

CHAPTER - VIII

OUTPUT LEVEL AND DIFFERENT PARTS OF MONEY SUPPLY: RELATIONSHIPS OVER DIFFERENT SUB-PERIODS

8.1 INTRODUCTION :

From the results of the 'Recursive Estimations' following Chow Test in Chapter-VII, several sub - periods have been identified. Across these sub-periods, relations between output level and different parts of money supply underwent changes. This Chapter is devoted to analyse these changes. However, for the reasons stated in the Chapter VII in Section 7.5, the sub-periods⁵⁰ 1950-1955 is kept out of the purview of our analysis.

8.2 RECURSIVE ESTIMATION OVER THE SUB-PERIODS 1956-1962:FINDINGS

It is observed over the sub-period 1956-1962, F^* - values are not statistically significant even at 5% level i.e. $F^* < F_{0.05}^{Y_1, V_2}$. So the structural parameters of the equation⁵¹-

$$y_t = \alpha + \beta_1 M_t^e + \beta_2 UM_t + v_t \text{ remained stable.}$$

The GLS estimation of the equation is

$$\hat{y}_t = 0.01235 + 0.001435M_t^e + 0.005612UM_t$$

(0.004822)	(0.02687)	(0.007163)
[2.5610]	[0.05340]	[0.7835]

$$R^2 = 0.450351 \quad D.F. = 4$$

$$F^* = 0.819 \quad D.W. = 2.01$$

It is observed that over this sub-period, $\hat{\beta}_1$ and $\hat{\beta}_2$ are not statistically significant even at 1% level. This indicates that $\beta_1 = 0$ and $\beta_2 = 0$.

8.3 ANALYSIS OF THE FINDINGS :

These statistical findings ($\beta_1 = 0, \beta_2 = 0$)⁵² indicate that variation in output level over the sub-period 1956-1962 were in no way related significantly to variations in either anticipated and unanticipated parts of money supply.

50. Because of only one estimation in the subperiod, 1950-55, the exact dynamic nature of output money supply relationship cannot be ascertained.

51. The equation is taken from chapter-VI, section-6.1.

52. $\beta_1 = 0$ and $\beta_2 = 0$ mean that M_t^e and UM_t have no influence on output over the sub-period (1956-1962).

It may be noted that this sub-period by and large covered the Second Five Year Plan period. This sub-period saw the introduction of the Industrial Policy of 1956 and the practice of "Controlled Money Expansion". The growth of output level was, therefore, mainly due to prudent fiscal management. Consequently, monetary policy failed to extend remarkable effect on output growth.

8.4 RECURSIVE ESTIMATION OVER THE SUB-PERIOD 1963-1969 : FINDINGS

It is observed over the sub-period 1963-1969, F^* - values are not statistically significant even at 5% level, i.e. $F^* < F_{0.05}^{K, V_2}$. So, the structural parameters of the equation.

$$y_t = \alpha + \beta_1 M_t^e + \beta_2 -UM_t + v_t \text{ remained stable over this sub-period.}$$

The GLS estimation of the equation is

$$\hat{y}_t = -1.4625 + 0.7523M_t^e + 0.05031UM_t$$

(0.45518)	(0.32538)	(0.053801)
[-3.213]	[2.3120]	[0.9351]

$$R^2 = 0.803251$$

$$D.F. = 4$$

$$F^* = 4.08$$

$$D.W. = 1.95$$

From the estimated equation it is observed that over this sub-period $\hat{\beta}_1$ is statistically significant at 5% level and $\hat{\beta}_2$ fails to be significant (at 5% level). This indicates that $\beta_1 > 0$ and $\beta_2 = 0$.

8.5 ANALYSIS OF THE FINDINGS :

These statistical findings indicate that

(i) variation in output level over the sub-period 1963-1969 is significantly related to the variation in anticipated part of money supply since $\beta_1 > 0$ and ;

(ii) output variation is in no way significantly related to the variation in unanticipated part of money supply since $\beta_2 = 0$.

These findings have important implication regarding efficiency of monetary policy. It may be noted that anticipated part of the money supply constitutes the part of the money supply which is directly controlled through monetary policy. So, the monetary policy becomes operative through the anticipated part of money supply. Now anticipated part of money supply is found to exert significant effect on output level over the sub-period 1963-1969. It is a pointer that monetary policy was successful to affect output variation over this period.

On the other hand, unanticipated part being a random variable, constitutes the surprise in money supply. It is, therefore, out of the calculated policy designs of the monetary authority. Consequently, $\beta_2 = 0$ indicates that surprise part of money supply has no contribution into the variation in output level over the sub-period concerned. This further testifies that well-designed calculated practices of the monetary authority exerted significant effect on output growth over this period. Random, uncalculated money supply bore no effect on output variation.

8.6 RECURSIVE ESTIMATION OVER THE SUB-PERIOD 1970-79: FINDINGS

For the recursive estimations over the sub-period 1970-1979, it is observed that F^* - values are not statistically significant (even at 5% level) since $F^* < F_{0.05}^{V_1, V_2}$. These indicate that the structural parameters of the equation -

$y_t = \alpha + \beta_1 M_t^e + \beta_2 UM_t + v_t$ remained consistently stable over this sub-period.

The estimated equation⁵³ is

$$\hat{y}_t = 0.5327 + 0.05261M_t^e + 0.03214UM_t$$

(0.43133)	(0.06299)	(0.03562)
[1.9235]	[0.8351]	[0.9021]

$$R^2 = 0.402138$$

$$D.F. = 7$$

$$F^* = 1.34$$

$$D.W. = 1.56$$

It is observed that both $\hat{\beta}_1$ and $\hat{\beta}_2$ are statistically insignificant even at 1% level. This indicates that $\beta_1 = 0$ and $\beta_2 = 0$.

8.7 ANALYSIS OF THE FINDINGS :

These statistical findings i.e. $\beta_1 = 0$ and $\beta_2 = 0$ show that variation in either anticipated or un-anticipated part of money supply had failed to explain the variation in output level over the sub-period 1970-79. Consequently, variation in output level was in no way related to variation in any part of money supply.

These findings seem to imply that monetary policy had little contribution to output growth. Monetary policy as such failed to play vital role in guiding the growth of output level over this sub-period concerned.

It may be noted that this sub-period (1970-1979) envisaged the period of turmoil arising out of the Indo-Pakistan War over Bangladesh issue and proclamation of Emergency in India. Again in this period the 20-point Economic Programmes was launched by the Central Government. So, the growth of output level in this period was the culmination of

53. The equation is estimated through GLS method.

many factors. The nationalization of banks paved the way for expansion of money supply but the growth of output was hindered by several socio-political events. As a result thereof, monetary expansion failed to generate any impetus for output growth.

8.8 RECURSIVE ESTIMATION OVER THE SUB-PERIOD 1980-1991 : FINDINGS

It is observed over the sub-period 1980-1991, F^* - values are not statistically significant (even at 5% level) since $F^* < F_{0.05}^{Y, V_2}$. So, the structural parameters of the equation

$$y_t = \alpha + \beta_1 M_t^e + \beta_2 UM_t + v_t \text{ remained stable over this sub-period.}$$

The estimated equation⁵⁴ is

$$\hat{y}_t = 1.2536 - 0.05280M_t^e + 0.22351UM_t$$

(0.54127)	(0.08854)	(0.05842)
[2.3160]	[-0.5963]	[3.8256]

$$R^2 = 0.543541$$

$$D.F. = 9$$

$$F^* = 3.17$$

$$D.W. = 1.97$$

From the above estimated equation, it is observed that $\hat{\beta}_1$ is not significant (at 5% level) but $\hat{\beta}_2$ is statistically significant (at 5% level).

It is observed from these recursive estimations that $\beta_1 = 0$ while $\beta_2 > 0$. So, the broad discernable trend in this sub-period exhibits that $\beta_1 = 0$ and $\beta_2 > 0$ while $\hat{\beta}_1$ has assumed a negative value.

8.9 ANALYSIS OF THE FINDINGS :

These statistical findings show that over this sub-period (1980-91) variation in output level.

- (i) was not related to the variation in anticipated part of money supply, since $\beta_1 = 0$ and
- (ii) was positively related to that in unanticipated part of money supply since $\beta_2 > 0$.

$\beta_1 = 0$ has an important significance. It indicates that anticipated money supply which arose out of the well-designed calculated practice of monetary authority played no role for the growth of output level. As a matter of fact, this period is marked by strong inflationary pressure in the economy. Growth in money supply added more to the price rise and purchasing capacity of the economy. Consequently, anticipated part of money supply added only to price rise and not to any rise in real output level.

However, under strong inflationary pressure $\beta_2 > 0$ lends support to the claim of the Rational expectationists. Rational expectationists claim that in countries with volatile price level marked by strong inflationary pressure, surprise i.e. unanticipated part of money supply becomes more effective in guiding output level. The overall results of the estimated models in different sub-periods have been presented in the Table-8.1.

54. The equation is estimated through GLS method.

TABLE-8.1

RESULTS OF ESTIMATIONS IN DIFFERENT SUB-PERIODS

Sub-periods	$\hat{\alpha}$	$\hat{\beta}_1$	$\hat{\beta}_2$	D.F.	R ²	F*	D.W.
1	2	3	4	5	6	7	8
1956-62	0.01235 [2.5610]	0.001435 [0.05340]	0.005612 [0.7835]	4	0.450351	0.819	2.01
1963-69	-1.4625 [-3.213]	0.7523 [2.3120]	0.05031 [0.9351]	4	0.803251	4.08	1.95
1970-79	0.5327 [1.9235]	0.05261 [0.8351]	0.03214 [0.9021]	7	0.402138	1.34	1.56
1980-91	1.2536 [2.3160]	-0.05280 [-0.5963]	0.22351 [3.8256]	9	0.543541	3.17	1.63

8.10 OVERALL IMPLICATIONS OF THE FINDINGS : SUMMARY

It is, therefore, observed that

(i) variations in anticipated and unanticipated parts of money supply had no contribution to the variation in output level over the sub-periods 1956-62 and 1970-1979 ;

(ii) anticipated part of money supply is found to affect output level over the period 1963-1969 only while unanticipated part played no role in this respect ;

(iii) anticipated part of money supply is found to have no role in the variation of output level over the period 1980-91. However, over this period, unanticipated part of money supply is found to contribute significantly to the variation of output- level .

These findings also bear significant implications for efficacy of monetary policy. It is observed in this respect that -

(i) monetary policy was broadly ineffective in the matter of influencing output growth over the period 1956-62 and 1970-79 ;

(ii) monetary policy emerged successful in affecting output level over the sub-period 1963-1969 only ;

(iii) monetary policy, as pursued over the sub-period 1980-91, emerged ineffective in guiding the growth of output level in India ;

(iv) Surprise or unanticipated part of money supply played a significant role in affecting output level over the sub-period 1980-91 only. It lends credence to the Rational Expectationists' Proposition that output level is affected significantly by the unanticipated part of money supply when economy suffers from volatility in price level.