IS EQUITY FINANCED BUDGET DEFICIT STABLE IN AN INTEREST FREE ECONOMY?

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The purpose of this paper is to analyze the stability of an equity financed budget deficit in an interest free Islamic economy. To this effect a small closed economy theoretical macroeconomic model broadly consistent with the Islamic tenets is developed. This study found that under a strong wealth effect an equity financed deficit is not necessarily unstable and that government expenditure policies may contribute positively in terms of enhancing the output of the economy.

1. INTRODUCTION

Over the past decade, there has been a growing literature on *Islamic economics* involving theoretical macroeconomic models [e.g., Al-Jarhi (1983), Haque and Mirakhor (1987), Kahf (1985), A. Khan (1982), M. Khan (1986), M. Khan and Mirakhor (1989), Mirakhor and Zaidi (1988), Naqvi (1982) and Zarqa (1983)]. Indeed, most of these studies have provided a better conceptual and analytical understanding of how a banking system may operate in an Islamic economy. For instance, the study by M. Khan (1986) has shown that the *Islamic Banking Model*, based on *equity participation*,[1] may be dynamically more stable than the traditional banking model with fixed interest rates. In particular, M. Khan (1986, p.19) noted that the *Islamic Banking Model* may be 'better suited to adjusting to shocks that result in banking crises' because in such a model the shocks are 'immediately absorbed by changes in the values of shares (deposits) held by the public in the bank'. In another paper, M. Khan and A. Mirakhor (1989) developed an IS-LM model of closed Islamic economy wherein they have shown that monetary policy, using *Mudaraba financing*, may have a positive impact on the growth rate of output of the economy. Their results were reinforced by A. Mirakhor and I. Zaidi (1988) in an open-economy version of that model.

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Although tremendous progress has been made in developing theoretical macroeconomic models for an Islamic economy, most of these models, nevertheless, examined issues pertaining to the Islamic banking system or the efficacy of the monetary policy. The issues related to fiscal policy, as an instrument to finance government deficit in an Islamic economy have not been adequately addressed in the literature.[2] In this context S. Ahmed (1989, p.163) noted:

> A notable omission [in the Islamic macroeconomic literature] is how the government would finance its expenditure in an economy with no fixed-interest debt.

On the same issue, Pryor (1985, p.205) wrote:

> I have seen no thorough discussion of fiscal policy in the Islamic economic system and of the degree to which the government could engage in deficit spending.

The purpose of this paper is to present a simple theoretical macro model of an Islamic economy with explicit government budget constraints. Though the model developed in this paper closely follows Metzler (1951), Christ (1968, 1979), Scarth (1979) and Blanchard (1981), it, nevertheless, differs from them in terms of integrating the basic features of an Islamic Economy. For instance, our model has no fixed interest bearing assets which makes it largely consistent with the basic tenets of Islam.[3] Moreover, the private agents in our model hold assets only in the form of profit and loss sharing (PLS) equities and non-interest bearing money. Government, however, can finance its deficit through *money creation* or *equity finance*.

It is well known in macroeconomic literature that a bond (fixed interest bearing asset) financed government deficit leads to macroeconomic instability [e.g., see Christ (1979) and Scarth (1979)]. Some economists have, therefore, questioned the worthiness of such policies used by policy makers in Western economies to finance their large deficits. With this objective in mind, we believe an important contribution of this paper is to develop a macroeconomic model for an Islamic Economy in order to analyze the stability implications of an *equity financed* budget deficit. In fact, the conclusion that emerges from our analysis is that under certain assumptions, namely, a strong wealth effect, our model for the Islamic economy is stable.

The paper is organized as follows. Section 2 describes the objective, importance and implication of fiscal policy in an Islamic economy. Section 3 sets up the macro model with explicit budget constraints for an Islamic economy. The dynamic stability

conditions of the model under *equity financing* and *money creation* are examined in Section 3. Section 4 provides the steady state comparative static results of fiscal and monetary policy under alternative budget financing. Finally, Section 5 summarizes the conclusions.

2. OBJECTIVE AND THE ROLE OF FISCAL POLICY IN AN ISLAMIC ECONOMY

In his comment on the role and function of the state, Ziauddin Ahmad (1989: 5) writes:

> The Quran and the *sunnah* provide basic guidance in determining the role and function of the state. The following functions can be derived directly from these two sources: (a) defence of the territorial integrity of the state; (b) maintenance of law and order; (c) dispensation of justice; (d) civil administration; (e) propagation of good and suppression of evil; (f) assurance of at least a basic minimum standard of living for all citizens, and (g) prevention of gross inequalities in income and wealth.

Thus, it appears that the state should play an important role in providing and improving the welfare of its citizens. Furthermore, the state should be actively involved in promoting and enhancing the general economic conditions and proper utilization of the useful resources of the society by creating necessary 'infrastructure and other public goods' or through fiscal measures.

Having outlined the basic role of the state and the objectives of fiscal policy in an Islamic society, the important question is how the state is going to achieve these objectives. More specifically, how is the government budget going to be financed or if the budget is not balanced, then is deficit-financing permissible in an Islamic state? All these issues will have important implications in constructing the government budget constraint in the next section. Ziauddin Ahmad (1989: 15-16) has best explained and clarified these questions. He writes:

> "The Islamic teachings allow a great deal of flexibility to the government in shaping its budgetary policy. There is nothing *mansus* (prescribed specifically by the Quran and *Sunnah*) about the budget of a state being balanced or unbalanced or the quantum of budgetary deficit. The only binding constraint is that it cannot resort to borrowing on the basis of interest to cover its budgetary deficit".

On the issue of government spending and deficit, S. Ahmed (1989:163) writes:

> "Government spending that is permanent or recurring, such as normal compensation of employees, would be financed by taxation... Temporary spending for specific projects would be financed by loans from the private sector on a profit- and loss-sharing (PLS) basis. The central bank [on behalf of the state] would be allowed to directly invest in the real sector on a PLS basis also and choose how much of the government's equity to monetize through the usual kinds of open market operations, with the only difference being the nature of the securities being traded".

Because of the important place of *zakah* in the Islamic Financial System, the government budget is divided into two broad categories, namely, *welfare budget* and *general budget*.[4] *Zakah* receipts and voluntary contributions are used to finance the expenditures of the *welfare budget* which may include such items as cash grants to the poor and unemployed and financing other social welfare programs (education and health care for the poor). Financing of the *general budget* is, however, made by tax revenues (direct or indirect), borrowing money from the banks *(money financing)* with no interest and trading government shares *(equity financing)* on a PLS basis.

3. THE MODEL OF AN ISLAMIC ECONOMY

Consider a closed economy with a fixed price system implying a horizontal supply curve. We assume that there is *composite* good and two asset markets. The two assets are *equity* (which are titles to physical capital) and *outside money*. Following M. Khan (1986), we also assume that savings and investment activities are performed through the banks only and that these banks can be considered as firms engaged in collecting funds which are then invested to make profits. Furthermore, both the value of the investment deposits (shares) held by the private agents and the corresponding yield on those shares are not fixed or predetermined. In fact, these rates can take negative values as well.[5] Moreover, at any given time, both private agents and government hold these shares in a given proportion. Following Metzler (1951), we also assume that the central bank, on behalf of the government, is authorized to engage in buying and selling of these shares to finance government deficit.

With these assumptions, we examine the following macro model with explicit government budget constraints:

(1)	S	=	$(aY)/\pi;$	$O \le a \le 1$
(2)	M	=	$L(\pi)\,(\lambda\,1S);$	$L\pi < O$
(3)	Y^{AD}	=	$C(Y^{d}, A) + I(\pi) + G;$	$O < C_{yd} < 1;\ C_A > O;\ I\pi < O$
(4)	A	=	$\lambda\,2S + M;$	$O \le \lambda \le 1$
(5)	Y^{d}	=	$(1 - t)Y;$	$O \le t \le 1$
(6)	G	=	$R + G_g;$	
(7)	R	=	$z[Y^{d} - C(Y^{d}, A)];$	$O \le z \le 1$
(8)	G_g	=	$tY + \dot{M} + (1 - \lambda)aY + \dot{\lambda}S$ 3	

where the variables are defined as follows:

Y	=	aggregate national output;
Y^{AD}	=	aggregate demand for national output;
Y^{d}	=	disposable income;
C	=	private consumption;
I	=	private investment;
R	=	transfer payments from *zakah* fund;
G_g	=	government expenditure from general budget;
G	=	total government expenditure;
A	=	private wealth;

M = money balances;

$\dot{M}$ 4 = absolute rate of change of real money balances;

S = market value of total shares held by private owners and government;

λ 5 = proportion of the total shares held by private owners;

$1-\lambda$ 6 = proportion of the total shares held by government;

$\dot{\lambda}$ 7 =absolute rate of change of the proportion of the total shares held by private owners;

π = rate of return or yield on shares;

a = proportion of income going to capital as profit;

z = *Zakah* rate.

We now explain the structure of the model.

Equation (1) simply shows that the value of shares is equal to the capitalized value of profits of the banks. Assuming no capital gains and that banks are not holding any reserves and additional net worth, equation (1) can be thought of as bank's balance sheet with (aY/π) as assets and S as liabilities.

Equation (2) is used to determine the money market equilibrium. This equation, basically determines the rate of return (π) such that the desired proportions of money and shares held are equal to actual proportions. By substituting S from equation (1) into (2), one can obtain the following money market equilibrium condition wherein the rate of return on shares is inversely related to the money demand.

(9) O = $L(\pi)$ - $(M\ \pi)/(\lambda$ 8aY);

Equation (3) represents the goods market equilibrium condition. This equation can be viewed as the summary of the IS curve, wherein the private demand depends positively on disposable income and wealth and negatively on the rate of return. Because of fixed output prices, the adjustment process in response to excess demand in the goods market is assumed to be sluggish. Equations (4) and (5) define private wealth and after-tax disposable income. Substituting equations (1), (4), (5), (6) and (7) into (3) and assuming slow adjustment of the goods market, we obtain the following dynamic equation for excess demand for national output:

(10)$\dot{Y}$ 9 =

$$\alpha\left[(1-z)C\left\{(1-t)Y;\left(\frac{\lambda aY}{\pi}+M\right)\right\}+I(\pi)+z(1-t)Y+G_g-Y\right];10$$

where α is the positive adjustment coefficient and $\dot{Y}$ 11 is the absolute rate of change of the national output.

As mentioned earlier, the total government expenditure as represented by equation (6) is divided into a welfare allocation and a general allocation.[6] Equation (7) shows the transfer payments or welfare expenditures which are made from funds received through *zakah* levy. It may, however, be noted that the *welfare expenditure* [equation (7)] is exactly matched by the *zakah* collection. This is in contrast with Ziauddin Ahmad's (1989) exposition of *dual budget*, who has not ruled out the possibility of deficit in the *welfare budget*. The allowance of financing such deficit from the *general allocation* may diminish the important distinction between the *welfare budget* and the *general budget*.[7] The term inside the bracket of equation (7) represents the total savings (the difference between disposable income and private consumption). The total value of *zakah* fund is simply a fraction (roughly 2.5%) of the total savings.[8]

Equation (8) is the basic government budget constraint identity. The funds generated for this budget are entirely expended for the purpose of general government expenditure as discussed earlier. These funds are, however, raised from three different possible sources, namely, *tax revenue (tY), money financing* or outside money $(\dot{M})$12 and selling of existing shares $(\dot{\lambda}S)$13 held by the government.[9] Since, at a given point in time, it is unlikely that the state will completely replenish its entire asset holdings of the shares to finance the deficit, the government will thus earn some revenue as dividends from its stock holdings which is denoted by $(1-\lambda$ 14)aY in equation (8).

It is important to note that the inclusion of the budget constraint now implies that both policy variables $(M$ *or* λ 15) simultaneously cannot be set exogenously. In fact, Scarth (1988: 104) argued that one of the policy variables $(M$ *or* λ 16) 'must be determined residually by the setting of the other policy instruments, the outcome of the economy, and the need to satisfy the financing constraint'. Furthermore, the presence of time rate of change in either proportion of shares $(\dot{\lambda})$17 or money $(\dot{M})$18 makes the model necessarily dynamic. As such, we will have two dynamic budget constraints, one in the case of *equity* (or share) *financing* and the other for *money financing*. These two dynamic budget constraints are, respectively, given below:

(11a) $\dot{\lambda} = \left(\frac{\pi}{aY}\right)\left[G_g - tY + (1-\lambda)aY\right]$; 19

(11b) $\dot{M} = \left[G_g - tY + (1-\lambda)aY\right]$. 20

Equation (11a) is obtained by substituting S from equation (1) into (8) and then setting $\dot{M}$ 21 equal to zero. On the other hand, by setting $\dot{\lambda}$ 22 equal to zero in equation (8), we obtain the second dynamic budget constraint [equation (11b)]. Thus the compact dynamic system in the case of *equity financing* consists of equations (9), (10) and (11a) while for *money financing* the dynamic model includes equations (9), (10) and (11b). Before a meaningful investigation of the stationary (or long run) multipliers of the system can be done, it is necessary to analyze the dynamic stability of the model.

4. DYNAMIC STABILITY ANALYSIS AND THE LONG RUN MULTIPLIERS

The main focus of our analysis is to study the implications of *equity financed* budget deficit on the stability of the system. However, a comparison of these results with that of *money financed* budget would enhance our understanding of the dynamic adjustment pattern of an Islamic economy. In this section we analyze the stability conditions under alternative modes of financing. We first discuss the case of *equity financing*. In order to examine the effectiveness of fiscal policy under *equity financing*, we also derive the income/expenditure multiplier.

Equity Financing: For equity financed deficit the dynamic model consists of the following equations:

$$(9)\; O = L(\pi) - (M\pi)/(\lambda aY); \quad 23$$

$$(10)\; \dot{Y} = \alpha\left[(1-z)C\left\{(1-t)Y; \left(\frac{\lambda aY}{\pi} + M\right)\right\} + I(\pi) + z(1-t)Y + G_g - Y\right]; \quad 24$$

$$(11a)\; \dot{\lambda} = \left(\frac{\pi}{aY}\right)\left[G_g - tY + (1-\lambda)aY\right]; \quad 25$$

Linearizing the above system around its steady state values ($\bar{Y}, \bar{\lambda}$ and $\bar{\pi}$), 26 we get

$$(12)\quad \begin{bmatrix} \dot{Y} \\ \dot{\lambda} \\ O \end{bmatrix} = \begin{bmatrix} -A_1 & A_2 & -A_3 \\ -B_1 & B_2 & B_3 \\ C_1 & C_2 & -C_3 \end{bmatrix} \begin{bmatrix} Y-\bar{Y} \\ \lambda-\bar{\lambda} \\ \pi-\bar{\pi} \end{bmatrix} + \text{other exogenous terms} \quad 27$$

where

$$A_1 = \alpha\left\{1-(1-z)\left(C_{yd}(1-t) + \frac{C_A\lambda a}{\pi}\right) - z(1-t)\right\} > O; \quad 28$$

$$A_2 = \alpha(1-z)\frac{C_A\lambda aY}{\pi} > O; \quad 29$$

$$A_3 = \left\{(1-z)\frac{C_A\lambda aY}{\pi^2} - I\pi\right\} > O; \quad 30$$

$$B_1 = \left\{\pi\left(\frac{G_g - ty - a(1-\lambda)Y}{aY^2}\right) + \frac{\pi t}{aY} + \frac{\pi(1-\lambda)}{Y}\right\} > O; \quad 31$$

$$B_2 = \pi > O; \quad 32$$

$$B_3 = \left\{ \frac{G_g - tY - a(1-\lambda)Y}{aY} \right\} > O \; ; 33$$

$$C_1 = \frac{M\pi}{a\lambda Y^2} > O \; ; 34$$

$$C_2 = \frac{M\pi}{a\lambda^2 Y} > O \; ; 35$$

$$C_3 = \left\{ \frac{M}{a\lambda Y} - L\pi \right\} > O. 36$$

This 3x3 system has three roots $(\xi_1, \xi_2 \text{ and } \xi_3)$ 37. Thus the necessary and sufficient conditions for stability require that both the determinant (_) and trace should be negative while the sum of the principle minors be positive. However,if one of these conditions is violated unambiguously then the system would be necessarily unstable. Analyzing these stability conditions in the context of our model, we get

$$C.1) \quad \det(A) = \Delta = \xi_1 \xi_2 \xi_3 = A_1(B_2 C_3 + C_2 B_3) - A_2(B_1 C_3 - C_1 B_3) + A_3(C_2 B_1 + C_1 B_2) \gtrless O \; ; \quad 38$$

$$C.2) \quad trace(A) = \xi_1 + \xi_2 + \xi_3 = -A_1 + B_2 - C_3 \gtrless O. 39$$

$$C.3) \quad \sum principle\ minors = \xi_1 \xi_2 + \xi_1 \xi_3 + \xi_2 \xi_3 = (A_1 C_3 + A_3 C_1) + (A_2 B_1 - A_1 B_2) - (B_2 C_3 + B_3 C_2) \lessgtr O. \quad 40$$

The above results clearly indicate that the dynamic system considered is not categorically unstable because none of the stability conditions are unambiguously violated . In fact, under certain suitable conditions the system may converge to a stable time path. Analyzing these conditions carefully one may observe that the influence of terms A_1 and A_2 are crucial for stability and in both these terms the wealth effect on consumption $(C_A > O)$ is important. This leads us to make the following proposition.

Proposition 1: *The dynamic macro model of an Islamic economy with equity financed deficit may be stable if the wealth effect on private consumption is sufficiently strong.*

In order to analyze the dynamic adjustment pattern of our model, we consider the phase diagram representation of equations (10) and (11a). The slopes of $\dot{\lambda} = O$ 41 and $\dot{Y} = 0$ 42 *loci* are given by:

$$(13)\qquad \left.\frac{dY}{d\lambda}\right|_{\dot{\lambda}=o} = \frac{1}{\left\{\frac{G_g - tY - a(1-\lambda)Y}{aY^2} + \frac{t}{aY} + \frac{(1-\lambda)}{Y}\right\}} \quad 43;$$

$$(14)\qquad \left.\frac{dY}{d\lambda}\right|_{\dot{Y}=o} = \frac{(1-z)}{\pi\left\{1-(1-z)\left(C_{yd}(1-t)+\frac{C_a\lambda a}{\pi}\right)-z(1-t)\right\}} \quad 44.$$

Figure 1 describes the characteristics of the adjustment path associated with an increase (decrease) in the proportion of total shares held by the private (government) sector. The locus, $\dot{\lambda} = O\,45$ and $\dot{Y} = O\,46$, passes through point E which represents the new steady state. Notice that the relative slopes of these *loci* reflect the assumed numerical values of the parameters. The analysis of the steady state presented above revealed that the dynamic system is not *categorically unstable*. This result is again reinforced in figure 1 because at least some of the arrows point towards the equilibrium point *E*. Thus, point *E* could be considered as locally stable intertemporal equilibrium. A point such as *E*1 in quadrant I can be considered as describing the initial *steady state*. Since below the $\dot{Y} = O\,47$ locus, Y would increase and above $\dot{\lambda} = O\,48$ *locus* $\lambda\,49$ decrease, the dynamic path terminates at *E*. At point *E*1, aggregate demand falls below natural level of output and climbs back gradually to this level in response to the changes in relative share holdings of the private sector ($\lambda\,50$). Such a pattern of dynamic adjustment implies the significance of private sector's wealth in determining the deviation of actual output from its natural level.

Figure 1

Real Output (Y) and Relative Private Share Holdings ($\lambda\,51$**):**
An adjustment Pattern under Equity Financed Deficit

$\lambda\,52$

Y

Whether or not the wealth effect on consumption is sufficiently strong is essentially a matter of empirical investigation which is beyond the scope of this paper. We, however,can refer to the Quran and the writings of Islamic scholars to seek information on the issues of spending and acquiring wealth by private individuals in an Islamic society.

On the issue of acquiring wealth, the Quran says:

> And when the prayer is ended, then disperse in the land and see of Allah's bounty, and remember Allah much, that ye may be successful. (62:10).

> And when it is said unto them: spend of that wherewith Allah hath provided you, those who disbelieve say unto those who believe: shall we feed those whom Allah, if He willed, would feed? Ye are in naught else than error manifest. (36:47)

In the context of spending wealth, Ziauddin Ahmad (1989:7) writes: The Quran proclaims that

> in no case will man attain piety unless he spends freely from his wealth in the way of God for the needy and poor. (3:92)

Of course, Islam does not promote conspicuous consumption which, in fact, is discouraged. What is, however, encouraged is not to hoard wealth but share it with others.

Assuming that the model under *equity financed deficit* is stable, we can then calculate the steady state long-run multipliers. We now set $\dot{\lambda}$ and $\dot{Y}$ 53 equal to zero to define full-equilibrium in the above dynamic model represented by equations (9), (10) and (11a). λ 54 is now interpreted as the resulting proportion of equities or shares held by public that will eliminate the budget deficit. Thus the three endogenous variables in the model are now Y, λ 55 and π. Taking a total differential of this and writing it in matrix form we get:

$$(13)\quad \begin{bmatrix} -A_1 & A_2 & -A_3 \\ -B_1 & B_2 & B_3 \\ C_1 & C_2 & -C_3 \end{bmatrix} \begin{bmatrix} \partial Y \\ \partial \lambda \\ \partial \pi \end{bmatrix} = \begin{bmatrix} -\alpha \\ \dfrac{-\pi}{aY} \\ O \end{bmatrix} \partial G_g + \text{other exogenous terms;}\ 56$$

where all variables and parameters are as defined earlier. Since our interest in this paper is on the expenditure multipliers, we have ignored the other exogenous terms in equation (13). The long-run expenditure multiplier with respect to income *(Y)* is given below:

$$(14)\quad \frac{\partial Y}{\partial G_g} = \frac{\alpha(B_2C_3 + C_2B_3) + (\pi/aY)(A_3C_2 - A_2C_3)}{\Delta} \gtrless O.\ 57$$

Clearly, the sign of the expenditure multiplier is ambiguous. However, if *Proposition 1* is true, implying the presence of strong wealth effect among the private individuals, this will then make both the denominator (due to C.1) and the numerator negative, giving a positive expenditure multiplier in case of *equity financing*.

We now turn to the case of *money financed* deficit.

Money Financing: The Money Financing model consists of the following dynamic equations:

$$(9)\quad O = L(\pi) - (M\pi)/(\lambda aY);\ 58$$

$$(10)\quad \dot{Y} = \alpha\left[(1-z)C\left\{(1-t)Y; \left(\frac{\lambda aY}{\pi} + M\right)\right\} + I(\pi) + z(1-t)Y + G_g - Y\right];\ 59$$

$$(11b)\quad \dot{M} = \left[G_g - tY + (1-\lambda)aY\right].\ 60$$

Like before, linearizing the above system around its long-run values $(\bar{Y}, \bar{\lambda}$ and $\bar{\pi})$, 61 we get

$$(13)\quad \begin{bmatrix} \dot{Y} \\ \dot{M} \\ O \end{bmatrix} = \begin{bmatrix} -A_1 & A_4 & -A_3 \\ -D_1 & O & O \\ C_1 & C_4 & -C_3 \end{bmatrix} \begin{bmatrix} Y - \bar{Y} \\ M - \bar{M} \\ \pi - \bar{\pi} \end{bmatrix} + \text{other exogenous terms;}\ 62$$

where

$$A_4 = \alpha(1-z)C_A > O;\ 63$$

$$C_4 = \frac{\pi}{a\lambda Y} > O \; ; 64$$

$$D_1 = \left[t + a(1 - \lambda) \right] ; 65$$

and the other variables are as defined earlier.

Analyzing the three stability conditions for the money financing model, we get

$$C.1a) \quad \det(A) = \Delta = \xi_1 \xi_2 \xi_3 = - D_1 (A_4 C_3 - A_3 C_4) < O \; ; 66$$

$$C.2a) \quad trace(A) = \xi_1 + \xi_2 + \xi_3 = - A_1 - C_3 < O \; ; 67$$

$$C.3a) \quad \sum principle\ minors = \xi_1 \xi_2 + \xi_1 \xi_3 + \xi_2 \xi_3 = (A_1 C_3 + A_3 C_1) + A_4 D_1 > O. 68$$

Given the parametric assumptions of the model, it is evident that the dynamic system under *money financing* is *necessarily* stable. Our results for an Islamic Economy, in this case, are consistent with the traditional Keynesian type of macroeconomic model.

5. CONCLUSIONS

In this paper, we have constructed a fixed-price closed economy macro model with explicit budget constraint in order to investigate whether or not an *equity* (or shares) *financed* deficit is stable for an Islamic economy. Most of the earlier studies based on fixed interest rate system concluded that the bond financed budget deficit is *necessarily unstable*. The implications of such a finding could be crucial, from the policy point of view for the economies which use bond as an instrument to finance the deficit. It has been argued that the policy makers in many Western economies 'still hope that bond financed fiscal policy can be used for growth and employment targets, with only transitory effects on the national debt'. Scarth's (1979) research, however, found no strong support for this hope.

Our study, based on a macro model broadly consistent with the tenets of Islam, however, found that the *equity financed* deficit is not necessarily unstable and fiscal policy measures may have positive effect on the growth rate of the economy, provided there are strong wealth effects on private consumption.

NOTES

1.Here the *principle of equity participation* is defined as a system where the deposits of the individuals are held on a profit and loss sharing basis. In other words, as

noted by Khan (1986), these deposits held by the depositor should be treated as shares whose nominal values (and hence rate of return) are not predetermined or fixed by the banks.

2.One exception has been the study done by Ziauddin Ahmad (1989) which did address the issue of fiscal policy and public finance and provided extremely useful information in this context. His detailed study, however, is primarily descriptive and did not develop any macro model to analyze the role of fiscal policy in terms of an analytical mode.

3.For example, see M. Khan (1989, pp.39-40) for a detailed discussion of this issue.

4.*Zakah* is a special tax on the individual's savings and wealth which is then distributed to the poor citizens of the state. The *zakah* rate varies between 2.5% and 20% depending upon the type of assets held by the individual.

5.For example, see Khan (1986) for a discussion on this issue.

6. These two terms for government budget are borrowed from Ziauddin Ahmad (1989).

7.It is worth pointing out that Ziauddin Ahmad (1989) has emphasized the importance of such *dual budget* in an Islamic framework.

8.It should be noted that *zakah* is levied not only on savings but also on wealth such as gold, silver etc. In order to keep our model simple we have limited our analysis of *zakah* as levy on savings only. As a matter of fact, at the present time in Pakistan the government levies a 2.5% *zakah* only on the savings account.

9.One can interpret the term $(\dot{\lambda}S)69$ as *equity financing* for the following reason: $\dot{\lambda}70$ indicates the growth rate of the proportion of shares held by the private individuals and when this term is increased (because of legal authorization of the central bank), it increases the share holdings of the private individuals and reduces the share holdings of the government. By virtue of this operation, the government is being able to generate funds to finance its deficits. This operation can be viewed as an open market operation in the traditional sense but with one important difference being that unlike the bond, the instrument used in this operation does not have a fixed return.

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