【論　説】

A Monetary Model of Inflation and Government Budget

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1 Introduction

The principal aim of this paper is to examine in an explicit fashion the short-run disequilibrium dynamic effects on both the private and government sectors of various fiscal actions under conditions of both full and less than full employment[1]. In order to simplify the exposition, a two-good (the aggregate commodity and the single asset, money) closed economy model is developed. A key feature of the present analysis is its emphasis on the concept of hoarding[2], of both the private and the consolidated government sectors.

The structure of the model and its equilibrium are discussed in Section 2. Given specification of the production technology and the

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1) This question has been discussed to some extent in the literature. See, especially, Patinkin (1965), Friedman (1969), and Mundell (1971). However, the major emphasis of these available studies was on the long-run issue and short-run aspects were considered in a somewhat implicit fashion.

2) This concept was recently employed by Dornbusch (1973-a) in a stationary full-employment model of the world economy that was designed to deal with certain aspects of the balance of payments. See also Dornbusch (1973-b).

demand for real cash balances, the effect of alternative fiscal policy actions are explored in Sections 3 and 4 with a view to seeing how inflation is induced and how private exdenpiture is "crowded out" by government activity. Specifically, the analysis results in the following conclusions: An expansionary fiscal policy financed by the creation of new money may or may not initially crowd out private spending. Whatever the initial effect, the crowding-out effect will get smaller over time and eventually the real absorption of the private and government sectors will increase[3]. In contrast, a balanced budget increase in government spending, in which the adjustment process is completed within one period, leads to a crowding out of the private sector, although real output is increased.

2 Model

The proposed short-run monetary model consists of only two markets, namely, the commodity and money markets. The labour market is embodied in the commodity supply function. In order to clearly illustrate the short-run disequilibrium adjustment mechanism, the bond market is ignored throughout.

The following notation is used throughout the paper:

Y, y: output of the aggregate good

C, c: private demand for the good

G, g: government demand for the good (=government expenditure)

B, b: government budget deficit

3) This analysis has the following conventional exception: An increase in nominal government expenditure financed by creating new money in a full employment context is neutral (neutral in a sense no effects on real distributions) once the adjustment is completed, while the above does not hold under the condition of less than full employment.

L, l: desired cash balances

M, m: actual cash balances (=quantity of money outstanding)

H, h: private hoarding

p: price level

t: net income tax rate

λ: desired cash balance ratio to disposable income

ω: adjustment speed of hoarding

Except for p, t, λ, and ω, lower case letters denote real values wehreas capital letters refer to nominal values.

Assuming that labour is the only variable input, that the supply of labour is inverted L-shaped function of the money wage rate and that, unlike workers, employers do not suffer from money illusion, the aggregate supply function in the commodity market can be written as

$$y=y(p), \text{ and} \tag{1}$$

$$\left.\begin{array}{l} y'(p)>0, \text{ for } y<y_f \text{ and } p<p_f \\ y'(p)=0, \text{ for } y=y_f \text{ and } p\geq p_f \end{array}\right\} \tag{2}$$

where y_f is the full employment level of real output and p_f is the lowest price level being compatible with the full employment. This relation is illustrated by YZ-curve in Figure 2.

Aggregate demand for the commodity consists of that arising in the private and government sectors. The budget constraint of the consolidated government sector is given by

$$B=G-tY=\dot{M}. \tag{3}$$

That is, the budget deficit is financed dy creating new money. This constraint can be rewritten in real terms as

$$b=\frac{G}{p}-ty=\frac{\dot{M}}{p}. \tag{4}$$

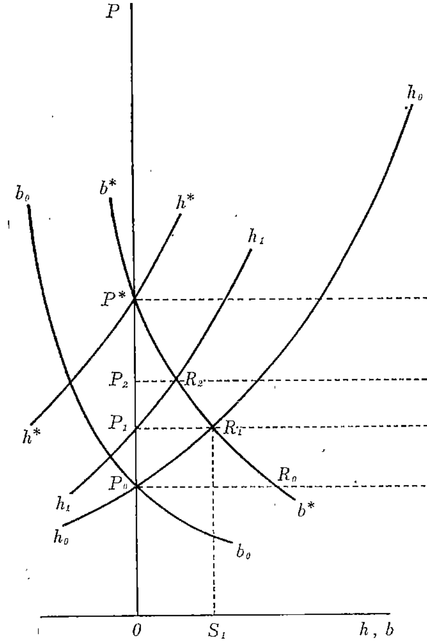

Figure 1

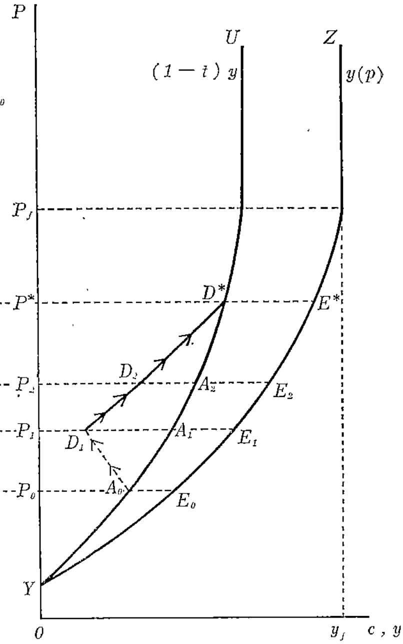

Figure 2

For any price level, A_1E_1 (in Figure 2) measures the tax revenue. P_1R_1 (in Figure 1)$=D_1A_1$ (in Figure 2) is the government deficit (i. e., government expenditure minus tax revenue). Hence, D_1E_1 (in Figure 2) is the total government expenditure, and P_1D_1 (in Figure 2) measures the total private expenditure.

We assume that the government preserves at all times a constant nominal expenditure, G, and a constant tax rate, t[4].

The budget constraint of the private sector is given by

$$C+H=(1-t)Y.$$

In words, disposable income is exhausted by commodity spending or hoarding. This relation is expressed in real terms as

4) This assumption is modified in Section 4 below. However, as we shall see, if g is kept constant, rather than G, the system will be unstable except for the balanced budget policy.

$$c+h=(1-t)y. \qquad (5)$$

The demand for real cash balances takes the form

$$l=\lambda[(1-t)y(p)], \qquad (6)$$

where λ, which is assumed to be constant[5)], is the desired ratio of the cash balances to disposable income.

Assuming, for a simpler exposition, that the goods market is continuously cleared, flow equilibrium requires that

$$c+g=y. \qquad (7)$$

From (4) and (5), it follows that the excess demand for commodities ($c+g-y$) equals $b-h$. Hence (7) becomes

$$b=h. \qquad (8)$$

This result can be explained as follows: when the government expands (contracts) the real money supply because of a deficit (surplus), the private sector must hoard (dishoard) by the same amount to sustain equilibrium in the commodity market. In other words, if the commodity market always clears, private real expenditure on goods must fall short of (exceed) disposable income by the real value of the government deficit (surplus).

Stock equilibrium is attained when l=m. This equality does not necessarily hold at any time[6)]. When stock disequilibrium occurs, the private sector, by assumption, adjusts its actual cash balances to the desired level in accordance with the following relation:

5) In general, λ is a decreasing function of the anticipated rate of inflation, as well as the rate of return on other implicit assets. For simplicity, a constant anticipated rate of inflation is being postulated for the present short-run consideration.

6) Given the assumption of continuous flow equilibrium, our short-run model is thus a 'flow equilibrium' but 'stock disequilibrium' in its nature. Needless to say, we can modify the discussion to a disequilibrium analysis in both flow and stock, but at the cost of complicating the diagrammatical exposition of the short-run adjustment.

$$h=\omega(l-m)\ ;\ \omega>0,$$

where ω is the constant speed of adjustment and $(1/\omega)$ is, of course, the time needed for the discrepancy between the demand for and supply of cash balances to disappear. This time lag for adjusting cash balances is mainly due to the existence of transaction costs of changing 'stock' in a limited time period. By using (6) the hoarding function is given by

$$h=\omega\left[\lambda(1-t)y(p)-\frac{M}{p}\right]=\omega[\lambda(1-t)y(p)-m]. \tag{9}$$

This dynamic stock adjustment hypothesis together with the flow equilibrium condition summarizes all the important features of the model thus far.

Before turning to the analysis of economic policies, it is useful to examine the disequilibrium adjustment process. Since we assume an instantaneous clearance of the goods market, the price level, given M, is determined in each period according to (8) which, using (4) and (5), can be rewritten as

$$\frac{G}{p}-ty(p)=\omega\left[\lambda(1-t)y(p)-\frac{M}{p}\right]. \tag{10}$$

In a case of full employment, (10) takes the explicit form

$$p=\frac{\omega M+G}{[\omega\lambda(1-t)+t]y_f} \tag{10'}$$

This flow-equilibrium price level may, however, be associated with an unbalanced government budget, and given (3), a changing money supply in the subsequent period. From (10) the resulting change in the price level is

$$\left\{[\omega\lambda(1-t)+t]y'(p)+\frac{1}{p}\left(\frac{\omega M}{p}+\frac{G}{p}\right)\right\}\dot{p}=\frac{\omega\dot{M}}{p}. \tag{11}$$

Alternatively, by solving (10) for py(p) and then by substituting this result into (4), we have

$$\dot{M}=\frac{\omega\lambda(1-t)}{\omega\lambda(1-t)+t}G-\frac{\omega t}{\omega\lambda(1-t)+t}M. \tag{12}$$

From these equations, it is clear that changes in p and M are positively related because coefficients to $\dot{p}$ and $\dot{M}$ in (11) are positive. Moreover, (11) implies that when $\dot{p}=0$, $\dot{M}$ must be zero, and hence $b=0$ (on account of (4)). The dynamic adjustment of this system is described by a differential equation (12), and full (flow and stock) equilibrium is defined by $\dot{M}=0$. This equation also implies that the system is asymptotically stable since the coefficient of M is a negative constant but the first term of the right-hand side is a positive constant. Furthermore, if the government has a deficit (i.e., $\dot{M}>0$), the nominal quantity of money, the price level, real output (in a case of unemployment), and real private spending will, during the successive periods of disequilibrium, continue to rise whereas real government expenditure will fall until their full-equilibrium values are achieved. The reverse, of course, will occur in the case of a government surplus.

Once full equilibrium is attained (i.e., $b=h=0$) the following relations must hold:

$$p^*=\frac{G}{ty(p^*)}, \tag{13}$$

$$M^*=\frac{\lambda(1-t)}{t}G, \tag{14}$$

$$p^*=y(p^*), \tag{15}$$

$$g^*=ty(p^*), \text{ and} \tag{16}$$

$$c^*=(1-t)y(p^*). \tag{17}$$

Full equilibrium values are indicated by an asterisk. Note that the nominal quantity of money required at full equilibrium is determined solely by fiscal policy actions (G and t) and is independent of the price level and output. Moreover, from (13)-(17), we may obtain, for later convenience, the rate of change in variables between two full equilibria as follows:

$$\hat{p}^*=\frac{1}{1+\varepsilon^*}(\hat{G}-\hat{t}), \tag{18}$$

$$\hat{M}^*=\hat{G}-\frac{1}{1-t}\hat{t}, \tag{19}$$

$$\hat{y}^*=\frac{\varepsilon^*}{1+\varepsilon^*}(\hat{G}-\hat{t}), \text{ and} \tag{20}$$

$$\hat{g}^*=\frac{1}{1+\varepsilon^*}(\varepsilon^*\hat{G}+\hat{t}), \text{ and} \tag{21}$$

$$\hat{c}^*=\frac{\varepsilon^*}{1+\varepsilon^*}\hat{G}-\left(\frac{\varepsilon^*}{1+\varepsilon^*}+\frac{t}{1+t}\right)\hat{t}. \tag{22}$$

A hat (^) denotes rate of change, and

$$\varepsilon=\frac{py'(p)}{y(p)} \begin{cases} >0 & \text{for } p<p_f \\ =\varepsilon_f=0 & \text{for } p\geq p_f \end{cases} \tag{23}$$

is the price elasticity of supply of the real good.

3 Fiscal Policy Financed by Money Creation

In order to see the details of the adjustments to exogenous fiscal disturbances, it is useful to construct a 'hoarding schedule' and a 'government budget schedule'. The former consists of a positive relation between p and h for a given M, and it can be derived from (9). With unemployment and a given M, the demand for real cash balances increases with p because of the rise in real dipsosable income, while actual real cash balances will decrease. In the case of full employment, the latter will decrease with p, though the former will be unchanged. As a result, the hoarding schedule is upward sloping as illustrated by the h_0–line in Figure 1. The hoarding schedule shifts to the left as M increases due to a government deficit. This occurs in response to the resulting increase in actual real cash balances.

The government–budget schedule (the b_0–line in Figure 1) relates b and p. In the case of unemployment, with given G and t, as p increases g falls whereas real tax revenue increases due to the increase in the tax base. In the case of full employment g falls with p while real tax revenue remains unchanged. Hence the b–line is downward sloped. Moreover, it shifts to the right when the government undertakes an expansionary fiscal policy (i.e., an increase in G or fall in t) because, given p, the government budget moves in the direction of a larger deficit.

Given M, G, and t, the horizontal distance from the b–line to the h–line (i. e., b–h) means the excess demand for goods corresponding to each p. For any given M, therefore, flow equilibrium occurs at the intersection of the h and b lines. However, full equilibrium is achieved only when these curves intersect at a point on the vertical axis.

3–1 Government Expenditure

Let us suppose that the economy is initially in full equilibrium at the point P_0 in Figure 1. The relations (13)–(17) all hold. Now assume that the government increases G (t constant). As a result, the b-line shifts from b_0 to b^*. This shift satisfies the following relation:

$$\left(\frac{P_O P^*}{OP_O}\text{in Figure 1}\right)=\frac{1}{1+\varepsilon}\hat{G}.^{7)} \qquad (24)$$

Prior to the increase in the price level, the real (intended, not actualized) budget deficit is $P^O R^O$. This represents an excess demand for the aggregate good (in an *ex ante* sense), and the price level rises until flow equilibrium is restored. Specifically, the revised flow equilibrium occurs at R_1, i.e., at the price level corresponding to the intersection of the b*-and h_O- lines. This new equilibrium is associated with a smaller, but positive, real government deficit; real government expenditure is smaller, due to the increase in p, than its intention while real tax revenue is increased because of the increase in the tax base from $P_O E_O$ to $P_1 E_1$ in Figure 2[8].

This equilibrium, however, is a temporary one. The reason is that the government finances the actual (*ex post*) increase in its demand for the aggregate good by creating $OP_1R_1S_1$ of new nominal money. Note that this increase in money is not injected before the revised price level (OP_1 in Figure 1) is determined, but it is injected when the government finances its actual purchase of the good. As a result of the increase in actual real cash balances by P_1R_1, the h-line will shift to the left of h_O by an amount of $\omega(P_1R_1)$[9]. Assuming (as we will hereafter) that ω equals unity, the new h-schedule (h_1) will run through P_1. An excess demand for the aggregate good equal to P_1R_1 is created[10] and price level rises to OP_2. This, in turn, causes the h–

7) (24) is the vertical shift, at b=0, of budged schedule, which can be obtained from (4). Moreover, in a case of full employment this relative shift equals the initial relative change in G because $\varepsilon_t=0$.

8) Precise amount of these effects are givun in (26)-(29) below.

9) See equation (9).

10) It is important to note that the excess demand P_1R_1 becomes effective only after $OP_1R_1S_1$ of new money has been injected into the economy.

line to shift further to the left. The process continues until the relations (18)-(22) all hold. As time passes, the h-line shifts leftward, p rises, b falls and M rises (to finance $b>0$) without oscillation.

The preceding discussion can be extended to deal with the dynamics of the 'crowding out' effect associated with money-financed increase in G. Traditionally, the 'crowding out' effect has referred to the reduction in private real absorption due to a pure expansionary fiscal policy, and it has been examined in terms of a comparative static analysis[11]. The dynamic aspects, however, are important because the allocation of goods over time between the private and government sectors has an important bearing on the efficiency of economic policy.

From (7) and given assumption of continuous flow equilibrium, the following must hold in any period:

$$\hat{c}=\frac{y}{c}\hat{y}-\frac{g}{c}\hat{g}. \tag{25}$$

The right hand side of this equation shows that the total crowding out effect can be broken down into two components. The second term indicates that, given real output, an increase in real government expenditure reduces real private absorption (c). This can be termed the 'pure crowding-out' effect. The first term shows the effect on the private absorption, with a given g, of an increase in real output. This 'expansion effect' tends to offset the pure crowding-out effect. Clearly, the total and pure crowding-out effects are equal under condi-

11) For an elegant survey of this issue, as well as the related references, see Carlson and Spencer (1975). [: this appeared after the earlier draft of this paper had been completed.] They pointed out, as shortcomings of available literature, (a) treatment of price level, (b) dynamic model and stability, and (c) fiscal *vs* monetary stimulus. This paper incorporates the first two problems, but the last issue will be partially discussed. See also Blinder and Solow (1973).

tions of full employment.

Following the increase in G, the initial rate of change in the price level is

$$\hat{p}_o\left(=\frac{P_oP_1}{0P_o}\text{in Figure 1}\right)=\frac{1}{1+\varepsilon_o}\frac{t}{t+\omega\lambda(1-t)}\hat{G}>0, \tag{26}$$

which is obtained from (11) with (13)-(17) and given M. (Hereafter subscript (o) denotes initial equilibrium values). Following the increase in the price level, real output increases from P_oE_o to P_1E_1 in Figure 2. The rates of growth of y and g are given by

$$\hat{y}_o\left(=\frac{P_1E_1-P_oE_o}{P_oE_o}\text{in Figure 2}\right)=\varepsilon_o\hat{p}_o\geq 0,\text{ and} \tag{27}$$

$$\hat{g}_o\left(=\frac{D_1E_1-A_oE_o}{A_oE_o}\text{in Figure 2}\right)=\hat{G}-\hat{p}_o>0^{12)}. \tag{28}$$

From (25) the initial effect on the private spending is

$$\hat{c}_o\left(=\frac{P_1D_1-P_oA_o}{P_oA_o}\text{in Figure 2}\right)=\frac{1}{1-t}\hat{y}_o-\frac{t}{1-t}\hat{g}_o. \tag{29}$$

Substituting (26), (27) and (28) into (29) we obtain

$$A\hat{c}_o=DG. \tag{30}$$

where

$$A=\frac{1}{t}[t+\omega\lambda(1-t)]>0,\text{ and} \tag{31}$$

$$D=\frac{\varepsilon_o}{1+\varepsilon_o}-\omega\lambda\gtrless 0. \tag{32}$$

Equation (30) implies that, for $\hat{G}>0$, $\hat{c}_o$ is positive if D is positive and *vice versa*: to put in another way, when $(\varepsilon_o)/(1+\varepsilon_o)$ exceeds $(\omega\lambda)$ the initial expansion effect exceeds its pure effect and *vice versa*. In the case of full employment, however, this ambiguity disappears since no expansion effect takes place, hence the private is crowded out com-

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12) $\hat{g}_0$ is positive since, in (26), $\hat{p}_0$ is smaller than $\hat{G}_0$.

pletely by the same amount of an increase in real government expenditures.

During the disequilibrium adjustment periods, as we have observed, the price keeps rising while the nominal government expenditure stays at its higher level (G_1). Hence, from (7) we have

$$\dot{c}=\dot{y}-\dot{g}=\left[y'(p)+\frac{G_1}{p_2}\right]\dot{p}>0. \tag{33}$$

In sum, during the adjustment process, the price level keeps rising, and so do real output and taxes along $E_1E_2E^*$, and $A_1E_1, A_2E_2, \ldots, D^*E^*$ in Figure 2 respectively (unless the full employment is reached), while real government expenditure keeps falling (D_1E_1, $D_2E_2, \ldots$, D^*E^* in Figure 2). Therefore, the quantity of the real good available for private use tends to increase, as shown by the change from D_1, D_2 to D^* in Figure 2. This continuous increase in real private expenditure during the adjustment periods is independent of the direction of the initial impact and it occurs in cases of both full employment and unemployment.

Once the new full equilibrium is attained, (18)-(22) hold with $\hat{t}=0$. Specifically, from (25) and (21) we have

$$\hat{c}^*\left(=\frac{P^*D^*-P_OA_O}{P_OA_O}\text{in Figure 2}\right)=\frac{1}{1-t}\hat{y}^*-\frac{t}{1-t}\hat{g}^*$$

$$=\frac{\varepsilon^*}{1+\varepsilon^*}\hat{G}\geq 0, \tag{34}$$

where

$$\hat{y}^*\left(=\frac{P^*E^*-P_OE_O}{P_OE_O}\text{in Figure 2}\right)=\frac{\varepsilon^*}{1+\varepsilon^*}\hat{G}\geq 0. \tag{35}$$

(35) corresponds to the famous multiplier effect. Equation (34) implies that, in the case of unemployment, expansion effect, $\frac{1}{1-t}\hat{y}^*=\frac{1}{1-t}$

$\times\frac{\varepsilon^*}{1+\varepsilon^*}\hat{G}$, exceeds the pure crowding effect, $\frac{t}{1-t}\hat{g}^*=\frac{t}{1-t}\frac{\varepsilon^*}{1+\varepsilon^*}\hat{G}$. In the case of full employment, however, both the pure and expansion effect disappear, so that the private sector is not crowded out at all.

3-2 Tax Rate

A decrease in the tax rate, given G, shifts the b-line to the right since it creates a government deficit. At the same time it causes a rightward shift in the h-line since private hoarding increases as a result of the increase in disposable income. The intersection of these new curves (not shown in Figure 1) determines the price level in the next period. As can be seen by comparing (4) and (9), the new price level will be higher than its initial value when $\omega\lambda < 1$, for, in this event, the h-line shifts less than the b-line with the result that an excess demand for goods is created. Of course, when $\omega\lambda > 1$, the reverse occurs. Formally, the impact effect on the price level is obtained from (10) and (13)-(17) assuming that G and M are constant. It can be written as

$$\hat{p}_o=-\frac{1-\omega\lambda}{1+\varepsilon_o}\frac{t_o}{\omega\lambda(1-t_o)+t_o}\hat{t}\gtrless 0 \text{ for } 1-\omega\lambda\gtrless 0 \text{ and } \hat{t}<0, \quad (36)$$

where t_o is the initial tax rate[13].

13) Our specification of (6) and (9), with (5), provides that $c=(1-\omega\lambda)(1-t)y+\omega m$. Apparently, $1-\omega\lambda$ is the marginal propensity to consume out of disposable income. If we postulate a rational behaviour of the private sector, this will always be less than unity. As Dornbusch and Mussa (1975) showed, the demand for money, in this case, is proportional to the private spending, i. e., $l=vc$, instead of (6). Using (5) and $h=\mu(l-m)$, we obtain that $h=\frac{\mu}{1+\mu v}[v(1-t)-m]$. This is effectively the same as our specification by setting $\omega=\frac{\mu}{1+\mu v}$, and $\lambda=v$, with the result that $1-\omega\lambda=\frac{1}{1+\mu v}$ which is between zero and unity. [M. Honma raised this issue in a faculty seminor at Osaka University, which stimulated the argument in this footnote.]

Although the initial impact on the price level is ambiguous the new flow equilibrium in the second period is always associated with a government deficit (and thereby private hoarding). That is, the private sector is forced to accumulate additional real money as a result of the government's deficit financing, and this induces a leftward shift in the hoarding schedule. This adjustment continues until full equilibrium is attained, i. e., when the relations (18)-(22) re-established for a new level of tax rate. The accumulated price change over the entire adjustment process is equal in absolute terms to that occurring in response to a variation in G, given that the rates of change in G and t are equal.

From (25), (36), and (13)-(17), the initial crowding out effect is given by

$$\frac{1+\varepsilon_o}{\varepsilon_o+t_o}(1-t_o)A\hat{c}_o=-(1-\omega\lambda)\hat{t},$$

where A, as in (31), is positive. Therefore,

$$\hat{c}_o \lesseqgtr 0 \text{ for } 1-\omega\lambda \lesseqgtr 0 \text{ and } \hat{t}<0. \tag{37}$$

That is, when the initial impact of a decrease in tax rate is inflationary the initial pure crowding out effect is overcome by a positive larger expansion effect and *vice versa*. However, once the government starts to finance its persistent (though decreasing) deficit by creating new money, the dynamics of overall crowding-out effect is, as before, given by (33) since the price level continues rising during the adjustment process. When the full equilibrium is re-attained, the expansion effect is greater than the pure effect as can be seen from

$$\hat{c}^*=-\left(\frac{\varepsilon^*}{1+\varepsilon^*}+\frac{t_o}{1-t_o}\right)\hat{t}>0 \text{ for } \hat{t}<0^{14)}. \tag{38}$$

14) (38) is directly obtained from (22), in which the multiplier effect with respect to a↗

This relation shows that $\hat{c}^*$ is positive both in the full employment and unemployment contexts, though unemployment case displays a larger effect.

4 Balanced Budget

Suppose that the government keeps a fixed level of real deficit, by some reasons, say at OS_1 in Figure 1, which gives a vertical b-line. Hence, flow equilibrium in any period is associated with the real government deficit, which leads an unlimited shift of h-line and eventually results in 'hyper-inflation'. On the contrary, keeping real government budget surplus will lead a continuous increase in unemployment. In this sense the government cannot keep imbalanced real budget over a long time, though it is possible, at least, for a short period[15].

A more interesting case from the policy viewpoint is one in which the budget is balanced such that the b-line is identical to the vertical axis in Figure 1. If the tax rate is raised in order to increase the size of budget, disposable income falls, the demand for real balances decreases and the h-line shifts to the left. As a result, an excess demand for goods is created (i.e., $b-h=-h>0$ at this stage), and the new flow equilibrium will be actualized at a higher price level. Somewhat surprisingly, this is the full equilibrium: the adjustment is completed in a single period since nominal quantity of money is unchanged.

The change in G and t required to balance the budget is simply

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change in t is $\hat{y}^* = -\frac{\varepsilon^*}{1+\varepsilon^*}\hat{t}$.

15) Note, however, in a case of open economy with fixed exchange rates, government hoarding could be absorbed by an imbalance of the balance of payments.

obtained from (19) by setting $\hat{M}^*$ equal to zero:

$$\hat{G} = \frac{1}{1-t_0}\hat{t}(>0)^{16)}. \tag{39}$$

By using (18), (20), (21), and (39) we obtain the following results: as a result of an increase in the size of a balanced budget, the price level increases, output increases except in a case of full employment, real government expenditure rises, and the pure crowding out effect exceeds the expansion effect.

5 Conclusion

Throughout this paper we have emphasized the important aspects of monetary approach. In particular, we have distinguished between the nominal and real quantity of money. Furthermore, we have maintained that (in a closed economy) the former is controlled by the consolithedated government sector whereas the latter is mainly determined by private sector through its stock adjustments. Finally, we emphasized that the response to government fiscal policy is affected by the financing methods adopted[17].

Main results which we have obtained are summarized in the following two tables. In those tables, an arrow pointing up indicates that the variable is increasing, while a downward-pointing arrow indicates that the variable is decreasing. On the other hand, (+) indicates that the value is increased as compared to its initial value, (−) indicates that it is decreased, whereas (0) implies no change.

To keep the analysis as clear as possible, we have ignored: (a)

16) This relation can be obtained by using (4) with b=0, too.

17) For a complete list of essentials of the monetary approach, see Friedman (1969, page 7).

private capital accumulation, (b) financial assets other than noninterest bearing outside money, (c) the direct effects of government expenditure on private demand and supply, and (d) reformulating the antici pated rate of inflation. These problems are outside the scope of present study, though they could be incorporated into the framework proposed here.

Table I : Unemployment Case

	G is increased			t is decreased			G and t are Increased (Balanced Budget)
Time Period	Stage*			Stage*			Stage*
	I	II	III	I	II	III	I (and III)
Price level (p)	+	↗	+	+, 0, or−	↗	+	+
Nominal quantity of money (M)	0	↗	+	0	↗	+	0
Real output (y)	+	↗	+	+, 0, or−	↗	+	+
Real government Expenditure (g)	+	↘	+	+	↗	+	+
Real private Expenditure (c)	+, 0, or−	↗	+	+, 0, or−	↗	+	−

Table II: Full-employment Case

	G is increased			t is decreased			G and t are Increased (Balanced Budget)
Time Period	Stage*			Stage*			Stage*
	I	II	III	I	II	III	I (and III)
Price level (p)	+	↗	+	+, 0, or−	↗	+	+
Nominal quantity of money (M)	0	↗	+	0	↗	+	0
Real output (y)	0	0	0	0	0	0	0
Real government Expenditure (g)	+	↘	0	−, 0, or+	↘	−	+
Real private Expenditure (c)	−	↗	0	+, 0, or−	↗	+	−

Stage* I, II, and III represent initial, intermediate, and final impacts, respectively.

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