

CHAPTER 6

WHAT IS LEFT OF 'NEW CAMBRIDGE'?

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The analysis put forward by the CEPG during the past few years about the relationship between fiscal policy and the behaviour of the economy has been placed by commentators into a number of different categories. In particular, Lord Kahn and Mr. Posner¹ think it new but wrong, while Messrs. Corden, Little and Scott² think it right but old. The most recent attack on the analysis has come from Mr Bispham,³ who claims that the strategic equation on which the analysis is based has 'broken down massively'.

In this chapter we discuss some of the most relevant criticisms, review recent experience to see how far the equation needs modification, and provide some further amplification of the hypotheses underlying it.

The core of the CEPG position was precisely set out in a passage in last year's *Review*, which has been so persistently ignored⁴ that it is quoted below in full:

[It is argued that] there exists a functional relationship which can be estimated with a reasonable degree of accuracy between total private expenditure (including investment) on the one hand and total private income (including profits and certain kinds of borrowing) less total tax payments on the other: that this enables an inference to be made (given the level of public expenditure and the conduct of credit policy) about the full-employment yield of the tax system which is the necessary but not sufficient condition for simultaneously achieving over a sustained period any pair of targets for the current balance of payments and the level of employment; and that the inference (in so far as it relates to underlying trends) can be made independently of external conditions such as the terms of trade. The operational significance of this contention, if correct, is that it entirely changes the principles according to which fiscal policy should be conducted. The objection to the use of short-term forecasting as the basis for fiscal policy ceases to be that these forecasts are inaccurate; it is rather that short-term forecasts are the wrong basis *in principle* for budgetary policy. If the functional relationship holds good, tax rates should be set by reference only to the external and

internal targets, the likely full-employment yield of the tax system, and likely level of public expenditure. But an appropriate setting of tax rates under this set of rules in no way ensures that both targets will be reached; for this to be achieved it is necessary that the economy should succeed in selling enough exports relative to imports.'

The only econometric evidence relating to the relationship between private expenditure and private disposable income which has so far been published is the following equation,⁵ provided for the Select Committee on Public Expenditure in mid-1974.

$$\begin{aligned}
 PX &= 0.533 YD + 0.416 YD_{-1} + 0.899 HP \\
 &\quad (10.08) \quad (7.81) \quad (3.13) \\
 &+ 0.790 BA + 0.962 S \quad (1) \\
 &\quad (3.68) \quad (13.08)
 \end{aligned}$$

This equation fitted the period 1954-72 reasonably well, with the estimated standard error of the equation as low as 0.34%. The crucial characteristics, for the policy rules to be valid, are that the coefficients on YD should sum to nearly one and that the lags should be fairly short. Throughout the entire process of experimentation no term in YD₋₂ was ever found to be significant; accordingly equation (1) could be simply transformed into an equation predicting net acquisition of financial assets (NAFA) by subtracting YD from both sides of the equation and multiplying by -1.

$$\begin{aligned}
 NAFA &\equiv YD - PX = 0.051 YD + 0.416 \Delta YD \\
 &\quad - 0.790 BA - 0.899 HP - 0.962 S \quad (1a)
 \end{aligned}$$

The term S, which represents the increase in the value of stocks (i.e. both the value of the physical increase in stocks and also stock appreciation), was included in the equation on the hypothesis that stocks tend to generate net bank borrowing more or less automatically.

¹It was Kahn and Posner (*The Times*, 17 and 18 April 1974), not CEPG, who attributed novelty to the views put forward.

²*Import controls versus devaluation* (Trade Policy Research Centre, 1975), p. 3: 'This general approach is known to all students of economics... it has been highlighted by the Cambridge group and it is doing a service by directing attention to it at this crucial time, although no professional economists would describe it as new.'

³The New Cambridge and "monetarist" criticisms of "conventional" economic policy making', *National Institute Economic Review*, November 1975.

⁴Though not by Mr A. P. Budd, in 'The debate on fine tuning: the basic issues', *NI Economic Review*, Nov. 1975. Alan Budd fairly draws the important conclusion: 'If fine tuning in the past has been directed towards the stabilisation of the private sector and if Mr Godley is correct in arguing that it has its own built-in stability he has provided an important general argument against fine tuning.'

⁵All variables are expressed in real terms after deflating money values by the deflator for private consumption plus private fixed investment; definitions are as follows:

PX - Total private expenditure (including stockbuilding and net intra-company investment abroad).

YD - Private disposable income after taxes and transfers.

HP - Net increase in consumer hire purchase debt.

BA - Net increase in bank advances to the personal sector (pre-1971).

S - Changes in the book value of stocks and work in progress in the private sector.

Figures in brackets are asymptotic t-ratios.

For full details see Cripps, Godley and Fetherston, 'Public expenditure and the management of the economy', Appendix, *Ninth Report from the Expenditure Committee, Session 1974*, HC328, HMSO, p. 9.

The relevant⁶ criticisms of the CEPG position are:

1. The relationship between private income and expenditure has insufficient theoretical underpinning to be convincing; it is of the 'black box' variety and as likely as not will not hold in the future.
2. That even if equation (1) were valid, stockbuilding, exports and import propensities are still potential exogenous sources of fluctuation.
3. The experience of the period since 1972 has been such as to destroy the equation originally put forward.

The first point was an admitted weakness at the time the relationship was originally advanced.⁷ We then relied heavily on the negative proposition that it is implausible that such a relationship does not hold in the long run. For if private expenditure did not increase one-for-one (subject to time-lags) with private disposable income it would follow that a step change in the *flow* of income would result in a continuing rise or fall in net *stocks* of financial assets held by the private sector relative to their disposable income. It is precisely this implication, built into most conventional short-term forecasting models, to which we object. Such models apparently represent the company sector as responding to, say, a change in corporation tax in virtually no other way than indefinitely building up or running down their net financial indebtedness. The positive reasons for maintaining our hypothesis are discussed below (p. 49, para 2).

Mr Budd⁸ is right to point out that, even if the central proposition is correct, external factors and stockbuilding can still generate fluctuations in domestic output. But the fact that this is so would only constitute a valid criticism of the CEPG analysis if it were generally appropriate to use fiscal and monetary policy to offset fluctuations brought about in these ways.

However, it is most unlikely that it ever would be appropriate to use fiscal policy for this purpose. If exports fall, or the import propensity rises, the downward impulse which this gives to the economy will be

associated with a relative deterioration in the balance of payments. The attempt to counteract adverse external factors such as these by an expansionary fiscal policy would inevitably accentuate the deterioration in the current balance.⁹

While stockbuilding can cause fluctuations, it is unlikely in this case, also, that it would ever be right to try and offset these with general fiscal policy. For one thing, given (as most people would accept) that stockbuilding is normally a fairly rapid adjustment process towards some desired ratio of stocks to sales, it cannot generate cumulative instability. For another, as stock cycles are of relatively short duration and difficult to predict, it is inconceivable that general tax changes which operate on *final* sales with long time lags could in practice be used to offset them. It is however perfectly conceivable that fiscal or quasi-fiscal measures could be devised which were aimed specifically at persuading firms to carry more stock than they otherwise would in recessions.

Finally there is the question whether the strategic equation has broken down 'massively', as claimed by Mr Bispham.

Note first the proposition already made in n.6, (this page); the point at issue, so far as the authors are concerned, is not whether the equation made conditional predictions of 1973-5 better or worse than other forecasting systems, but whether recent experience has altered the key conclusion that tax rates should be set, not by reference to a short-term forecast, but in such a way that the full employment yield of taxes falls short of public expenditure by an amount equal to one or two per cent of GNP.¹⁰

Mr Bispham points out correctly that if the original equation is used to make conditional predictions of private expenditure, there are large errors for 1973 and enormous ones for 1974. As he says, 'Because of the large rise in the book value of stocks the equation overpredicts total private expenditure massively – in 1974 by more than 10%.'

But he should have taken note of the very explicit qualification made on this precise point at the beginning of the CEPG oral evidence to the Select Committee¹¹ given at the time the equation was first published.

'... there is one element in [the conditional prediction] which we really do not entirely know how to interpret, and that is the variable which refers to changes in the book value of stocks. What this means is that we do not know what the response of the private sector is to unprecedented rates of inflation in terms of its borrowing behaviour; in other words, the major qualification I would make to the system of prediction we are offering is that I am not confident I know how companies will respond to the financing of stocks which will have to be on a very much larger scale. Whereas three or four years ago the increase in the value of stocks was, roughly speaking, £1000 million per annum, it is now running at a rate of between £4000 million and £5000 million per annum. There is a big change

⁶Some *irrelevant* criticisms (advanced in particular by Mr Bispham, *op. cit.*) are, first, that it would be impossible and inappropriate to devise a single 'simple rule' such as that 'government revenue should cover a fixed proportion of government expenditure'; second, that the new equation cannot forecast better than conventional systems – or indeed, by itself, forecast at all. The first proposition is irrelevant because, as was made clear in the passage quoted above, the CEPG rule concerns the setting of tax *rates* conditional on public expenditure plans and targets for external and internal balance. This statement clearly implies that we are not guilty of the confusion between *ex ante* and *ex post* tax receipts attributed to us by Mr Bispham and others. It also allows for the possibility that the targets will vary from time to time; indeed it was specifically recommended in the *London and Cambridge Bulletin* of January 1974 that the balance-of-payments target *should* be altered because of the rise in oil prices and the public sector deficit increased accordingly. The second criticism is irrelevant because it presupposes that short-term forecasting is the appropriate basis for budgetary policy. This begs the question, since it is our specific contention that short-term forecasting is not the appropriate basis – i.e. that if the economy behaves in the way hypothesised and if targets can be formulated, then appropriate tax rates can be inferred *without* forecasting what is actually going to happen to the economy in the short term.

⁷It first must be conceded that the relationship between NAFA and the factors listed above comprises so many separate elements that it cannot be thought of *en bloc* in behavioural terms; therefore much empirical work on component relationships remains to be done. *Ninth Report from the Expenditure Committee*, p. 2.

⁸The debate on fine tuning'.

⁹But see n. 6 above on the 'oil deficit'.

¹⁰Depending on the balance-of-payments target and the rate of inflation (see below, p. 49).

¹¹*Ninth Report from the Expenditure Committee*, p. 15, question 6.

there and the answers might depend critically on what the response of companies is to that.⁷

The fact that companies did *not* continue to borrow pretty nearly one-for-one to finance stocks in the year of greatly accelerated inflation, 1974, a possibility explicitly foreseen when the equation was first presented, cannot properly be adduced to discredit it.

But there is one important respect in which we want now to change our ground; this is to reformulate the relationship in money rather than in real terms. Notwithstanding arguments to the contrary on the grounds of behavioural plausibility given below, the original specification was in real terms because, according to the canons of a poor methodology,¹² this produced for that earlier period a slightly 'better fit'. A constant price expenditure function implies, since the equation involves lags, that a given level of money disposable income in the current period will generate the same amount of real expenditure in the following period, regardless of the rate of inflation between the two periods. However, since this period's expenditure is being financed by the money disposable income of the current and preceding periods, the real expenditure of the current period is more likely to be financed by current and lagged money income, both deflated by the prices prevailing in the *current period*.¹³ But this is the same as denominating the whole thing in money terms.

A current price formulation has the property, assuming that the coefficients on current and lagged income remain constant, that the 'savings' ratio - i.e. the ratio of net acquisition of financial assets to disposable income - will be higher the higher is the increase in disposable money incomes. Thus for a given rate of real income growth, the private savings ratio will be positively related to the rate of inflation, a property which is essential to any model which attempts to explain the behaviour of the economy in the last two years.

The results obtained from estimating the revised formulation for aggregate private expenditure over the periods 1954-72 and 1954-74 are as follows:

$$1954-72: \quad PX = 0.6245 YD + 0.3459 YD_{-1} \\ \quad \quad \quad (13.18) \quad \quad (6.74) \\ \quad + 1.062 HP + 0.8740 S - 208.6 \quad (2) \\ \quad \quad \quad (3.70) \quad \quad (10.61) \quad (2.70)$$

$$1954-74: \quad PX = 0.6163 YD + 0.3605 YD_{-1} \\ \quad \quad \quad (7.60) \quad \quad (4.09) \\ \quad + 1.173 HP + 0.4772 S - 156.5 \quad (3) \\ \quad \quad \quad (2.26) \quad \quad (4.99) \quad (1.14)$$

Notes: Estimated equation standard errors are 0.41% and 0.74% respectively.

The definitions of variables in this equation are the same as those used in the appendix to the Expenditure Committee memorandum, with figures taken from *National Income and Expenditure, 1964-74*. The estimation procedure used to obtain these results is described in detail in M. J. Fetherston, *Estimation of simultaneous relationships: A UK private expenditure function*, mimeo, DAE, 1975.

¹²One of the joint authors (Cripps) always favoured the current price specification.

¹³A further argument for adopting a current price formulation emerges if one considers the relationship as a stock adjustment process. (see below, p. 49).

The coefficients on disposable income and hire purchase change little when the estimation period is extended to 1974; the sum of the coefficients on disposable income is again very close to unity, and as was found with the earlier specifications any lagged income terms beyond one year carried small and insignificant coefficients. Hence the evidence over the whole period up to 1974 is still consistent with the original hypothesis concerning the stability of the influence on expenditure of income. However, the coefficient on the stocks term does fall considerably: this reflects the large increases in the book value of stocks in 1973 and 1974 which, as foreseen, at least as a possibility, failed to be fully reflected in expenditure in the manner that the original equation would have implied.

Table 6.1 compares the prediction errors for the original equation with those for equations (2) and (3).

Table 6.1 Prediction errors (£ million at current prices)

Equation	1	2	3
1973	- 2242	- 1262	60
1974	- 7086	- 3131	- 1015
1975 (est.)	n.a.	- 230	- 34

For 1973 and 1974 the change in specification results in much smaller prediction errors for equation (2) than in the original, although these smaller errors are still very much larger than any *within* the estimation period.

The conditional predictions of both equations for 1975, though still based on provisional data, are excellent. And - the crucial point - the sum of coefficients on YD is, in each equation, close to unity with no evidence of longer lags. These results accordingly confirm our contention that almost all the net income paid by the public to the private sector generates expenditure within quite a short period of time.

The empirical support for the relationship thus remains rather strong. The problem remains to provide an entirely convincing explanation of why such a relationship should hold - particularly with an overall lag as short as one year.

There are, firstly, some flow relationships which tend to induce a rough correspondence between private spending and private income. Although it is doubtful whether they are sufficient to account fully for the aggregate relationship, it is worth reviewing them briefly:

- the fact that the larger part of private spending is undertaken by people who have little access to credit and very limited financial assets. These people, the vast majority of consumers, account for the stability and short lag in the relationship between consumption expenditure and personal disposable income;
- the fact that a large part of private fixed investment is normally financed from internal funds. This is not nearly such a close or immediate relationship, as businesses can normally vary their net indebtedness quite a lot and can to some degree finance investment by raising additional equity or long-term capital;
- the fact that private expenditure (other than on imports or public sector outputs) necessarily accrues

in the first instance as private factor income and hence, subject to tax deductions, to private disposable income. This feedback is not a proper part of our hypothesis, since it is already incorporated in the entirely separate income/expenditure identity which makes private net acquisition of financial assets equal to the current balance of payments surplus plus the public sector deficit. The econometric technique used for our hypothesis is designed to purge the estimated relationship of bias which the identity would otherwise introduce.

The above flow relationships seem unlikely to be sufficient in themselves to account for our empirical relationship. A more powerful starting-point may be found in the behaviour which the relationship implies for stocks of financial assets relative to the flow of income.

Formally, let us assume that end-year net financial assets, FA, plus a proportion of the end-year book value of stocks, H, bears a constant ratio to the average flow of disposable income, YD, in the year:

$$FA + \beta H = \alpha YD$$

Taking first differences, we may derive our hypothesis directly from this assumption.

$$NAFA + \beta S = \alpha(YD - YD_{-1})$$

$$\text{or } NAFA = \alpha YD - \alpha YD_{-1} - \beta S$$

and hence

$$PX = (1 - \alpha) YD + \alpha YD_{-1} + \beta S$$

The assumption about stocks of financial assets implies an average lag of six months in their adjustment to changes in income, since our relationship applies to annual data.

The formal assumption above can be interpreted at various levels of disaggregation. At one extreme, taking the private sector as a whole, net 'financial' assets constitute net holdings by the private sector of overseas assets and public sector debt. At the other extreme, from the point of view of an individual household or firm, net financial assets could mean all paper assets and liabilities including those to other private individuals and organisations, such as mortgages,

bank deposits, pension rights, company securities, etc. Thus the main interpretation of the formal assumption as a behavioural hypothesis entirely depends on the level of aggregation and coverage of financial claims to which it is intended to apply.

At a fine level of disaggregation this hypothesis is effectively equivalent to the flow relationships already discussed. But at a highly aggregated level it would imply that the main explanation of the stability of the ratio of net financial assets to income could be found by considering the immediate determinants of private demand for cash and other public sector debt.¹⁴ Thus the theory of money (as distinct from 'monetarism') may provide the basic hypotheses which explain our empirical relationship. If this is correct the formulation of the relationship itself should be capable of further refinement to incorporate monetary influences on private net acquisition of financial assets and these refinements should improve the empirical stability of the relationship.

Whatever the appropriate level of disaggregation, the relationship between private expenditure and income, when derived from a hypothesis about the stock of financial assets relative to income, must be expressed in money or current price terms, not in 'real' terms. This means that the size of public sector deficit needed to achieve a given balance of payments target is higher, the higher the rate of inflation. For example, the coefficients of equation (2) above imply that a 10% increase in the rate of inflation would generate an increase in private net acquisition of financial assets equal to about 4% of national income.

This makes it more difficult than we previously asserted to judge the appropriate fiscal policy under inflationary conditions, when the prospective rate of inflation itself is inevitably more uncertain.¹⁵ The uncertainty at present is how much the rate of inflation will slow down. If it is permanently reduced to a much lower level, our expectation is that the recent large private surplus will be reduced, requiring a smaller budget deficit for a given balance-of-payments target. Part of the cost of a slowing down of inflation would therefore be a need for higher taxation than might otherwise have been required.

¹⁴It is not remarkable that net private overseas assets are fairly stable since overseas investment is to a large degree regulated by exchange control.

¹⁵The recommendation in our *Review* last year for a target budget deficit of £6 billion (at 1974 prices) in 1976 may thus have been too stringent.