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Economic policy and consumption and investment expenditures: an empirical examination

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I. INTRODUCTION

The role of the stock market in transmitting the effects of monetary and fiscal policy actions to the macroeconomy has a prominent position in macroeconomic theory. By altering stock prices, monetary and fiscal policy actions have potentially important effects upon consumption and investment expenditures. In the life-cycle model of Ando and Modigliani (1963), changes in stock values affect consumer wealth and hence consumption expenditures. In Tobin's (1969) general equilibrium model, private investment expenditures are affected by variations in q, which is defined as the ratio of the market value of the capital stock as determined in the stock and bond markets to the reproduction cost of capital. Furthermore, the role of the stock market in transmitting the effects of monetary and fiscal policy actions to the macroeconomy has recently been analysed by Blanchard (1981). In his rational expectations model, consumption and investment spending are functions of the real value of the stock market, and the real value of the stock market is determined as the discounted value of real profits where the discount rate is the real interest rate. Anticipated as well as unanticipated changes in monetary and fiscal policy change the real value of the stock market by altering expectations about the future paths of the real interest rate and real profits. Changes in the real value of the stock market in turn alter consumption and investment expenditures.

The aim of this paper is to analyse empirically the transmission of monetary and fiscal policy actions to the macroeconomy by estimating the effects of these actions on real consumption and investment expenditures. Quarterly data for the period 1959i–1982iv are employed to estimate the impact of unanticipated as well as anticipated monetary and fiscal policy actions on real consumption and investment expenditures. A theoretical discussion of the effect of monetary and fiscal policy actions on real consumption and investment within the context of Blanchard's (1981) model is provided in Section II. The technique used to specify the anticipated policy equations is described in Section III and the empirical results are presented in Section IV. A brief summary and conclusion follows in Section V.

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II. THEORETICAL DISCUSSION OF THE IMPACT OF POLICY ACTIONS ON THE STOCK MARKET

As noted in the introduction, the empirical analysis of this paper is suggested by the Blanchard model as well as by the earlier work of Tobin and Ando–Modigliani. Based upon Blanchard's demonstration that the time path of the real value of the stock market and hence consumption and investment expenditures will vary depending upon whether policy actions are anticipated or unanticipated, the effects of both anticipated and unanticipated monetary and fiscal policy actions on real consumption (c) and investment (i) spending are estimated. Following Blanchard, it is assumed that $c = f(RSM)$, $i = g(RSM)$, and $RSM = h(AM, UM, AF, UF)$ where RSM = real value of the stock market, AM = anticipated monetary actions, UM = unanticipated monetary actions, AF = anticipated fiscal actions, and UF = unanticipated fiscal actions. Substituting for RSM in the consumption and investment functions gives $c = f[h(AM, UM, AF, UF)]$ and $i = g[h(AM, UM, AF, UF)]$.

In Blanchard's rational expectations model, money is neutral in the long run but has effects upon real variables in the short run due to price stickiness. An unanticipated increase in money growth will, in the short run, raise real stock values and hence stimulate consumption and investment expenditures. The unanticipated increase in money growth leads to an increase in real balances and anticipated inflation. The increase in real balances by itself tends to reduce the real rate of interest. This effect is strengthened in the short run by the operation of the Mundell effect, through which increases in expected inflation lead to declines in the real rate for a given nominal rate. Real profits, which are a function of output, are expected to rise in the short run since the unanticipated money growth leads to upward revisions in expected output in the short run. The decline in the real rate and the increase in expected profits generate an increase in real stock values which in turn stimulates consumption and investment spending. As actual output begins to rise in response to the higher consumption and investment spending, the real rate of interest is pushed up and real stock values begin to return to their initial level. Over time, the real rate returns to its initial value as does the stock market and real output.[1] Consumption and investment initially rise but then decline to their initial levels.

Blanchard notes that the process is initially somewhat different in the case of anticipated money growth. Upon announcement of an increase in money growth the real value of the stock market rises in anticipation of the lower real rate and higher real profits; once the announced change is implemented, the process is similar to that for unanticipated money growth.

The effects of expansionary fiscal actions on the stock market and hence consumption and investment spending are ambiguous since the expansionary policy action will increase the real rate as well as output and profits. Blanchard distinguishes between two cases – the 'bad news' and the 'good news' cases. Anticipated fiscal actions are expected to increase both output and the real interest rate. In the 'bad news' case the effects of higher future real rates are expected to outweigh the effects of higher output levels on real profits, and the stock market falls. On the other hand, in the 'good news' case the higher real profits generated by the higher level of real output are expected to more than offset the higher real interest rate, and the value of the stock market rises. Upon implementation, further changes in the real rate, profits and the value of the

[1] The higher anticipated inflation generated by the higher money growth is assumed to have no first-order, long-run effect on the real interest rate.

stock market occur. Thus, in the 'bad news' case, anticipated expansionary fiscal actions should reduce consumption and investment spending while in the 'good news' case consumption and investment spending are stimulated. Unanticipated fiscal actions will have a similar effect, although there will be no initial announcement effect that occurs in the case of anticipated fiscal actions.

III. SPECIFICATION OF THE ANTICIPATED POLICY EQUATIONS

The monetary variable employed in this study is the growth rate of *M1* and the fiscal variable examined is the change in the real high-employment surplus scaled by real potential output. The fiscal variable is chosen to avoid contaminating the fiscal policy variable with changes in expenditures or tax receipts due to the automatic stabilizing aspects of fiscal policy.[2]

Following Mishkin's (1982) advice about specifying anticipated money growth equations, an atheoretical statistical technique is used to specify the anticipated monetary and fiscal policy equations. The major advantage of this technique over alternative procedures such as the one used by Barro (1977) is that an explicit statistical criterion prevents a search for a specification that yields particular results expected by the researcher. The technique used here allows the data to determine which variables are included in the anticipated policy equations and the lag length on these variables.

The technique employed here to specify the anticipated policy equations involves the use of the Granger causality definition in conjunction with Theil's $\bar{R}^2$ (minimum standard error) criterion to specify the appropriate lag length for each variable considered. The fiscal policy specification from Laumas and McMillin (1984) is employed. Since a similar technique is employed in the specification of both monetary and fiscal equations, to save space, the description of the technique will focus upon the monetary policy equation. The macroeconomic variables considered for inclusion in this equation are: the unemployment rate, the inflation rate, the rate of growth of real GNP, the growth rate of publicly held federal debt, the rate of growth in nominal GNP, the fiscal policy variable, the rate of change in the import price deflator, the three-month Treasury bill rate, and Standard and Poor's 500 common stock price index.[3] These variables are chosen because of their macroeconomic interest and because information about these variables is easily obtainable at low cost and thereby might be used by the public to predict the stance of monetary policy.

[2]McCallum and Whitaker (1979) have shown that within the context of a flexible-price rational expectation macro model, built-in stabilizers automatically provide reaction to current period shocks and thereby affect real output in the current period. Thus, in selecting a fiscal policy measure, one must avoid contaminating this measure with changes in expenditures or tax receipts due to the automatic stabilizing aspects of fiscal policy. For this reason the measure described in the text was selected; this variable was employed by Laumas and McMillin (1984) and is the measure suggested by Dornbusch and Fischer (1981) in this popular macroeconomics text.

[3]All data, with the exception of the publicly held federal debt, are from the Citibank tape. Publicly held federal debt is from the Treasury *Bulletin*, Table OFS1.

As is well known, one variable (X) is said to Granger-cause another (Y) if the past values of X in conjunction with past values of Y can be used to predict Y more accurately than just past values of Y. Thus, the first step in the specification of the anticipated monetary policy equation is the determination of the own-lag length for the monetary variable. This determination is made by varying the lag in the autoregression $\dot{M}_t = a_0 + a_1(L)\dot{M}_t + e_t$ from 1 to m, where $\dot{M}_t$ = rate of growth in $M1$, $a_1(L)$ is a distributed lag polynomial such that $a_1(L) = \sum_{k=1}^{n} a_{1k} L^k$, L is the lag operator so the $L^k\dot{M}_t = \dot{M}_{t-k}$, m = highest order lag (specified *a priori* to be 10), and e_t = zero mean white noise error term. The lag length that yields the highest $\bar{R}^2$ is selected as the order of $a_1(L)$.

Once the order of $a_1(L)$ is found, a determination of whether the other macro variables enter the anticipated monetary policy equation is made. The procedure begins with the estimation of the bivariate equation $\dot{M}_t = a_0 + a_1(L)\dot{M}_t + a_2(L)X_t + e_t$ where X_t = relevant macro variables (considered one at a time) and $a_2(L)$ is a distributed lag polynomial defined in a manner similar to $a_1(L)$. $a_1(L)$ is fixed at its previously determined order and the lags in $a_2(L)$ are varied over $\ell = 1, \ldots m$. The lag length that yields the highest $\bar{R}^2$ is selected as the lag order for that macro variable. An F-test of the joint significance of the coefficients on the macro variable is then performed. If the coefficients are significantly different from zero, the variable is said to Granger-cause $\dot{M}$ and this variable is retained for further consideration. If the coefficients are not significantly different from zero, the variable is said not to Granger-cause $\dot{M}$ and is not considered further.

The macro variables further considered for inclusion in the fiscal policy equation are those found to Granger-cause $\dot{M}$. The order in which these variables are considered is determined by the $\bar{R}^2$ from the bivariate equations. The variables are ranked according to the $\bar{R}^2$ from the relevant bivariate equations with the variable with the highest $\bar{R}^2$ first, and so on. The trivariate equation, $\dot{M}_t = a_0 + a_1(L)\dot{M}_t + a_2(L)X_{1,t} + a_3(L)X'_t + e_t$ is estimated where $X_{1,t}$ is the variable with the highest $\bar{R}^2$ in the bivariate equations, X'_t = remaining macro variables (considered one at a time), and $a_3(L)$ is defined analogously to $a_1(L)$ and $a_2(L)$. $a_1(L)$ and $a_2(L)$ are fixed at their previously determined order and the lags in $a_3(L)$ are varied over $p = 1, \ldots m$. As before, the lag length that yields the highest $\bar{R}^2$ is selected as the lag order for that macro variable. An F-test of the joint significance of the coefficients on the macro variable is then performed. Again, if the coefficients are significantly different from zero, the variable is said to Granger-cause $\dot{M}$ and is retained for further consideration. If the coefficients are not significantly different from zero, the variable is not considered further.

After the trivariate equations for all remaining macro variables are estimated, the variables found to Granger-cause $\dot{M}$ are again ranked according to the $\bar{R}^2$, and the process continues in an analogous fashion until all variables are discarded or added to the monetary policy equation. The same process is applied to the fiscal policy variable. In specifying these equations, the maximum lag length considered (10 quarters) is kept generous in order to reduce the possibility of underspecifying the lag length and thereby biasing the coefficient estimates. Subject to the constraint of a maximum lag of 10 quarters, the data are allowed to determine the appropriate lag length. In the two cases in Equations 1 and 2 where the technique specified a lag of 10 quarters, additional lags were considered, but the optimal lag remained at 10 quarters.

Use of this procedure and data from 1959i to 1982iv led to the following specifications for the monetary and fiscal policy equations:

$$\dot{M}_t = a_0 + a_1^9(L)\dot{M}_t + a_2^5(L)RTB_t + a_3^{10}(L)\dot{NY}_t + e_{1,t} \quad (1)$$

$$F_t = b_0 + b_1^8(L)F_t + b_2^3(L)U_t + b_3^{10}(L)RTB_t + e_{2,t}. \quad (2)$$

The superscript in the lag polynomial indicates the order of the lag; thus the optimal lag on $\dot{M}$ is nine quarters. F = the change in the real high-employment surplus scaled by real potential output and the explanatory variables are defined as RTB = three-month Treasury bill rate, $\dot{NY}$ = rate of change in nominal GNP, and U = unemployment rate for all workers. About 70% of the variation in money growth is explained by Equation 1 while about 46% of the variation in the fiscal variable is explained by Equation 2. In order to conserve space, the coefficient estimates are not reported here but are available from the authors on request. Following Mishkin (1982), it is noted that the observational equivalence problem described by Sargent (1976) is overcome since the anticipated policy equations contain lagged values of variables not directly included in the real expenditure equations. Because of this, it is possible to identify enough of the parameters of the real expenditure equations to determine the differential effects of anticipated and unanticipated policy actions on real expenditures.

The temporal stability of these equations was checked by means of the Chow test. The sample was split into two equal parts and the Chow test indicated that the hypothesis of stability of the coefficients could not be rejected at the 5% level. Autoregressions of the residuals from these equations indicated the absence of serial correlation in Equations 1 and 2.[4]

IV. EMPIRICAL RESULTS

The two-step procedure outlined in Barro (1977) and Makin (1982) is used to estimate the effects of anticipated and unanticipated policy actions on real consumption and investment expenditures. Following Makin, difference stationary series for real consumption and investment expenditures – i.e. the growth rates of these series – are employed. In the first step of this procedure the policy equations (Equations 1 and 2) are estimated and the predicted values from these equations are used as the anticipated policy measures, while the residuals are used as unanticipated policy actions. The second step consists of estimating the following equations with real consumption expenditures as the dependent variable and then with real investment expenditures as the dependent variable:

$$RE_{j,t} = c_0 + \sum_{i=0}^{n_1} c_{1,i} AF_{t-i} + \sum_{i=0}^{n_1} c_{2,i} UF_{t-i} + e_{3,t} \quad (3)$$

$$RE_{j,t} = d_0 + \sum_{i=0}^{n_2} d_{1,i} A\dot{M}_{t-i} + \sum_{i=0}^{n_2} d_{2,i} U\dot{M}_{t-i} + e_{4,t} \quad (4)$$

[4]For the anticipated money equation the calculated F-statistic is 0.88 while the critical F-statistic (5% level) is approximately 1.82. For the anticipated fiscal policy equation the calculated F-statistic is 1.61 while the critical F-statistic (5% level) is approximately 1.80. The autoregression tested for first- through fourth-order serial correlation. None of the coefficients on the lagged residuals for either equation were significant.

where $RE_{j,t}$ = rate of growth in real expenditure series j (measured as the log of real expenditure j in period t minus the log of real expenditure j in $t-1$), $A\dot{M}$ = anticipated money growth, $U\dot{M}$ = unanticipated money growth, AF = anticipated fiscal actions, and UF = unanticipated fiscal actions. Separate equations are estimated due to the relative brevity of the sample. Given the relatively long lag length found for both the monetary and fiscal variables, inclusion of all four policy variables in the expenditure equations would rapidly deplete the available degrees of freedom.[5]

Equations 3 and 4 are estimated using polynomial distributed lags with a correction for first-order serial correlation. Based upon Mishkin's (1982) demonstration that specification of the lag length in equations like Equations 3 and 4 importantly affects conclusions about the impact of anticipated policy actions on output, an explicit statistical criterion – Theil's $\bar{R}^2$ (minimum standard error) criterion – was used to determine the degree of polynomial, length of lag and appropriateness of end-point constraints. Equations using alternative combinations of polynomial degree, lag length and type of end-point constraint were estimated; the combination of polynomial degree, lag length and end-point constraint that maximized the $\bar{R}^2$ was selected as the appropriate specification of Equations 3 and 4. As in the case of the policy equations, the data are allowed to determine the appropriate specification of the consumption and investment equations. The estimated fiscal policy equations are reported in Tables 1 and 2 and the estimated monetary policy equations are reported in Tables 3 and 4. The fiscal policy results are discussed first.

Table 1 reports the results for real consumption expenditures. A fourth-degree polynomial with a near end-point constraint is used to estimate the equation. About 45% of the variation in real consumption expenditures is explained by the equation, and the D–W statistic indicates the absence of first-order serial correlation. Note that many of the coefficients for both anticipated and unanticipated fiscal policy are significant.[6] The negative signs indicate that expansionary fiscal actions raise real consumption expenditures. These results in turn suggest that Blanchard's 'good news' case appears to describe the effects of fiscal actions on consumption expenditures.

The patterns of effects for anticipated and unanticipated fiscal actions are somewhat different, however. Anticipated fiscal actions have a significant contemporaneous effect, and the peak

[5]Since it is assumed that both monetary and fiscal actions affect sectoral expenditures, an equation employing one set of policy measures is misspecified. However, as Batten and Hafer (1983) point out, this presents a statistical problem of bias due to misspecification only if the policy variables omitted are correlated with the included policy variables. The simple correlations among the four variables used here are essentially zero. The simple correlation coefficients are:

	AM	UM	AF	UF
AM	1.00	0.00	−0.04	0.05
UM		1.00	0.18	0.09
AF			1.00	0.00
UF				1 00

[6]Since the fiscal measure employed here was frequently in deficit over the sample period, the negative coefficients indicate that an increase in the high-employment deficit raises real output.

Table 1. *Effects of anticipated and unanticipated fiscal policy on real consumption expenditures (Sample: 1961iii–1982iv)*

c_0 0.0059 (8.33)	$c_{1,0}$	−0.434	(−4.11)	$c_{2,0}$	0.075	(1.16)
	$c_{1,1}$	−0.731	(−5.15)	$c_{2,1}$	0.022	(0.27)
	$c_{1,2}$	−0.911	(−6.47)	$c_{2,2}$	−0.109	(−1.39)
	$c_{1,3}$	−0.990	(−7.72)	$c_{2,3}$	−0.276	(−3.53)
	$c_{1,4}$	−0.988	(−8.14)	$c_{2,4}$	−0.444	(−4.98)
	$c_{1,5}$	−0.925	(−7.63)	$c_{2,5}$	−0.586	(−5.73)
	$c_{1,6}$	−0.819	(−6.86)	$c_{2,6}$	−0.683	(−6.28)
	$c_{1,7}$	−0.690	(−6.15)	$c_{2,7}$	−0.722	(−6.72)
	$c_{1,8}$	−0.559	(−5.29)	$c_{2,8}$	−0.699	(−6.72)
	$c_{1,9}$	−0.444	(−4.07)	$c_{2,9}$	−0.615	(−5.83)
	$c_{1,10}$	−0.367	(−3.07)	$c_{2,10}$	−0.482	(−4.31)
	$c_{1,11}$	−0.349	(−2.90)	$c_{2,11}$	−0.316	(−2.82)
	$c_{1,12}$	−0.409	(−3.76)	$c_{2,12}$	−0.142	(−1.31)
	$c_{1,13}$	−0.570	(−3.15)	$c_{2,13}$	0.008	(0.05)
	$\sum_{i=0}^{13} c_{1,i}$	−9.19	(−7.72)	$\sum_{i=0}^{13} c_{2,i}$	−4.97	(−5.85)
$\bar{R}^2$ = 0.45						
SE = 0.0068						
D–W = 2.09						
$\hat{\rho}$ = −0.27						

effect occurs at a lag of three quarters. Initially unanticipated fiscal actions have no effect on consumption; but, at a lag of three quarters, the effect becomes significant and the peak effect occurs at a lag of seven quarters. The existence of an announcement effect for anticipated fiscal actions may account for the differences in the observed pattern of lags. As Blanchard points out, an anticipated expansionary fiscal action should, in the 'good news' case, lead to an immediate increase in stock prices in advance of the actual change in real profits and the real interest rate. In turn, consumption and investment expenditures will respond to this anticipatory rise in the stock market. However, in the case of unanticipated expansionary fiscal actions, the effects on the stock market and consumption and investment expenditures will not be observed until real profits and the real interest rate actually change. Although the sums of the coefficients are statistically significant, the results do not suggest that a one-off increase in the high-employment deficit has a permanent effect upon real consumption expenditures. A one-off increase in the high-employment deficit will only temporarily raise real consumption expenditures. The variable employed here is the ratio of the change in the high-employment deficit to real potential output (F). The significant sum of the coefficients suggests that a sustained increase in F has a lasting effect on real consumption. But since real potential output grows over time, a sustained increase in the fiscal variable requires continuing increases in the high-employment deficit.

Table 2 reports the fiscal policy results for real investment expenditures. A fourth-degree polynomial with no end-point constraints is used to estimate this equation. The equation explains about 44% of the variation in real investment expenditures, and the absence of serial

Table 2. *Effects of anticipated and unanticipated fiscal policy on real gross private domestic investment (Sample: 1961iii–1982iv)*

c_0 −0.0044 (−0.95)	$c_{1,0}$	4.295	(3.47)	$c_{2,0}$	0.569	(0.61)
	$c_{1,1}$	−0.781	(−0.90)	$c_{2,1}$	0.872	(1.75)
	$c_{1,2}$	−3.572	(−4.01)	$c_{2,2}$	0.562	(1.06)
	$c_{1,3}$	−4.730	(−5.37)	$c_{2,3}$	−0.097	(−0.17)
	$c_{1,4}$	−4.812	(−5.86)	$c_{2,4}$	−0.884	(−1.55)
	$c_{1,5}$	−4.280	(−5.47)	$c_{2,5}$	−1.627	(−2.73)
	$c_{1,6}$	−3.501	(−4.43)	$c_{2,6}$	−2.201	(−3.38)
	$c_{1,7}$	−2.749	(−3.41)	$c_{2,7}$	−2.525	(−3.64)
	$c_{1,8}$	−2.200	(−2.78)	$c_{2,8}$	−2.567	(−3.67)
	$c_{1,9}$	−1.940	(−2.60)	$c_{2,9}$	−2.340	(−3.49)
	$c_{1,10}$	−1.957	(−2.76)	$c_{2,10}$	−1.906	(−2.96)
	$c_{1,11}$	−2.144	(−2.96)	$c_{2,11}$	−1.371	(−2.11)
	$c_{1,12}$	−2.301	(−3.02)	$c_{2,12}$	−0.888	(−1.31)
	$c_{1,13}$	−2.134	(−2.89)	$c_{2,13}$	−0.658	(−0.99)
	$c_{1,14}$	−1.252	(−1.79)	$c_{2,14}$	−0.928	(−1.42)
	$c_{1,15}$	0.830	(0.70)	$c_{1,15}$	−1.991	(−1.89)
	$\sum_{i=0}^{15} c_{1,i}$	−33.23	(−3.46)	$\sum_{i=0}^{15} c_{2,i}$	−17.98	(−2.87)
$\bar{R}^2$ = 0.44						
SE = 0.0443						
D–W = 2.21						
$\hat{\rho}$ = −0.37						

correlation is indicated by the D–W statistic. Again, many of the coefficients for both anticipated and unanticipated fiscal actions are significantly negative, thereby lending further support to the 'good news' case as being descriptive of the effects of fiscal actions on the stock market. The patterns of effects of anticipated and unanticipated fiscal actions on investment expenditures are quite similar to those for consumption expenditures and can be explained in a similar fashion. It is also noted that the sums of the coefficients for both fiscal measures are significantly negative, but that as before, this indicates that a one-off increase in the real high-employment deficit raises real investment expenditures only in the short run.

The results for the effects of anticipated and unanticipated money growth on real consumption expenditures are presented in Table 3. A fourth-degree polynomial with no end-point constraints is used in the estimation of this equation. About 52% of the variation in real consumption expenditures is explained by the equation and, as for the previous equations, no remaining first-order serial correlation is indicated. Initially, increases in both anticipated and unanticipated money growth raise consumption expenditures, although the expansionary effects last longer for anticipated money growth. The initial effects are also larger for anticipated than unanticipated money growth, thereby providing some support for announcement effects of anticipated money growth. The initial positive effects are later offset so that the sum of the effects is not significantly different from zero. Thus, expansionary monetary actions only temporarily raise real consumption expenditures. The pattern of effects is again consistent with

Table 3. *Effects of anticipated and unanticipated money growth on real consumption expenditures (Sample: 1961iii–1982iv)*

d_0 −0.010 (2.66)	$d_{1,0}$	0.433	(2.88)	$d_{2,0}$	0.376	(2.06)
	$d_{1,1}$	0.435	(2.86)	$d_{2,1}$	0.185	(1.12)
	$d_{1,2}$	0.299	(2.90)	$d_{2,2}$	−0.324	(−2.81)
	$d_{1,3}$	0.123	(1.07)	$d_{2,3}$	−0.416	(−3.26)
	$d_{1,4}$	−0.035	(−0.39)	$d_{2,4}$	−0.143	(−1.32)
	$d_{1,5}$	−0.158	(−1.63)	$d_{2,5}$	0.083	(0.65)
	$d_{1,6}$	−0.260	(−2.98)	$d_{2,6}$	−0.070	(−0.61)
	$d_{1,7}$	−0.386	(−2.68)	$d_{2,7}$	−0.434	(−2.49)
	$d_{1,8}$	−0.601	(−3.72)	$d_{2,8}$	0.102	(0.52)
	$\sum_{i=0}^{8} d_{1,i}$	−0.15	(−0.61)	$\sum_{i=0}^{8} d_{2,i}$	−0.641	(−1.28)
$\bar{R}^2$ = 0.52						
SE = 0.0065						
D–W = 2.08						
$\hat{\rho}$ = −0.18						

Table 4. *Effects of anticipated and unanticipated money growth on real private domestic investment (Sample: 1961iii–1982iv)*

d_0 −0.007 (−0.26)	$d_{1,0}$	1.121	(1.25)	$d_{2,0}$	3.12	(2.67)
	$d_{1,1}$	2.240	(3.21)	$d_{2,1}$	1.13	(1.49)
	$d_{1,2}$	1.771	(2.64)	$d_{2,2}$	−0.200	(−0.28)
	$d_{1,3}$	0.801	(1.33)	$d_{2,3}$	−1.000	(−1.69)
	$d_{1,4}$	0.026	(0.04)	$d_{2,4}$	−1.362	(−2.09)
	$d_{1,5}$	−0.253	(−0.43)	$d_{2,5}$	−1.430	(−2.21)
	$d_{1,6}$	−0.123	(−0.26)	$d_{2,6}$	−1.300	(−2.24)
	$d_{1,7}$	−0.066	(−0.11)	$d_{2,7}$	−1.069	(−1.47)
	$d_{1,8}$	−0.957	(−1.50)	$d_{2,8}$	−0.832	(−1.06)
	$d_{1,9}$	−4.062	(−4.56)	$d_{2,9}$	−0.675	(−0.53)
	$\sum_{i=0}^{9} d_{1,i}$	0.499	(0.28)	$\sum_{i=0}^{9} d_{2,i}$	−3.618	(−0.97)
$\bar{R}^2$ = 0.43						
SE. = 0.0435						
D–W = 2.04						
$\hat{\rho}$ = −0.15						

Blanchard's (1981) model, as is the neutrality of money with respect to real consumption expenditures.

The effects of anticipated and unanticipated money growth on real investment expenditures are reported in Table 4. A fourth-degree polynomial with no end-point constraints is used to estimate the equation. About 43% of the variation in real investment expenditures is explained by the equation, and no remaining first-order serial correlation is indicated. The lags for real investment are marginally longer than for consumption expenditures, although the pattern of effects is similar. Again both anticipated and unanticipated money growth temporarily raise real investment expenditures, but the sums of the effects are not significantly different from zero. Finally, note that the absolute value of most of the coefficients for both anticipated and unanticipated money growth are larger for real investment expenditures than for real consumption expenditures. This suggests that the effects of monetary actions have a stronger short-run effect on investment expenditures than on consumption expenditures; this pattern is similar to that for fiscal policy. The results for real investment expenditures are, as were the results for real consumption expenditures, consistent with the model described by Blanchard (1981).

V. CONCLUSIONS

This paper has investigated empirically the effects of anticipated and unanticipated monetary and fiscal policy actions on real consumption and investment expenditures. The rationale for this investigation is the linkage from monetary and fiscal policy actions to the stock market and then to real consumption and investment expenditures described in the models of Ando and Modigliani (1963), Tobin (1969), and Blanchard (1981).

The results suggest that anticipated and unanticipated expansionary fiscal actions raise both real consumption and investment expenditures. These results conform to the 'good news' case described by Blanchard in which the effects of expansionary fiscal actions on real profits outweigh the effects on the real interest rate with the result that the real value of the stock market rises. This rise in stock prices in turn stimulates consumption and investment spending. Based upon the differential patterns of effects for anticipated and unanticipated fiscal action the results also support the existence of announcement effects for anticipated fiscal actions. The effects of expansionary fiscal action appear, however, only to be short-run effects. Both anticipated and unanticipated increases in money growth raise real consumption and investment expenditures in the short run, and there are no lasting effects of higher money growth in the long run. Evidence for the existence of an announcement effect for monetary actions is somewhat weaker than for fiscal actions.

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