# Godley's Law, Godley's Rule
# and the 'New Cambridge Macroeconomics' *

## I

Since the end of World War II, the United Kingdom's macro-economic policies have been dominated by the attempt to control aggregate demand within rather narrow limits. Typically the instruments the authorities have utilised for this purpose have been fiscal rather than monetary. As a consequence Britain has undergone increasingly frequent revisions of government expenditure policies and tax functions, culminating in something of a fiscal frenzy during the last few years. In short discretionary changes in major fiscal instruments have been made increasingly frequently with the proximate aim of managing aggregate demand. Without pretending to complete precision we may argue that the purpose of the authorities has been to " fine tune " the economy and that, in pursuing this technique, having regard to the typical costs of taking decisions, they have shown themselves to be confident of their ability to " fine tune " effectively over a short period of (say) two years.[1]

It is worthwhile to consider, very briefly, the underlying assumptions about the U.K. economy which, it seems, the authorities must hold if they are to justify their apparent concern with " fine tuning ".

In the first place since " fine tuning " is essentially aimed at short-term stabilisation, the authorities must be assuming that:

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[1] This is the typical definition of the short-period for policy purposes. Cf. H. M. Treasury (9), p. 31.

1. Discretionary fiscal action has:

(a) a rather short average (ouside) lag

which (b) is itself stable,

for, if this were not so, discretionary action would either have continuing and possibly increasing consquences in later periods which, for their avoidance, would necessitate the reversal of fiscal policies and thus instrument instability: or, alternatively its consequences would have an unpredictable time form.

In the second place, since policy is discretionary and not based upon some control type rule, the authorities must be assuming that:

2. They have sufficient knowledge of the economic system to make reasonably reliable forecasts (over the typical short period) of the main components in aggregate demand.

Clearly if 2 does not hold, the satisfaction of 1 cannot, by itself, justify any attempt at *discretionary* stabilisation let alone " fine tuning ". On the other hand if 1 does hold but forecasting ability is lacking, it should be possible[2] to define stabilisation " rules " which, conceptually, are similar to control devices inserted into the system to ensure adequately " fine " tuning by built in responses.

Finally the authorities must assume that there are major elements affecting demand, other than the expenditures and tax revenues of government itself, which are subject to significant fluctuations. In short they must assume that:

3. The private sector and/or the foreign sector are the typical sources of fluctuations in aggregate demand

and 4. That any such fluctuations, though not necessarily explosive, are nevertheless likely to persist and grow after the elapse of one short period.

Clearly unless the authorities accept 3, discretionary action to control demand for stabilisation purposes is indefensible since the only conceivable source of fluctuations within the economy would be the actions of the authorities themselves. Additionally it seems necessary to assume that, where fluctuations do occur, they are

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2 " Possible " here means " technically possible ". What is politically feasible is another problem. It should also be noted that even if 2 is not satisfied, political pressure may compel the authorities to attempt " fine tuning " even if they are themselves not confident of their forecasting ability.

sufficiently long in duration and of sufficient amplitude to justify attempts to offset them. It does not appear necessary to assume that the private and foreign sectors would, in the absence of intervention, be unstable, that is explode, in order to defend stabilisation. On the other hand, if fluctuations in these sectors are typically minor and/or are completed within a single " short period ", discretionary intervention is otiose.

If we are correct in asserting that these four assumptions constitute the essential basis of the " conventional macro-economic wisdom " any attack on the " conventional wisdom " must attack one or more of them. This means presenting evidence and not simply assertions that one or more of them is incorrect. And this evidence must be at least as strong as any evidence which can be presented in defence of the approach which we have, we hope with justice, imputed to the authorities. This in turn means that any critique of the conduct of British macro-economic policy must consist in denying the validity of the authorities' view of the economic system — that is the authorities' model — and offering an alternative and, by presumption, superior model in its place.[3]

These requirements, though obvious, are worth stressing. A critique cannot simply rest upon the assertion that some policies have failed or some forecasts proved to be in serious error. Nor can it rely upon some simple correlation between events to display a causal connection even though this is a commonly accepted practice in political disputes. These points are worth stressing because contemporary critiques of British macro-economic policy are being made over a period (1974-6) in which there is (reasonably enough) a general and growing dissatisfaction with British economic performance and thus (less reasonably) an emotional, if not an intellectual, predisposition to condemn the macroeconomic policy making which, *inter alia*, this unacceptable performance reflects.

Conversely it is essential that serious critiques of British macro-economic policy making should be given an unprejudiced and careful review. This paper seeks to make a modest contribution to this process by examining, in as much detail as possible, one such contemporary critique namely that put forward by the Cambridge Economic Policy Group (CEPG) which has come to be called the " New Cambridge Macroeconomics ". There is at least one good

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3 A somewhat similar argument has been presented by BUDD (2).

reason for thinking such an attempt worth undertaking. This is that though the "new Cambridge Macroeconomics" undoubtedly exists, no formal exposition of its complete model has yet been published. In identifying the CEPG view it is therefore necessary to go to a number of different publications[4] and then, in some measure, to draw inferences which may or may not be acceptable to the CEPG and its supporters. This risk of misinterpretation is unfortunate and will doubtless be eliminated before long by publication of the CEPG's formal model. Until then, there may be some value in an attempted synthesis — however tentative it must be — for it is only by providing something of the sort that we shall avoid an *ad hoc,* and thus generally, unconvincing discussion.

## II

The CEPG position on economic policy constitutes an extremely comprehensive attack on the conventional wisdom.[5] Though this attack is slightly differently expressed in different publications it is clear that the CEPG:

(a) explicitly deny proposition 3 which also constitutes a denial of proposition 4;

and   (b) explicitly deny proposition 2;

and may, though this is, in the absence of a more complete statement of the full CEPG model, uncertain, also deny proposition 1. Thus three out of the four basic assumptions of the conventional wisdom are attacked. It is clear, however, that the fundamental element in the CEPG position is the denial of proposition 3: that is the assumption that the private and/or the foreign sectors are typically the sources of exogenous fluctuations in aggregate demand. As we have seen, if this denial is correct, the case against "fine tuning" is unassailable for the excellent reason that there are no fluctuations originating in the private or foreign sectors to offset. It also follows that, since aggregate demand in the U.K. *has* fluctuated with con-

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4 The sources consulted in order to attempt the synthesis are (1)-(5) in the list of references together with (10). Some of the points made here can be found in (2), (4), (6) and (7).

5 CRIPPS *et al* (3): paras 1-3: p. 1.

sequential fluctuations in the rate of growth of output and the incidence of unemployment, these fluctuations must have been due, generally if not invariably, to the authorities own attempts at "fine tuning". Thus far from reducing fluctuations, the authorities in their misguided attempts at "fine tuning" have generated entirely unnecessary fluctuations. And this has come about precisely because they have the "wrong" macroeconomic model,[6] that is one which is compatible with propositions 3 and 4 instead of the "right" model which, of course, according to the CEPG, is not.

Now it is entirely possible that this central CEPG criticism is correct. If it is, then there is a further implication. This is that many fiscal decisions which have typically been taken in the past primarily on the basis of the requirements of "fine tuning" must now be determined on some new principle. The CEPG puts forward a suggested "rule" for this purpose.

Purely as a matter of simplifying nomenclature, we shall call the CEPG proposition which is the basis of their attack on proposition 3, Godley's Law.[7] Analogously we shall call the fiscal "rule" proposed by the CEPG, Godley's Rule. Since the latter is a consequence of the former in the CEPG proposals, we begin by examining Godley's Law.

## III

There is, in the CEPG statements, no single precise formulation of the proposition we have called (purely for convenience) Godley's Law. Rather there are a number of statements which, though broadly very similar, differ in detail and, in particular, seem to imply different levels of aggregation.

For example we read,

"The proposition that private expenditure as a whole depends upon private income as a whole".[8] This is one expression of the relationship. A second, and perhaps more precise formulation is:

"The private sector's net acquisition of financial assets (that is to say the excess of its disposable income over total expenditure on

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6 Or for the reason noted in Footnote 2 above.

7 This notation does not imply that the CEPG analysis is solely due to Mr. Godley. A number of other Cambridge economists are known to have participated in the development of the CEPG ideas.

8 CRIPPS *et al* (3): para 15: p. 5.

goods and services including investment) is likely to be fairly small and predictable ".[9]

The second formulation is further developed in the same paragraph of the same publication as follows:

Private net acquisition of financial assets (NAFA) in each period is likely, it is suggested, to be determined by the level of real income after tax in that period, by the *change* in real income after tax (since the full response of expenditure to higher or lower income will probably not occur immediately) and by the availability to the private sector of certain kinds of credit ".[10]

Consider now the first two statements. Define private expenditure in real terms as;

$$E_p \equiv C_p + I_{fp} + I_{sp}$$

where $E_p \equiv$ real planned private expenditure

$C_p \equiv$ real planned consumption

$I_{fp} \equiv$ real planned investment in fixed capital

$I_{sp} \equiv$ real planned investment in inventories.

Godley's Law, interpreted as a behavioural relation and neglecting dynamics, might then be written:

$$E_p = f[Y_p - T_p]$$

where

$Y_p - T_p \equiv$ real disposable income of the private sector, or, in linear form

$$E_p = e^0 + e_1[Y_p - T_p] \qquad \qquad \dots \text{(G.1)}$$

Since $NAFA \equiv Y_p - T_p - E_p$ and is stated to be "fairly small and predictable" we have

$$NAFA = -e^0 + (1 - e_1)[Y_p - T_p] \qquad \dots \text{(G.2)}$$

which implies that

$$e^0 \simeq 0$$

$$e_1 \simeq 1$$

9 CRIPPS *et al* (3): para 6: p. 2.
10 *Ibid.*

Notice that in this formulation there is no mention of borrowing. In practice borrowing is interpreted as consisting in $\Delta HP \equiv$ the increase in hire purchase lending to the personal sector and $\Delta BA \equiv$ the increase in bank advances to the personal sector. Since banks and finance houses are elements of the private sector when widely defined, we can interpret (G.1) and (G.2) as static versions of Godley's Law when the definition of the private sector *includes* banks and non-bank financial institutions for in this case financial transactions between elements of the private sector disappear on aggregation. Hence $\Delta HP$ and $\Delta BA$ are identically zero. On this interpretation the implied definition of NAFA is given by:

$NAFA \equiv$ net acquisition per period by the private sector of public sector liabilities both marketable and non-marketable.

Retaining the same level of aggregation and introducing the dynamics of the third quotation we have:

$$NAFA(t) = h^0 + h_1[Y_p - T_p]_t + h_2[Y_p - T_p]_{t-1} \quad \dots \text{(G.3)}$$

with $h^0 \simeq 0$

and $h_1 + h_2 \simeq 0$ since NAFA is small in equilibrium.

Moreover, since NAFA is "predictable" then, by implication, (G.3) is stable. Hence it is obvious that the corresponding expenditure function, the "dynamic" version of (G.1), is also stable.

Now consider the implications of the second part of the third formulation which introduced "the availability to the private sector of certain forms of credit" [11] — in practice $\Delta HP$ and $\Delta BA$. This implies an expenditure function of the form: [12]

$$E'_p(t) = c'_0 + c'_1[Y_p - T_p]_t + c'_2[Y_p - T_p]_{t-1}$$
$$+ c'_3\Delta HP(t) + c'_4\Delta BA(t) + c'_5\Delta S(t) \qquad \dots \text{(G.4)}$$

Here the private sector seems to be defined less comprehensively — indeed simply as the personal sector *plus* the company sector. Hence transactions with financial institutions are not eliminated by the aggregation process. Accordingly $E_p$ is defined to exclude expenditures by the financial sector and there must be a corresponding redefinition of NAFA. The inclusion of $\Delta S(t) \equiv$ changes in the

11 *Ibid.*
12 *Ibid.* Appendix and particularly paras 12-17: pp. 9-10.

book value of stocks and work in progress is explained by the belief that changes in stocks generate, more or less automatically, net borrowing. A function of the form of (G.4) has been estimated by the CEPG using annual data for the years 1954-1972. These estimates which are reported in (3) suggest that $c'_1 + c'_2 \simeq 1$ while $c'_3$, $c'_4$ and $c'_5$ are also not significantly different from unity.[13]

For the moment let us exclude all consideration of the methods used to estimate (G.4) and accept the quoted result as being reliable (in the sense of permitting forecasts of $E'_p$ at least as good as can be obtained by any other means) and enquire into the implications of (G.4). According to the CEPG the implications are quite devastating to the "conventional wisdom". For they assert:

"The proposition that private expenditure as a whole is dependent on private income as a whole necessarily implies that no component of private expenditure exerts an independent ('exogenous') *net* influence on the level of output or fluctuations in it".[14]

This statement is certainly correct. It is, however, inapplicable to (G.4) since, in the absence of any theoretical explanation of $\Delta HP(t)$, $\Delta BA(t)$ and $\Delta S(t)$ these must be treated as exogenous variables generated *within* the "extended" private sector. In so far as they are considered in this way, then it becomes a question of fact how far fluctuations in $E'_p$ are to be explained in terms of $\Delta HP$, $\Delta BA$ and $\Delta S$. This is a matter which requires econometric investigation.[15] Casual empiricism suggests that their contribution has been quite considerable. It is, in fact, (G.3) rather than (G.4) which is compatible with the statement in the text and (G.3) is a relation we have inferred from qualitative CEPG statements not one put forward or investigated econometrically by the Cambridge group.[16] In order to make the quoted claim compatible with (G.4) it must be argued that:

(i) the monetary authority can and does control $\Delta HP$ and $\Delta BA$ within very narrow limits; and

(ii) $\Delta S$ can itself be made endogenous — possibly by introducing some accelerator hypothesis of the form

$$\Delta S(t) = \sum_{i=0}^{i=q} \Delta Y(t - i)$$

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13 *Loc. cit.*
14 *Op. cit.*, para 15: p. 5.
15 The point has been examined by BISPHAM (1): p. 46: Chart 2.
16 At least in published work.

If this can be done then it becomes clear that the only exogenous variables other than lagged terms entering into the determination of output will either be

(1) directly under the authorities control (the fiscal instruments)

(2) indirectly under the authorities control ($\Delta HP$ and $\Delta BA$) or

(3) variables determined in the foreign sector typically:

(a) export demand, and

(b) the terms of trade.

In these circumstances, provided the stock accelerator hypothesis (assuming its introduction) is not such as, when combined with the dynamic multiplier, to give rise to oscillations (in response to stochastic shocks in private expenditure) of unacceptable amplitude and of a periodicity greater than two years, it is possible to accept the CEPG conclusion that, given (G.4)

"the only potentially destabilising influences are the Government's own actions with regard to expenditure, taxation and credit on the one hand, and, on the other, foreign influences, particularly export demand and world commodity prices".[17]

The CEPG then argues that typically (though purely by chance) "fluctuations in world trade have generated very little disturbance either to the U.K. balance of payments or real output in total".[18]

The final indictment of the conventional wisdom follows immediately in the statement that

"... the observed fluctuations in U.K. output have, to this extent, been *entirely* the consequence of the stabilisation measures".[19]

Very clearly Godley's Law, even if empirically reliable, does not, at least in the form of (G.4), justify the extremely comprehensive denunciation of the conventional approach to macro economic management which we have quoted. This conclusion can only be reached by:

(a) making a rather special assumption about the technical (short-term) efficiency of monetary policy which many would not accept;

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17 CRIPPS *et al* (3): para 15: p. 5.
18 (3) paras 16-17: p. 5.
19 *Loc. cit.*

(b) assuming that some appropriate (but unexplained and unidentified) hypothesis can be introduced (with empirical support) to endogenise $\Delta S$ without, at the same time, modifying the dynamics of the system in a way which would prevent a case for discretionary "fine tuning"; and

(c) assuming that the "good fortune" which has, with some exceptions, apparently minimised the impact of external fluctuations will typically continue to do so.[20]

The CEPG offers no evidence regarding (a) or (b) while, in the light of the commodity price boom of 1973 and the oil price rises of 1974-5, it would surely be optimistic to the point of folly to accept (c). In short, Godley's Law, in the form of (G.4), simply cannot by itself sustain the policy conclusions that the CEPG wish to derive from it even if further econometric investigation confirms the CEPG results.

Thus far we have been concerned with the validity of the general CEPG critique of the "conventional wisdom" on the assumption that Godley's Law holds. And, if our arguments are correct, the general conclusion is that Godley's Law must be supported by additional assumptions for which the CEPG provide no supporting evidence. This supporting evidence must come from some (more) complete CEPG macro-theory and the quantitative estimates of its behavioural functions. So far, as we have pointed out, neither piece of information is available in published form. It therefore seems useful to enquire into the relationship between Godley's Law, the aggregation process it seems to imply, and what may be called "conventional macroeconomic theory".

## IV

Consider now some of the more obvious implications of:

(i) accepting (G.4) and

(ii) aggregating over the whole private sector defining this to include both banks and non-bank financial intermediaries. We have, in nominal terms:

$$E(t) = e_1[Y - T]_t + e_2[Y - T]_{t-1} + e_3\Delta S(t) \quad \dots (G.5\ a)$$

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20 It should be noted that the CEPG view is that external *recessions* probably do not constitute a justification for discretionary fiscal intervention. Cf. (3) para 17. The argument, however, is not necessarily symmetric.

and

$$NAFA(t) = (1 - e_1)[Y - T]_t - e_2[Y - T]_{t-1} - e_3\Delta S(t) \quad \dots (G.5\ b)$$

Godley's Law asserts that $e_1 + e_2 = 1$ to a close approximation. Either relation can then be put into first difference form. For example;

$$NAFA(t) = e_2\Delta(Y - \overline{T})_t - e_3\Delta S(t) \quad \dots (G.6)$$

Suppose now that $\Delta S(t)$ has an unambiguous behavioural interpretation (we shall return to this point shortly). Then we can interpret $NAFA(t)$ in a partial adjustment context, as being given by:

$$FA(t) - FA(t-1) = \lambda[FA^*(t) - FA(t-1)] \quad \dots (G.7)$$
$$= \lambda[FA^*(t) - FA^*(t-1)] + \lambda[FA^*(t-1) - FA(t-1)]$$

where $FA \equiv$ public sector liabilities held by the private sector

$FA^* \equiv$ long-run demand for public sector securities by the private sector.

Clearly (G.6) is a special case of (G.7) in which

$$\lambda = 1 \text{ (the market adjusts fully within the period)}$$

$FA^*(t-1) - FA(t-1) = 0$ for all values of $t$: that is the private sector's actual and preferred holdings always coincide and

$$FA^*_t = e_2(Y - T)_t - e_3 S(t) \quad \dots (G.8)$$

where $S(t) \equiv$ value of private sector's stocks.

This, however, assumes that $\Delta S(t)$ has an unambiguous behavioural meaning. According to the CEPG $\Delta S$ is defined as the change in the value of stocks. Accordingly,

$$\Delta S(t) = p(t)[S'(t) - S'(t-1)] + \dot{p}(t)S'(t-1)$$
$$\dot{p}(t) \equiv p(t) - p(t-1)$$
$$S' \equiv \text{volume of stocks}$$
$$= p(t)[S'_p(t) - S'(t-1) + S'_t - S'_p(t)] + S'_{t-1}\hat{p}(t)$$
$$+ S'_{t-1}[\dot{p}(t) - \hat{p}(t)] = \Delta S_p(t) + S'_{t-1}\hat{p}(t) + U$$

where $U \equiv p(t)[S'_t - Sp_t] + S'_{t-1}[\dot{p}(t) - \hat{p}(t)]$

$\equiv$ unanticipated stock changes + unanticipated stock revaluation

$\Delta S_p \equiv$ planned increases in real stocks

$S'_{t-1}\hat{p}(t) \equiv$ anticipated stock appreciation.

It thus seems to follow that a strictly behavioural interpretation of (G.6) implies that $U = 0$ for all t. And this implies that

(i) aggregate demand is always equal to aggregate supply (no output lag); and also that

(ii) inflationary expectations are always correct to a close approximation.
Given these we may write (G.6) as a genuine private sector flow demand. To make this clear we write:

$$NAFA^D_p(t) = e_2 \Delta[Y - T]_t - e_3 \Delta S(t) \qquad \dots (G.6)$$

The next step, in logic, is to "endogenise" $\Delta S(t)$. Since our argument is only illustrative we do this by assuming:

(iii) $\hat{p}(t) = zero = \dot{p}(t)$, and

(iv) $\Delta S(t) = v[Y(t) - Y(t-1)]$ \qquad \dots (G.9)

Plainly (G.9) itself entails additional assumptions [21] but since the purpose of (G.9) is only illustrative and they can be shown not to be crucial, this need not detain us.
We also assume, as the CEPG do in at least one exposition,[22] that

$$T(t) = tY(t) \qquad \dots (G.10)$$

This gives

$$NAFA^D(t) = [e_2(1 - t) - e_3v]\Delta Y(t) \qquad \dots (G.11)$$

or, from (G.8)

$$FA^*(t) = FA(t) = [e_2(1 - t) - e_3v]Y(t) \qquad \dots (G.8.1)$$

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[21] Typically constant terms of trade and invariance in the ratio of export prices to home traded goods.

[22] (3) Appendix. Equation [5]: p. 7.

These two equations give the planned flow demand (G.11) and stock demand (G.8.1) by the private sector for the liabilities of the public sector on the assumptions (and their implications) already listed.
Consider for a moment (G.8.1). Recalling that what this explains is the value of public sector liabilities demanded as a function of money income, (G.8.1) looks like a quantity theory demand function with the "New Cambridge" modifications that:

(1) the variable demanded is no longer defined as "money" in any one of its familiar forms but as public sector debt whether bearing nominal interest or not and whether marketable or not;

(2) the quantity demanded is now a function of tax rates; and

(3) the quantity demanded is no longer a function of interest rates.

The precise meaning to be attached to (3) is not completely clear. "The" rate of return on public sector liabilities does not enter the demand function. This seems to imply that the private sector is quite indifferent regarding the characteristics of the public debt. Though a single equation is not a model, is seems somewhat surprising that, if this interpretation of the CEPG equation is correct, no mention is made of the nominal rate on public bonds or how it is determined.[23] We must assume that, although the rate is the inverse of the bond price, the rate structure is not systematically related to debt composition. If this is what the CEPG means, then it completes the jettisoning of monetary theory already implied in the elimination, by aggregation, of lending within the private sector. For now, from (G.8.1) open market operations exert no influence on the system nor, of course, does debt policy.[24] Instead we have a Quantity Theory of Public Sector Debt.
Let us now return to (G.11) and enquire how this relation can be used in a market equilibrium condition.

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[23] The nominal value of outstanding debt is clearly a function of the nominal rate of return. Thus the stock supply of public sector debt in nominal terms must be influenced by the interest rate structure ruling. If, however, the private sector is indifferent regarding the composition of the debt, it is not easy to see how the rate structure is to be determined.

[24] This conclusion, it must be recalled, is derived from a single equation. It may well be that when the full "New Cambridge" model appears, this statement will be shown to be too strong.

If we assume for convenience that the private sector does not borrow from/lend to the foreign sector and interest rates are constant, then equilibrium in the market for public sector debt entails that: [25]

$$NAFA^D(t) = \hat{G}(t) - \hat{T}(t) - L^p_f(t) \qquad \ldots (G.12)$$

where $\hat{G}(t) \equiv$ nominal value of planned public sector expenditure

$\hat{T}(t) \equiv$ nominal value of planned public sector taxation

$L^p_f(t) \equiv$ nominal value of planned purchases of additional public sector debt by the foreign sector.

We would expect $\hat{G}(t) - \hat{T}(t)$, given the authorities' policy of "fine tuning" to be functionally related to:

(a) the authorities' utility function;

(b) the target values of the variables entering the utility function as arguments; and

(c) the authorities' model.

That is we must expect $\hat{G}(t)$ and $\hat{T}(t)$ to be derived from some fiscal policy reaction function.

The theory underlying $L^p_f(t)$ is not discussed by the CEPG. Nor can it be considered here. However *some* theory is necessary to explain $L^p_f$. If, however, $\hat{G}(t)$, $\hat{T}(t)$ and $L^p_f(t)$ are not themselves functions of $Y(t)$ then (G.12) will permit us to determine current money income given $Y(t-1)$ and the parameters of (G.11). This theory, if it is indeed the theory of the CEPG, is nowhere clearly exposed. Nor is there any discussion of either the fiscal reaction functions or the $L^p_f$ function. Nevertheless some such process of money income determination seems to be implied by Godley's Law. Moreover, if (G.12) (given the level of simplification) is a proper representation of the process of income determination, then it is clear that econometric investigations of (G.11) should strictly be conditional on some functional explanations of $\hat{G}$, $\hat{T}$ and $L^p_f$.

In practice, however, the CEPG do not offer (G.12) as a means of determining either money or real income. Instead they put forward

a familiar multiplier formula.[26] We now, very briefly, examine the assumptions which seem to be necessary to move from (G.12) to a CEPG type result.

The first of these is that:

$$L^p_f(t) = \text{Imports}(t) - \text{Exports}(t) \text{ for all values of } t \quad \ldots (G.13)$$

The second is that imports are explained by some simple function of income or disposable income, let us say

$$M(t) = mY(t) \qquad \ldots (G.14)$$

Exports are exogenous;

$$E(t) = \bar{E}(t) \qquad \ldots (G.15)$$

and $\quad \hat{G}(t) = \bar{G}(t) \qquad \ldots (G.16)$

that is public sector expenditure is exogenous. And, finally

$$\hat{T}(t) = t\hat{Y}(t) \qquad \ldots (G.17)$$

which states that planned revenues are determined by the tax function and the level of $\hat{Y}(t)$ expected by the authorities.

Substituting (G.9), (G.12) — (G.15) into (G.11) yields

$$Y(t)[e_2(1-t) - e_3v + t + m] = \bar{G}(t) - t[(\hat{Y} - Y)t] - \bar{E}(t)$$
$$+ [e_2(1-t) - e_3v]Y(t-1) \qquad \ldots (G.18)$$

where $[\hat{Y} - Y]t \equiv$ the error of the authorities' expectations of $Y(t)$.

From (G.19) we can obtain the usual "impact" and "equilibrium" multipliers. These are for the exogenous variables $\bar{G}$ and $\bar{E}$.

$$K_1 \equiv \frac{1}{e_2(1-t) - e_3v + t + m} \equiv \text{impact multiplier} \qquad \ldots (G.20)$$

$$K_2 \equiv \frac{1}{t + m} \equiv \text{equilibrium multiplier} \ldots (G.18)$$

These are, of course, simple constant interest rate multipliers which reflect all the assumptions already stated and, in particular,

the assumption of overall balance in the autonomous items on external account.

If import plans are carried out then the only possibility of disequilibrium in this system appears to be $\hat{Y} - Y$. Since the authorities apparently do nothing even if $\hat{Y} \neq Y$ (we have not specified their reaction to forecasting errors) we might as well think of a system in which $\hat{Y} - Y = 0$ for all t. Such a system has very limited dynamics since the implications of Godley's Law appear to be that *ex ante* and *ex post* continuously coincide everywhere.

Clearly, from (G.20) the equilibrium relationship between increases in the public sector deficit and the current balance is one of equivalence. For, the change in the deficit is:

$$\Delta G - \frac{t\Delta G}{t+m} = \frac{\Delta\, G.m}{t+m} \qquad \text{... (G.21)}$$

which is obviously equal to the deterioration in the current balance. In the very short-run (one year) this equivalence does not hold. For the change in the deficit is:

$$\Delta G - \frac{t\Delta G}{\alpha+t+m} = \frac{\Delta G\ \alpha+m}{\alpha+t+m} \quad \alpha \equiv e_2(\mathrm{I}-t) - e_3 v \quad \text{... (G.20)}$$

while the change in the current balance is

$$m\Delta Y = \frac{m\ \Delta G}{\alpha+t+m} \qquad \text{... (G.22)}$$

It is, we believe, the contention of the CEPG that fiscal policy should be based upon the acceptance of (G.21) and thus planned over a policy period in excess of two years. This, however, takes us on to the discussion of Godley's Rule.

We may conclude this brief enquiry as follows:

The acceptance of Godley's Law (on this interpretation) requires:

(a) the jettisoning of all monetary and financial theory;

(b) the acceptance of a number of special and restrictive assumptions;

(c) the acceptance that the multiplier/accelerator effects within the economy are completed in eight quarters.

It is, of course, trivially obvious that Godley's Law also permits the abandonment of all investment theories (except perhaps a very crude accelerator) and most theories of the consumption function.[27]

No theoretical support is offered for Godley's Law. Thus, though if $e_1 + e_2 = \mathrm{I}$ (as we have assumed) the proposition is similar (empirically) to applying Say's Law to the private sector, it is *not* similar theoretically. This is because Say's Law does not consist in a claimed empirical regularity but in a set of propositions about a macroeconomic system and, in particular, about the workings of the capital market which imply continuous equilibrium in the goods market. The CEPG does not, however, discuss the capital market. Certainly it does not produce any argument to suggest that it is the prices/rates determined in the markets for financial and real assets which ensure that NAFA is " small and predictable ".[28]

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## V

In Section IV of this comment we have set out the assumptions which the acceptance of Godley's Law, *as we have interpreted it*, seems to imply. The italicized qualification is important since it is not, at present, clear that our interpretation is correct.

Our next task is to consider the case for Godley's Rule. This has two elements. The first is the contention that discretionary fiscal policy aimed at " fine tuning " is not only unnecessary but, in practice, harmful and therefore should be abandoned in favour of a policy aimed at " medium term " objectives. The second is the Rule defining the proposed " medium term " policy.[29] These need to be considered separately.

The first proposal, the abandonment of " fine tuning ", can, as we have seen, be sustained by combining the acceptance of Godley's

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27 If Godley's Law holds then the acceptable theories of consumption and investment must generate results compatible with it. This must limit the class of investment and consumption theories (including their time forms) which is admissible. In forecasting aggregate demand, as opposed to its composition, consumption and investment theory can be neglected. It is a question of fact (yet to be investigated) which consumption and investment theories are, jointly, compatible with Godley's Law. Cf. (3) para 8.

28 The development of a theory to explain why Godley's Law *should* hold is a task which will need to be attempted if the Law is to gain general acceptance.

29 Department of Applied Economics *Economic Policy Review* No. 1 (February 1975), pp. 8-10. University of Cambridge (10).

Law with a number of additional assumptions. But the same proposal can be based upon other arguments. For example it can be argued that the "inside lag" of fiscal policy is too long for effective discretionary action. Alternatively it can be argued that the authorities' ability to forecast is too poor to permit effective discretionary action to be undertaken. Both propositions clearly require systematic evidence to sustain them. At some points the CEPG argues that the authorities' forecasting ability [30] is defective but this is a technical issue which cannot easily be tested. Moreover, no systematic tests have yet been published by the CEPG. Hence the CEPG advocacy of a medium term fiscal "rule" does seem to derive, in large part, from its prior acceptance of Godley's Law rather than the alternative possibilities we have listed or the familiar observation that Britain's economic difficulties are structural rather than cyclical and hence that policy in general, and fiscal policy in particular, should be concerned with medium (or longer) term objectives rather than short run stabilisation. All this, of course, simply implies that we can, if we wish, accept the CEPG's proposal for a "medium term" fiscal rule without accepting the arguments which the CEPG deploys to support it. We can accept Godley's Rule even if we feel unconvinced about the wisdom of accepting Godley's Law.

What then is Godley's Rule? Put very imprecisely it appears to consist in the authorities selecting:

(i) a rate of expenditure on goods and services; and
(ii) a net withdrawals function

such that the planned Budget is in balance, to a close approximation, when the economy is operating at "full employment". Stated more succinctly Godley's Rule requires the "full employment" Budget to be in balance.[31]

Suppose this is the case: then, at "full employment", there is no net borrowing by the authorities. Given Godley's Law, there will

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30 This is not, in the view of this paper, the main element of the CEPG criticism though the CEPG do appear to argue that the company sector is, at present, inadequately modelled by the authorities. On this point cf. CRIPPS *et al* (3) paras 4-5, 39-40. G. N. WORSWICK (7), pp. 28-33.

31 This simple statement clearly begs a number of awkward issues. Moreover, it should be made clear that the CEPG attachment to the Rule is by no means rigid. On this point the reader should consult the Minutes of Evidence in Report of the Select Committee and particularly (3) paras 43-67. The Rule in this sense is a general recommendation to be taken into account — not a rigid requirement.

be no net demand by the private sector for increased holdings of public sector debt. Hence, equilibrium in the public sector debt market, at full employment, requires a zero net flow demand by the foreign sector. That is:

$$L^f_j = \text{Imp. (F.E)} - \text{Exp. (F.E)} = 0$$

Even if we continue to assume that $L^f_p \equiv \text{Imports} - \text{Exports}$ there is no reason why, and no mechanism to ensure, that the current account balance will necessarily be zero at "full employment" output. The CEPG is perfectly aware of this and, indeed stresses the point.[32] The Rule makes no claim to *ensure* overall equilibrium at full employment: it does, however, make *possible* overall equilibrium at full employment since, by definition, the goods and services will be available, at "full employment" output, to provide the necessary "full employment" value of exports. All that is required is for foreigners to be willing to buy them. It is, at this point, that the CEPG departs from what is, basically, a competitive equilibrium approach, to advocate the employment of quantitative restrictions on imports rather than exclusive reliance on exchange rate flexibility to manage the current balance.[33]

In this paper we are not concerned with the case for the introduction of import restrictions. We shall, therefore, ignore this important issue and examine a little further, the implication of Godley's Rule.

Suppose that, in period $t + j$ "full employment" output is, in real terms, expected to be $Y^*_f (t + j)$. By the same token, prices are expected to be $p^*_f (t + j)$. So that the expected value of "full employment" output is

$$Y^*_f \cdot p^*_f (t + j) = \text{for period } t + j.$$

The withdrawal function relates Taxes — net of subsidies and transfer payments — to money income. So that,

$$W = w(Y, p)$$

It thus follows that, for any withdrawal function implicit in fiscal legislation approved by Parliament, we shall have:

$$W^*_{f(t+j)} = W(p^*_f, Y^*_f)_{t+j} \qquad \qquad \dots (1)$$

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32 (10) pp. 8-9.
33 (10) p. 9.

This expression gives net withdrawals (in money terms) at "full employment" in period $t+j$. We cannot, of course, since the British tax system is progressive, assume that (1) is homogeneous with respect to $p_f$ or $Y_f$.

Given (1), then Godley's Rule implies that the authorities should determine their expenditure on goods and services — *in the short run* — by this Rule.

$$G(t) = W^*_{f(t+j)} \text{ for all } t.$$

That is, independently of the level of output, actually ruling, the value of government expenditure on goods and services is set equal to net withdrawals at full employment. Clearly, if despite Godley's Law, there is still an output cycle, Godley's Rule will provide for some "built in" stabilisation. Moreover if an external cycle occurs, say in exports, then, in its downswing exports fall, and the current balance goes into deficit. Since $L^p_f \equiv$ Imports — Exports for all $t$, foreigners are prepared to finance this deficit. Given Godley's Law, in the private sector planned saving = planned investment at all levels of income. Hence $G(t) - T(t) = W^*_{f(t+j)} - W(t)$ provides precisely the additional public sector debt that foreigners are wishing to purchase. This, of course, is an equilibrium argument that assumes that the income adjustment process is completed and the one-one relation between the public sector deficit and the current balance holds. Thus, in the short run, Godley's Rule entails some automatic or built in stabilisation. Recessions will be accompanied by Budget deficits [since $W^*_f(t) > W(t)$] which may be large. But, since $G(t)$ is now set by the (assumed invariant) value of $W^*_f$, these deficits (or surpluses) will be entirely induced. They result from the automatic operation of Godley's Rule. The authorities no longer exert any discretionary influence on demand. They have given up the use of one instrument — fiscal policy — and, correspondingly, must give up one policy objective: this is the control of the level of aggregate demand which is now, given Godley's Law, controlled entirely by foreigners.

We can now give a clear interpretation to the CEPG argument that, to reduce the current account deficit it will be necessary to reduce the public sector's borrowing requirement (deficit).[34]

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[34] (10) p. 8 and (3) particularly para 64 p. 24.

At its face value, this statement may mean one of two quite different things. The first is the suggestion that the tax and expenditure functions should be shifted so as to reduce the deficit at any level of output *given* present export levels. This would be a recommendation to add to the present recession a further element of fiscal deflation in order, via a further decline in domestic activity, to reduce imports. This is not the proper interpretation of the CEPG position and this is hardly surprising since it is implicitly identical with asking for discretionary fiscal policy aimed at deflating demand.

The alternative interpretation of the CEPG argument is that, on present policies, the CEPG estimate that a public sector deficit would exist at full employment. If this is so, then clearly full employment and current account balance are incompatible. In these circumstances the correct policy is to move towards the position $G(t) = W^*_f(t)$ as export demand rises with the recovery of world trade. It is this latter interpretation, which is consistent with our prior interpretation of both Godley's Law and Godley's Rule, which we believe correctly interprets the CEPG position. If this is so, it does not seem open to criticism on grounds of logic. On the other hand, if we are correct, then the CEPG can be criticised for failing to present its case clearly. In particular it would have made matters simpler had the CEPG distinguished between:

  (i)   the observed public sector deficit;

  (ii)  the autonomous public sector deficit; and

  (iii) the "full employment" public sector deficit.

Godley's Rule as we have presented it requires $G(t) \equiv W^*_f(t)$ for all $t$. Since $W$ is sure to be non-homogeneous in $p$ and $Y$, $W^*_f$ seems sure to increase as a proportion of $Y^*_f \, p^*_f$: that is in our rather over simple presentation, we have implied that the withdrawal function may remain unchanged over considerable periods of time. This is true only if long term policy is deliberately aimed at raising $\dfrac{W^*_f}{p^*_f Y^*_f}$ over time. If it is not, then the $W$ function will need to be shifted (by discretionary action) fairly frequently (perhaps yearly) to offset fiscal "drag".[35] Thus, in practice, Godley's Rule does not imply

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[35] This point has been made by others e.g. WORSWICK (7) p. 33. It is accepted by the CEPG.

the absence of discretionary — and fairly frequent — tax changes. Hence it does not imply such a great increase in the stability of fiscal arrangements as might be supposed. On the other hand, assuming some approximate political consensus concerning the "acceptable" value of $\dfrac{W_t^*}{p_f Y_f^*}$ at which policy should aim, the frequency and *general* direction of tax and/or transfer changes should be fairly predictable. Clearly in selecting this target value of $\dfrac{W_f^*}{p_f^* Y_f^*}$ the authorities would, in the main, be concerned with longer run issues. Thus Godley's Rule does not eliminate the need for discretionary fiscal changes. It simply prohibits their use to manage demand. Instead they are to be used to ensure that $\dfrac{W_t^*}{p_f^* Y_f^*} \simeq$ some politically designated constant or is determined, for any t, by some politically agreed trend.

Obviously enough, even given Godley's Law, Godley's Rule can be formulated to permit any form of variation in $\dfrac{W_f^*}{p_f^* Y_f^*}$. Its fundamental element is only that $G(t) \equiv W_f^*(t)$. And, as we have already stated, it would be possible to support a "medium-long" term framework for fiscal planning, which might imply a target relation between $G(t)$, $W_f^*(t)$ without the suport of Godley's Law. It is, however, Godley's Law which requires $G(t)$ to be maintained equal to $W_f^*(t)$ and it is thus Godley's Law which underpins the CEPG argument concerning the need to cut this (full employment) borrowing requirement to restore the current balance.

As we have seen, under Godley's Rule, the observed public sector deficit will move anticyclically. If recessions are at all severe, the observed borrowing requirement might be large. If discretionary fiscal policy was anticyclical in operation as well as intent, it would, theoretically, lead to larger fluctuations in the observed borrowing requirements. On the other hand a discretionary fiscal policy superimposed on an externally generated cycle might well, if sufficiently ill timed, lead to smaller fluctuations in this observed borrowing requirement than the proposal we have identified as Godley's Rule.

## VI

The purpose of this paper has been the limited one of exploring the implications of what, on our interpretation, is now known as the "New Cambridge Macro-economics". If our interpretation is correct then, on the arguments of Sections III and IV, it appears that the "New Macro-economics" implies a considerable number of assumptions not all of which are obviously acceptable.

There is, however, an alternative interpretation of the CEPG position for which it is possible to find some support in the Group's publications. This would restrict the CEPG to asserting that Godley's Law is simply an (inexplicable thus far on theoretical grounds but) observable relationship which is sufficiently reliable to constitute the best available means of forecasting private sector behaviour. Godley's Law thus becomes a forecasting device which, on the CEPG view, dominates other known methods of forecasting even though the latter (presumably) makes use of econometric models which are, in turn, derived from macro-economic theory.[36] The implication of this is that economic theory, even supported by sophisticated econometric techniques, does, contemporaneously, no better and typically rather worse, than Godley's Law. Economists, in general, are likely to have a professional reluctance to accept this contention. Nevertheless it may well, as a matter of empirical fact, be correct. This shifts the argument *away* from examining the relationship between Godley's Law and received macro-theory and *towards* testing the empirical reliability of the relationship. To this issue, which is clearly of considerable importance for policy purposes, we hope to return in a later paper. In the meantime it would seem fair to conclude, provided of course that our interpretation of the CEPG position is correct, that the "New Cambridge Macro-economics" does not, as yet, constitute a well developed theory and that the macro theoretical implications of Godley's Law are extremely formidable.

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36 Cf. Footnote 35. A fairer statement would probably be that CEPG thinks of Godley's Law as a useful *constraint* on forecasting systems and forecasts.

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