in CPI infln rate	Short interest rates	Long interest rates	Expected capital gains
	%	%	%	%	%	%	%	%	%	%	%
1986/87	.38	-4.87	.19	1.00	.19	-.32	.71	.83	.82	1.77	-.60
1987/88	1.93	-6.03	1.62	2.81	1.02	.48	1.58	1.63	1.63	1.78	.22
1988/89	4.03	-7.79	3.79	5.27	2.46	2.02	2.94	2.03	2.03	1.73	1.01
1989/90	6.61	-10.08	6.44	7.80	4.44	4.11	4.82	2.45	2.45	1.61	1.57

£ million at current prices

	1	2	3	4	5	6
	PSBR adjustment	Fiscal account	Current account	Non Sea ICC's NAFA	Personal sector NAFA	Public sector deficit
1986/87	3945	-4325	-1143	209	1736	-3786
1987/88	4408	-5267	-356	-452	4256	-4409
1988/89	5005	-6866	-343	-1531	6205	-4884
1989/90	5548	-7854	-573	-2595	7855	-5499

Table 1b PERSONAL INCOME TAX, FIXED MAGGWT

EEPM SUMMARY DIFFERENCE TABLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Real GDP	Money GDP	Change in RPI infln rate	EMPLOYMENT	UNEMPLOYMENT	Cost of capital inputs	Real labour costs	Real take-home pay	Real exch. rate	Competitiveness	PSBR	% of Trade balance	% of GDP	Current a/c	
	%	%	%	000s	%	%	%	%	%	%		%	%		
1986/87	.32	.50	.27	47	.22	-31	.02	2.63	-.05	-.17	1.00	-.22	-.25		
1987/88	.24	.75	.52	114	.51	-75	-.32	2.20	-.44	-.69	1.00	-.16	-.23		
1988/89	.44	1.49	.62	192	.86	-129	-.64	1.87	-.51	-.82	1.00	-.21	-.31		
1989/90	.41	2.27	1.18	267	1.20	-182	-.82	1.62	-.70	-.88	1.00	-.22	-.42		

	1	2	3	4	5	6	7	8	9	10	11
	GDP deflator (mkt prices)	Nominal exchange rate	Average earnings	Money GDP	MAGGWT	EM3	MO	Change in CPI infln rate	Short interest rates	Long interest rates	Expected capital gains
	%	%	%	%	%	%	%	%	% points	% points	% points
1986/87	.15	-.23	.05	.50	.00	-.50	.50	.17	.67	2.46	-3.12
1987/88	.48	-.93	.12	.75	.00	-.70	.71	.42	.95	2.78	-2.02
1988/89	1.01	-1.54	.45	1.49	.00	-.82	.83	.57	1.15	2.99	-.26
1989/90	1.81	-2.48	1.22	2.27	.00	-.92	.94	.83	2.07	2.92	2.56

£ million at current prices

	1	2	3	4	5	6
	PSBR	Fiscal adjustment	Current account	Non Sea ICC's NAFA	Personal sector NAFA	Public sector deficit
1986/87	3879	-4075	-942	150	2269	-3783
1987/88	4152	-4355	-934	-286	3227	-4202
1988/89	4495	-4690	-1362	-288	3212	-4480
1989/90	4808	-5130	-1938	-1479	4286	-4859

Table 1c PERSONAL INCOME TAX, FIXED MONEY WDI

EEPM SUMMARY DIFFERENCE TABLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Real GDP	Money GDP	Change in RPI infln rate	EMPLOYMENT	UNEMPLOYMENT	change in	Real labour costs	Cost of capital inputs	Real home pay	Real exch. rate	Competitive rate	PSBR	% of Trade balance	GDP	Current a/c
	%	%	%	000s	%	%	%	%	%	%	%	%	%	%	%
1986/87	-.01	.12	.22	25	.11	-.07	.30	8.99	2.45	1.93	1.84	1.00	-.09		-.16
1987/88	.02	.00	-.46	51	.23	-.14	.23	7.72	2.17	1.19	.98	1.00	-.23		-.26
1988/89	.21	.01	-.06	136	.61	-.38	.14	10.69	1.70	1.37	.85	1.00	-.39		-.50
1989/90	.15	.00	.41	200	.90	-.57	.14	12.29	1.36	1.32	.77	1.00	-.38		-.61

	1	2	3	4	5	6	7	8	9	10	11
	GDP deflator (mkt prices) %	Nominal exchange rate %	Average earnings %	Money GDP %	MAGGWT %	EM3 %	MO %	Change in CPI infln rate %	Short interest rates % points	Long interest rates % points	Expected capital gains % points
1986/87	.08	1.81	.01	.12	-.71	-1.21	-.20	-.08	1.37	2.51	-2.67
1987/88	-.08	1.24	-.48	.00	-.24	-.75	.26	-.06	-.12	2.91	-3.43
1988/89	-.28	1.58	-.93	.01	-.62	-1.55	.31	-.20	.67	3.22	-.57
1989/90	-.24	1.51	-.93	.00	-1.27	-2.44	-.09	.07	1.61	3.20	2.87

£ million at current prices

	1	2	3	4	5	6
	PSBR	Fiscal adjustment	Current account Sea NAFA	Non North ICC's NAFA	Personal sector NAFA	Public sector deficit
1986/87	3829	-3781	-621	-122	2925	-3797
1987/88	4063	-3676	-1045	593	2284	-4101
1988/89	4317	-3809	-2161	-61	1955	-4285
1989/90	4557	-4001	-2776	-854	2562	-4617

Table 2a CENTRAL GOVERNMENT INVESTMENT, FIXED REAL SHORT RATES

EEPM SUMMARY DIFFERENCE TABLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Real GDP	Money GDP	Change in RPI infln rate	EMPLOYMENT	UNEMPLOYMENT	Real labour costs	Real take-home pay	Real exch. rate	Competitiveness	PSBR	% of Trade balance	% of GDP	Current a/c		
	%	%	%	000s	000s	%	%	%	%	%	%	%	%		
1986/87	1.72	1.84	1.72	146	.67	6.45	-1.05	-8.17	-7.87	1.00	-0.73	-0.77			
1987/88	2.13	5.21	3.71	412	1.86	-0.73	-0.92	-7.22	-6.64	1.00	-0.27	-0.42			
1988/89	2.44	9.90	4.51	591	2.65	-4.54	-0.51	-6.35	-4.49	1.00	-0.18	-0.42			
1989/90	1.49	14.32	5.20	537	2.41	-6.87	-0.22	-5.68	-2.87	1.00	0.14	-0.21			

	1	2	3	4	5	6	7	8	9	10	11
	GDP deflator (mkt prices) %	Nominal exchange rate %	Average earnings %	Money GDP %	MAGGWT %	EM3 %	MO %	Change in CPI infln rate %	Short interest rates % points	Long interest rates % points	Expected capital gains % points
1986/87	.24	-8.47	.66	1.84	-.57	-1.08	-.04	1.42	1.42	1.89	2.05
1987/88	3.20	-10.23	4.22	5.21	.34	.08	.64	3.11	3.11	1.58	2.94
1988/89	7.51	-13.03	9.61	9.90	2.54	2.68	2.47	4.16	4.16	1.22	3.79
1989/90	12.89	-16.56	15.58	14.32	5.61	6.22	5.11	4.88	4.88	.83	3.65

£ million at current prices

	1	2	3	4	5	6
	PSBR	Fiscal adjustment	Current account	Non Sea ICC's NAFA	Personal sector NAFA	Public sector deficit
1986/87	4053	0	-2960	-23	-78	-3873
1987/88	4697	0	-1802	-2337	4845	-4630
1988/89	5595	0	-2057	-5520	8909	-5435
1989/90	6344	0	-1124	-7354	12454	-6387
					% change in CGI	
					+145	
					+189	
					+233	
					+234	