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Documentation Sheet

Title:

The Cost of Financial Repression: Impact on Savings, Investment and Growth for India, 1971-1995

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External Participation:

WP. No.: 99/4
Date of Issue: March 1999

Contents: 22 P, 10T, --- F, 26R.
No. of Copies: 100

Abstract

The paper focuses on the concept of financial repression and presents an estimate of the extent of revenue the government is able to garner from this unconventional tax form for India during 1971-98. Financial repression also has an impact on savings, investment and growth of an economy. We find that an indirect feedback does exist between savings and investment through growth. Further, we show that for 1955-98, financial repression has not helped growth while it has positive impact on growth in 1971-98.

Key Words: - Financial Repression, Financial Intermediation, Interest Rates

JEL Code(s): -E6

The Cost of Financial Repression: Impact on Savings, Investment and Growth for India 1971 - 1995

I Introduction

Governments during the past few decades have made control over finance an important tool of their development strategies as most believed that without intervention their financial systems would not be cooperative partners in their development efforts. While it is known that even when domestic financial markets are not repressed but there is no access to external financing then higher deficits financed by domestic debt raise domestic interest rates. However, when financial markets are repressed through controls on domestic interest rates, compulsory debt placements etc. then higher fiscal deficits lead to repressed (even negative) real interest rates. Thus, repressed interest rates are to an extent a tax on the financial system and in highly repressed economies governments can garner large amounts of revenue from this tax form. Although, governments can get substantial amounts of revenue from financial repression on the flip side follows poor economic performance, depressed private credit and the consequential lowering of private investment.

India till the reforms in the financial sector were introduced had an administered interest rate structure; what have been its impact on savings, investment and growth and the extent to which the government has been able to garner resources from this unconventional tax form is the focus of this paper. Section II introduces the concept of financial repression. Section III presents the rationale for and arguments against financial repression arguments against financial repression. In Section IV we have attempted to compute the revenue from Financial Repression while. Section V presents the empirical evidence on the impact of financial repression on savings, investment and growth. Section VI concludes the paper.

II Concept of Financial Repression

Governments and particularly developing country governments have intervened extensively in order to divert large amount of funds to the priority sectors such as industry, state owned enterprises, small and medium scale firms and to a lesser extent housing, exports and underdeveloped regions. One way that government's finance expenditures in excess of tax revenues is to force the private sector, insurance companies, pension funds, commercial banks and other public financial institutions to buy government securities at below market yields as generally returns on government securities is much below the market rates of interest. Another way in which government can borrow at low rates of interest is by setting high liquid asset ratios and ensuring that government securities are the only eligible assets that satisfy this requirement. Also, by setting high reserve requirements, the government can borrow indirectly from the banking system at a zero or very low rate of interest. Finally, governments may set ceilings on interest rates to limit competition from the private sector for loanable funds (Fry, 1997 and Giovannini and de Melo,1990).

Thus, financial repression is not a precise concept since the controls imposed on financial markets are a combination of price and quantity restrictions. A typical set of restrictions includes the prohibition on domestic residents from holding financial assets abroad, coupled with compulsory quotas of government bonds in financial intermediaries portfolios.

Financial repression, thus, is often used to describe the situation when interest rates are at negative real levels. A more precise definition could be when government intervention holds interest rates below the market clearing levels. However, in many developing countries with capital account restrictions, managed exchange rates and undeveloped capital and money markets, it is difficult to determine a market clearing interest rate. In the absence of such a market clearing rate, governments use international interest rates such as LIBOR as guides for the opportunity cost of domestic savings. Further, most developing countries have closed capital accounts and the high transaction costs involved in moving funds abroad, has enabled governments of developing countries

to maintain deposit rates below their market clearing level without facing the consequent capital flight or a significant transfer of funds into informal markets where higher real rates prevail (World Development Report, 1990; World Bank, 1993).

III Rationale for and Arguments against Financial Repression

III.A *Rationale for Financial Repression*

While the key role that the financial system plays in the economic development of a country is rather well known, a number of arguments have been putforth in favour of financial repression and some of them are detailed below:

(a) The rationale for financial repression has been the response to the simplistic interpretations of Keynesian theories: (i) It was thought that, by controlling interest rates at reasonably low levels and by expanding the scope of government direct intervention, investment would greatly increase. (ii) Prebisch (1947) argues that government intervention aimed at controlling interest rates accelerates growth. He contends that lower interest rates encourage savings and that the government should lower interest rates to a level where full employment is achieved. Financial control was expected to increase aggregate savings, accelerate capital accumulation, boost the efficiency of investment and stimulate overall growth (World Bank, 1993; Edwards S., 1995).

(b) Besides, in Tobin's (1965) model of economic growth, economic units allocate their wealth between two assets - money and productive capital. In this economy, the economic units are all small household producers. Hence the business and household sectors are identical. According, to Tobin's theory, if the rate of return on capital increases as compared to money then there will be a shift of resources in the household (business) sector from money to capital. This, in turn, will increase productivity (i.e. better growth) and result in higher per capita income. Thus, the rate of economic growth accelerates during the transition from a lower to a higher capital-labour ratio that occurs after the relative yield on money falls. That is to say, reducing the return on money improves welfare. This can be achieved by either reducing deposit rates of interest or by taxing money.

(c) Another argument in support of interest rate ceilings comes from the various development planning models. Many developing countries use selective or directed credit programmes as an important tool of their development strategy and ceilings on institutional loan rates are the key element of the directed credit programmes. Hence ceilings on loan rates are set deliberately below the equilibrium interest rate so that credit can be allocated on a non price criterion. Besides, it would also encourage the private sector to undertake investments in these sectors as interest rates on loans on such investments are subsidised. For a successful directed credit programme imposing rigorous restrictions on the financial sector become essential as else this subsidised credit could be rerouted for investments with the highest private returns. Hence, for selective credit policies to work financial markets need to be segmented and restricted. Further, many developing countries have used loan rate ceilings in conjunction with import restriction to encourage industrialisation through import substitution.

(d) The government's fiscal constraint forms another important justification for financial repression. If the government is unable to raise sufficient revenue to meet its expenditure requirements through tax revenue then it resorts to various techniques of financial restriction such as stringent reserve requirements, exchange controls which prevent competition from abroad and obligatory holdings of government bonds etc. which give governments access to large amounts of funds at very low rates of interest.

(e) The argument of adverse selection and moral hazard putforward by Stiglitz and Weiss (1981) is another major argument in support of having interest rate ceilings. They argue that at very high rates of interest no constructive economic activity can take place and this can lead to an adverse selection of projects on part of banks. That is, when interest rates are raised those with the best projects (i.e. least risky projects) no longer apply for loans while only those with very risky projects (with a high chance of default) apply for loans. This generally increases with increases in the rate of interest. Similarly, government borrowing requirement also increases as its debt rises. In such an situation, therefore, any initial interest rate rise increases the demand for credit by those who are most unlikely to repay their loans and hence this demand pushes up interest rates still further. With increase in interest rates, there is a rise in interest cost which pulls down otherwise profitable firms. As a result firms undertake riskier investments. This, in turn,

increases the probability of default and results in an adverse selection of projects and a general deterioration of banks' portfolios. Thus, what Stiglitz and Weiss (1981) have tried to show is that raising interest rates beyond a level may lower banks' overall return. Hence, even if the government selected projects at random, lowering the interest rate could increase the expected quality of borrowers and this effect would be even greater if the government had some positive selection capabilities (de Melo and Giovannini, 1990; Rangarajan and Jadhav, 1992; World Bank, 1993 and Fry, 1997).

Thus, financial repression can be used as the basis of an incentive scheme to encourage higher savings and more efficient allocation of capital. Financial repression, thus, creates a scarcity. Some will get the capital they want at the interest rate being offered, while others will not. The government can set up a contest so that those who perform well (as measured by, say, exports) get more access to capital. Such contests can have strong positive effects while at the same time it can also lead to government playing favourites (World Bank, 1993).

III.B *Arguments against Financial Repression*

The arguments against financial repression (in favour of financial liberalization) are presented below:

(a) Traditional literature on financial liberalization and reform suggests that the deregulation of capital markets affects economic growth through two channels: higher savings rates and improved allocation of investment. While higher savings allow an increase in capital accumulation, improved allocation of investment results in higher marginal productivity of capital (World Bank, 1993). The financial liberalization school led by McKinnon and Shaw strongly believed that repressed financial markets impeded growth and were against fragmented financial markets

(b) King and Levine (1993) argue that financial institutions have an advantage in processing information regarding the potential degree of creativity and inventiveness of entrepreneurs. Thus, a well developed financial sector is able to identify promising projects, projects that result in rapid growth of productivity, and to monitor the extent to which entrepreneurs indeed make progress. These authors have developed a formal theoretical model that suggests that countries with more developed financial sectors have

an advantage in sorting out highly productive innovations and, thus, tend to grow faster than countries with repressed financial sectors. This approach differs from the traditional McKinnon and Shaw view in two respects: (a) it recognises that the processing of information is at the centre of the capital market functions, and (b) it emphasises growth of productivity (rather than the accumulation of physical capital) as the fundamental source of economic development (Edwards S., 1995).

(c) Financial repression also provides one of the classic examples of welfare decreasing government interventions in the market. The standard argument against it is that low interest rates reduce savings and thus inhibit economic growth. It is argued that because financial institutions are essential to the efficient allocation of capital, free competitive markets are needed to ensure that resources go to those who value them the most. The borrowers who are willing to pay the highest interest rates on loans are those whose projects will yield the highest return. If government restricts interest rates and replaces efficient market allocation mechanisms with public selection processes, the result is less capital, and what capital there is will be less efficiently allocated (Stiglitz, 1994). That is, even if credit allocation is random, the average efficiency of investment is reduced as the loan rates are lowered because investments with lower returns now become profitable. Entrepreneurs who were previously deterred from requesting bank loans now enter the market. Hence, adverse selection from the perspective of social welfare occurs when interest rates are set too low and hence produce disequilibrium credit rationing (Fry, 1997, p.77).

Thus, interest rates ceilings can distort the economy in the following ways:

(i) Low interest rates produce a bias in favour of present consumption and against future consumption and hence can reduce the level of savings in the economy.

(ii) Potential lenders may engage in relatively low yielding direct lending instead of lending through banks. Developing countries are marked by financial dualism and a considerable amount of economic activity is financed by unorganised markets. Low interest rates on financial assets push part of the transferable savings into the unorganised sector or the uncontrolled sectors. Hence, depositors must be offered rates of return which are positive in real terms.

(iii) Interest rate ceilings encourage capital flight that may result in international misallocation of savings.

IV Revenue from Financial Repression

As pointed out earlier, financial repression is a situation when the government intervenes in the financial market and interest rates are held below the market equilibrium levels. To the extent that interest rates are below their market levels, financial repression acts as an tax on financial savings. Most developing countries face such ceilings and governments in these countries are able to collect a substantial amount of resources as revenue from financial repression. Easterly (1989), Easterly et.al (1994), Giovannini and de Melo (1990) and Chamley and Honohan (1990) are the major studies in the area of computing revenue from financial repression.

Our computation of a measure of revenue from financial repression essentially tries to capture the essence of this concept i.e. the extent of the difference between domestic and equilibrium interest rates as a proportion of government debt outside the central bank. Our measure is very close to measure used by de Melo and Giovannini (1990) only that we have used nominal interest rates as compared to their effective interest rates. We have computed the extent of financial repression for India using both the short term interest rate proxied by the rate on 91 day ad hoc Treasury Bills (TBRATE) and the long term interest rate proxied by the Government Bond Yield Rate (GBRT). We have used LIBOR as our measure of the market clearing interest rate and securities held outside the RBI as our measure of government debt outside the central bank.

Table 1 shows the revenue the government has obtained from financial repression as a percentage of GDPC during the period 1971-95 for both GBRT and TBRATE.

From Table 1 it can be observed that when GBRT is used as our measure of the domestic interest rate we see that from 1986 we have negative values. During the period 1971-85, except for in 1976 we had no negative values. That is, in the period 1971-1985 the government has been able to obtain anywhere between 0.02% of GDPC in 1971 to 0.74% of GDPC in 1981 (i.e anywhere between Rs. 9.32 crores in1971 to Rs. 1010.3057 crores in

1981) as revenue from financial repression. After 1986 this revenue turns negative (that is to say the government is not getting any revenue from financial repression).

Table 1 Revenue from Financial Repression as a percent of GDPC

(GBRT and TBRATE as domestic interest rates)

Year	LIBOR	GBRT	LIBOR-GBRT	FRG1%	TBRATE	LIBOR-TBRATE	FRG2%
1971	6.00	5.64	0.36	0.0216	3.13	2.87	0.1723
1972	6.00	5.65	0.35	0.0221	3.50	2.50	0.1576
1973	9.40	5.65	3.75	0.2499	3.50	5.90	0.3932
1974	10.84	6.04	4.80	0.2817	3.91	6.93	0.4067
1975	7.75	6.35	1.40	0.0794	4.49	3.26	0.1850
1976	6.12	6.29	-0.17	-0.0104	4.60	1.52	0.0933
1977	6.37	6.37	0.00	0.0000	4.60	1.77	0.1229
1978	9.30	6.45	2.85	0.2119	4.60	4.70	0.3494
1979	11.70	6.71	4.99	0.4200	4.60	7.10	0.5976
1980	13.44	7.15	6.29	0.5655	4.60	8.84	0.7974
1981	16.15	7.59	8.56	0.7439	4.60	11.55	1.0038
1982	13.69	7.99	5.70	0.4810	4.60	9.09	0.7671
1983	10.18	8.65	1.53	0.1381	4.60	5.58	0.5035
1984	11.82	8.99	2.83	0.2547	4.60	7.22	0.6497
1985	9.11	8.50	0.61	0.0547	4.60	4.51	0.4044
1986	6.95	9.03	-2.08	-0.1971	4.60	2.35	0.2227
1987	7.61	9.63	-2.02	-0.2191	4.60	3.01	0.3265
1988	8.41	10.86	-2.45	-0.2872	4.60	3.81	0.4466
1989	9.31	10.90	-1.59	-0.1772	4.60	4.71	0.5248
1990	8.45	11.96	-3.51	-0.3743	4.60	3.85	0.4106
1991	6.29	12.30	-6.01	-0.5992	4.60	1.69	0.1685
1992	4.20	13.36	-9.16	-0.8981	4.60	-0.40	-0.0392
1993	3.64	13.23	-9.59	-0.9932	4.60	-0.96	-0.0994
1994	5.59	13.53	-7.94	-1.0633	4.60	0.99	0.1326
1995	6.24	15.39	-9.15	-1.2973	4.60	1.64	0.2325

FRG% Financial Repression as a percentage of GDPC
FEG1 Financial Repression when GBRT is the interest rate measure
FRG2 Financial Repression when TBRATE is the interest rate measure

The reason for it could be in the recommendations of the Chakravarty Committee Report (1985) which had suggested that government borrowings should be on better terms. Another explanation could be that in the late 1980s the government fiscal deficit increased significantly and reached a peak of 8.41% in 1990-91 and a major part of this was financed by borrowings. As the government was itself looking for funds to finance its deficit, the rates of return on government paper had to be more attractive. Hence, in the period after 1986, this could have been one of the reasons in the GBRT being much higher than LIBOR.

Therefore, taking the TBRATE could probably give us a better picture of government revenue from financial repression as the rate of return on 91 day TBills has been held constant at 4.60% for a very long time. When the 91 day TBill rate (TBRATE) is used as our domestic interest rate measure, from Table 1, we can see that except for 1992 and 1993 when the difference was negative in all other years the revenue the government obtained from financial repression varied from 0.09% of GDPC in 1976 to 1.0038% of GDPC in 1981. That is, the revenue the government has been able to collect from financial repression has varied between Rs. 70.8849 crores in 1976 to Rs. 1363.281 crores in 1981. Generally, in the period 1971-95 it has been in the ranges of 0.15% to 0.50% of GDPC.

V Impact of Financial Repression Savings, Investment and Growth

The Mckinnon and Shaw models of finance in economic development emphasise the role of financial conditions in improving an economy's saving and economic growth. Saving and investment are both determined by the rate of economic growth. Rapid economic growth raises the savings rate, which in turn, releases resources necessary to sustain growth through higher investment. If investment is low or depressed, both growth and savings rate also fall. Thus, a good investment scenario does ensure a higher savings rate which will in turn lead to higher investment. Hence, there does exist a close relationship between savings, investment and the rate of economic growth.

Just as the level of savings and investment influence the rate of economic growth, similarly the level of savings itself is dependent on a variety of factors such as the income level, level of per capita real income, level of foreign savings and most importantly and of concern here the real rate of interest.

If financial repression is defined as a situation where nominal interest rates are administered and the real interest rates are below their equilibrium level (as is the case in most developing countries), then criteria other than the efficiency of investment may be utilised to discriminate between investment opportunities and there would be a bias towards traditional low yielding investment because they appear safe. By relaxing or raising the financial constraint can help increase both the level of savings and investment.

V.A *Estimate of the Impact of Financial Repression on Savings, Investment and Growth*

In our efforts to estimate this effect of interest rate ceilings (i.e. controlled interest rates) on savings, investment and growth, we initially look at the relationship between the rate of growth of real GNP (GN) and the real interest rate (real government bond yield rate (RGBRT)) for the period 1971 to 1995 and is as under:

$$GN = a_0 + a_1 RGBRT \quad (1)$$

$$a_1 > 0.$$

$$GN = 0.0436^{***} - 0.00069RGBRT \quad (1a)$$

$$(7.33) \quad (-0.58)$$

't' values in parentheses.

$$Adj.R^2 = -0.0385 \qquad S.E.E. = 0.0333 \qquad D\text{-}W = 1.9109$$

It is known that higher real bond rates could reduce the level of investment, by raising costs of credit. Hence, the growth rate (GN) would have to fall to equilibrate savings and investment. The results as in equation (1a) above show that there exists a negative but not significant relationship between the real rate of interest and the growth rate of real GNP. Thus, it would imply that a higher real rate of interest does bring about a slowdown in growth as higher real interest rates affect investment adversely. However, the statistical insignificance of the real interest rate variable indicates that growth may not exactly equilibrate savings and investment. That is to say, factors apart from growth may help equilibrate savings and investment for instance, the institutional credit conditions as in most LDCs.

Leff and Sato (1980) suggest that institutional credit conditions could well be the primary equilibrating mechanism between saving and investment. They also point out that institutional interest rates are usually held below their market equilibrium levels in developing countries and that monetary authorities create new credit more or less independently of domestic savings often in response to government deficit. Changes in volume of real credit influence changes in capital stock because LDC firms are generally very dependent on credit to finance investment.

Leff and Sato also stress the importance of changes in the supply of real credit in determining the rate of economic growth as changes in availability of credit for working capital help determine the rate of utilization of the existing stock of fixed capital and of land. Changes in the supply of real credit are determined in the short run by government policy. Hence, the real credit availability effect is accepted as an important determinant of growth and investment. However, governments are able to influence real money demand. Lower real deposit rates lower real money demand and also saving. Since a large proportion of financial savings in developing countries is embodied in money holding, ceteris paribus, a fall in real money demand results in a decline in real credit supply and hence will adversely affect investment and growth.

So as to study the impact of financial repression on savings, investment and growth we initially estimate the following savings and investment functions respectively using OLS and are from Fry (1980). Due to the availability of data on a consistent basis since 1971 both the savings and investment functions are estimated separately for the period 1971-1995 using OLS and corrected for first order serial correction.

The savings function is as under:

$$DSGN = a_0 + a_1GN + a_2LGNPRP + a_3RGBRT + a_4FSGN + a_5DSGN(-1) \qquad (2)$$

$a_1 > 0$, $a_2 > 0$, $a_3 > 0$, $a_4 < 0$, $a_5 > 0$.

The savings function above contains (from theory) all the important variables that are the major determinants of savings. The ratio of gross domestic savings to GNPC (DSGN) is taken as the dependent variable with the growth rate of real GNP (GN), the logged per capita real GNP (LGNPRP), the real rate of interest (RGBRT), foreign savings as a ratio of GNPC (FSGN) and the lagged domestic savings to GNP (DSGN(-1)) being the independent variables. While the importance of the growth rate in influencing the savings is well known, the real interest rate enables us to study whether savings are sensitive to changes in current economic conditions. The lagged dependent variable provides information as to how past savings influence present savings behaviour. The logged per capita GNP variable is included in a number of savings studies and its theoretical justification ranges from the Keynesian consumption function analysis to risk avoidance as a

luxury good. Foreign saving are included as they are a substitute for domestic saving as pointed out by Grinols and Bhagwati (1976).

$$DSGN = -0.1746 + 0.1846^{**}GN + 0.0256LGNPRP(-1) - 0.3980^{***}FSGN$$
$$(-0.65) \quad (1.93) \quad (1.03) \quad (-2.32)$$
$$+ 0.0007RGBRT + 0.6868^{***}DSGN(-1) \qquad (2a)$$
$$(1.41) \quad (5.05)$$
$$\text{Adj. } R^2 = 0.7514 \quad \text{S.E.E.} = 0.0124 \quad \text{D-W} = 2.0215$$

't' values in parentheses.

***1-5% level of significance **5-10% level of significance *10-15% level of significance

The adjusted R^2 of the savings function of 0.75 indicates a good explanatory power. The growth rate variable (GN) is statistically significant as can be seen from equation (2a). The variable GN is positively and significantly related to savings thus indicating that the indirect feedback through growth (i.e. growth determines savings) is very strong. The logged per capita real GNP variable though positive is not statistically significant. The positive but statistically insignificant interest rate variable (RGBRT) and the positive and statistically very significant lagged savings variable clearly indicate that the behaviour of savings is sluggish and not very responsive to current economic changes. As Mihir Rakshit (1994, p.268) says, 'the nominal or real rate of interest had little impact on either household or total savings'. Leff and Sato (1980, p.173) write, 'the lagged savings term is significant indicating that savings in these countries (LDCs) is a relatively sluggish phenomenon which depends heavily on previous behaviour rather than on current economic changes'.

The investment function is as follows:

$$GDCFCG = b0 + b1F1G + b2DCG + b3LDDCG + b4UVIE + b5INFR + b6\ GDCFCG(-1) \qquad (3)$$

$b1 > 0, b2 > 0, b3 > 0, b4 > 0, b5 > 0, b6 > 0.$

The investment function (equation 3) has investment as a ratio of GNPC as its dependent variable while foreign exchange receipts – defined as imports plus the change in the net foreign assets of the banking system- as a ratio of GNPC (F1G), domestic credit as a ratio of GNPC (DCG) and its rate of change (LDDCG), the purchasing power of exports – proxied by the Unit Value Index of Exports (UVIE), the ratio of actual to anticipated price

(INFR) and the lagged investment variable as the independent variables. While domestic credit variable is included in the investment function because in most LDCs institutional credit acts as the equilibrating mechanism between savings and investment. The theoretical base for the inclusion of the growth rate comes from the standard Keynesian accelerator models and that the INFR variable's inclusion comes from the extensions of the expectations augmented Phillips curve. Foreign exchange receipts and purchasing power of exports are included as they may reflect the investment climate in the economy (Fry, 1980).

$$\begin{aligned} GDCFCG = {} & 0.0511 + 0.3313^{**}GN - 0.0861F1G + 0.0677DCG + 2.45D\text{-}05UVIE + \\ & \quad (1.71) \quad (2.02) \qquad (-0.33) \qquad (0.94) \qquad (0.50) \\ & 0.0033^{*}INFR + 0.5511^{**}GDCFCG(-1) \qquad (3a) \\ & (1.66) \qquad (2.10) \end{aligned}$$

$Adj.R^2 = 0.7101$ S.E.E. = 0.0156 D-W = 2.0822

't' values in parentheses.

***1-5% level of significance **5-10% level of significance *10-15% level of significance

As regards the estimation of the investment function, we initially estimated the function as in equation (3) and we got a negative (incorrect sign) on the change in domestic credit variable (LDDCG) and hence the function reported in equation (3a) is the one that excludes the LDDCG variable. Again here, the explanatory power of the investment function is quite good. Growth again is positive and statistically significant in explaining investment behaviour. This reaffirms the view that when interest rates are held below their equilibrium levels, an indirect feedback does exist between savings and investment through growth. The foreign exchange receipts variable (F1G) changes sign on correction for first order serial correlation but is statistically not significant. Neither domestic credit (DC) nor the purchasing power of exports (proxied by UVIE) have been able to influence the investment in the economy. The marginally significant INFR variable may provide some support to the view that if actual price exceeds expected price entrepreneurs interpret the difference to reflect a real increase in the demand for their products and respond by raising the rate of capacity utilization to increase output. The lagged dependent variable is also significant and positively related to investment.

Thus, our estimates of the savings and investment functions find support for the view that with interest rate ceilings (i.e. in the presence of financial repression) there is no direct feedback between investment and savings. The volume of investment and saving is determined largely by the conditions of supply i.e. by the savings function (savings also largely determine the supply of real credit) and that there is always an indirect feedback through growth.

The below specified three equation system of the real credit availability mechanism shows us the major variables that affect savings (includes the savings function equation 2) while the investment identity indicates that investment will adjust through the real credit availability mechanism to national and foreign savings. With a constant foreign savings rate, changes in investment will be determined by a change in saving. The growth equation below shows the indirect feedback between savings and investment through growth. The three equation system is as under:

$$DSGN = a_0 + a_1GN + a_2LGNPRP + a_3RGBRT + a_4FSGN + a_5\,DSGN(-1) \quad (2)$$

$$GDCFCG = DSGN + FSGN \quad (4)$$

$$GN = b_1GDCFCG + b_2RGBRT \quad (5)$$

Since, the savings function is already estimated (equation2a) we now estimate only the GN equation using OLS (corrected for first order serial correlation) and the results are given by equation (5a).

$$GN = 0.2029^{***}GDCFCG - 0.0012RGBRT \quad (5a)$$

(8.23) (-1.09)

$Adj.R^2 = 0.0927$ S.E.E. = 0.0311 D-W = 1.9818

't' values in parentheses.

***1-5% level of significance **5-10% level of significance * 10-15% level of significance

The results of equation (5a) indicate that only the investment variable (GDCFCG) is positive and significant while the real interest rate variable (RGBRT) is not statistically significant and is also negative indicating that holding the real interest rate below its market equilibrium level may retard growth. However, for our sample this negative effect on growth is not significant.

As pointed out above, if savings determines investment under disequilibrium interest rate conditions, then the three system of equations – (2), (4) and (5) can be solved for the growth rate (GN) and we get the below specified reduced form equation so as to obtain the multiplicative effect of the real interest rate (RGBRT) on the growth rate of real GNP (GN).

$$GN = [a0b1 - a2b1n + a2b1LGNPRP(-1) + (a3b1 + b2)(RGBRT) + b1(1+a4)FSGN + a5b1DSGN(-1)] / [1 - a1b1 - a2b1] \quad (6)$$

Using mean values for population growth rate (n), LGNPRP(-1), foreign savings and lagged domestic savings we obtain different profiles of (RGBRT) we can obtain corresponding profiles of the growth rate GN as is seen in Table 2 below for 1971 to 1995.

Table 2 Profile of Real Interest Rate and Growth Rate for 1971-95

Year	RGBRT	Growth (%)		Year	RGBRT	Growth (%)
1971	2.4130	4.1566		1983	-4.5174	4.9118
1972	0.9527	4.3157		1984	1.8431	4.2187
1973	0.1886	4.3990		1985	1.3146	4.2763
1974	-2.7890	4.7235		1986	2.4180	4.1561
1975	-10.6475	5.5798		1987	4.5749	3.9211
1976	-16.8269	6.2531		1988	5.3169	3.8402
1977	0.4112	4.3747		1989	3.5373	4.0341
1978	3.5397	4.0339		1990	4.4409	3.9357
1979	2.5891	4.1374		1991	4.8329	3.8929
1980	5.8184	3.7856		1992	3.8684	3.9980
1981	-5.0645	4.9714		1993	0.6739	4.3461
1982	-8.7959	5.3780		1994	2.7113	4.1241
-	-	-		1995	6.2999	3.7331

We have attempted to forecast these profiles for the period 1996 to 1998. In this attempt we have used the following procedure:

(i) we initially forecast the government bond yield rate (i.e. the nominal interest rate - GBRTF) for the period 1996-98,

(ii) we assume the EINF to be a constant figure of 8.60%. This figure of 8.60% is the arithmetic mean of the EINF series.

(iii) the real rate of interest RGBRT is then obtained as:

$$RGBRT = GBRTF - EINF \quad (7)$$

These figures for RGBRT and the corresponding real growth rate for 1996-98 can be seen in Table 3 below

Table 3 The Profile of the Real Interest Rate and Growth Rate:

Year	GBRTF	EINF	RGBRT	GN
1996	13.3488	7.0457	6.3031	4.3416
1997	17.3273	8.6043	8.7231	3.4690
1998	18.4915	8.6043	9.8872	3.3422

With RGBRT being a maximum of 9.8872% and a minimum of -16.8269%, the rate of growth of real GNP varies correspondingly between 3.3422 % and 6.2531% during the period 1971-98 (1996-98 forecasted). That is to say, over this range of real interest rate, growth seems to have been positively affected by holding real interest rates below their market equilibrium levels. We can see that for every 1% that the real interest rate is held below its market equilibrium level growth has increased by 0.11%. As against this, when we studied the effect on the real interest on growth during the period 1955-98, we observed that when the real interest rate is a maximum of 8.9753% and a minimum of –16.8269%, the growth rate of real GNP varied correspondingly between 4.5051% and 2.9268%. That is, during this period 1955-98 and this range of real interest rate (RGBRT), the cost of financial repression appears to be around 0.06% of growth foregone for every 1% the real interest rate is held below its market equilibrium level (and can be seen in Table 4 below). Given this rather varying behaviour of the effect of the real interest rate on the growth rate in the periods 1955-98 – where holding the real interest below its market equilibrium level has a negative impact on the growth rate while during the period 1971-98 holding real interest rates below its market equilibrium level helps growth – makes us look at this relationship during the sub period 1955-70. Table 5 below presents the figures for the real interest rate (RGBRT) and the growth rate for 1955-70. In this period 1955-70, when the real interest rate (RGBRT) is a maximum of 8.9753% and a minimum of –7.2893% the corresponding growth rates of real GNP (GN) over this range of real interest rate varies between 5.0548% and 2.5461% and hence the cost of financial repression is 0.1542% of growth foregone for every 1% the real interest rate is held below its market equilibrium level.

The reason for this distinct behaviour in the relationship between the real interest rate and the growth rate of real GNP could be that in the period 1955-70 in most years the real interest rate is negative while in the period 1971 –98 the real interest rate has been positive for most years except for the years between 1974-76 and 1981-83 and as in the East Asian Miracle (World Bank,1993) points out that in many East Asian economies a mild

repression accompanied by positive real interest rates with overall macroeconomic stability has indeed helped growth in the East Asian economies. It could possibly, be the same effect we observe for India for the period 1971-98.

Table 4 Profile of the Real Interest Rate and Growth Rates for 1955-98

Year	RGBRT(%)	Growth(%)		Year	RGBRT(%)	Growth(%)
1955	2.6023	4.1153		1977	0.4112	3.9812
1956	8.6568	4.4856		1978	3.5397	4.1726
1957	8.9753	4.5051		1979	2.5891	4.1144
1958	-4.3459	3.6902		1980	5.8184	4.3120
1959	-0.7995	3.9072		1981	-5.0645	3.6463
1960	-0.3640	3.9338		1982	-8.7959	3.4180
1961	0.3188	3.9756		1983	-4.5174	3.6797
1962	-1.4662	3.8664		1984	1.8431	4.0688
1963	2.8636	4.1312		1985	1.3146	4.0365
1964	1.5256	4.0494		1986	2.4180	4.1040
1965	-0.0435	3.9534		1987	4.5749	4.2359
1966	-3.8330	3.7216		1988	5.3169	4.2813
1967	-2.7586	3.7873		1989	3.5373	4.1724
1968	-7.2893	3.5102		1990	4.4409	4.2277
1969	-6.8433	3.5375		1991	4.8329	4.2517
1970	2.4537	4.1062		1992	3.8684	4.1927
1971	2.4130	4.1037		1993	0.6739	3.9973
1972	0.9527	4.0143		1994	2.7113	4.1219
1973	0.1886	3.9676		1995	6.2999	4.3414
1974	-2.7890	3.7855		1996	7.6573	3.5852
1975	-10.6475	3.3048		1997	8.7231	3.4690
1976	-16.8269	2.9268		1998	9.8872	3.3422

Table 5 Profile of the Real Interest Rate and Growth Rates for 1955-70

Year	RGBRT(%)	Growth(%)		Year	RGBRT(%)	Growth(%)
1955	2.6023	4.0718		1963	2.8636	4.1121
1956	8.6568	5.0057		1964	1.5256	3.9057
1957	8.9753	5.0548		1965	-0.0435	3.6637
1958	-4.3459	4.3408		1966	-3.8330	3.0792
1959	-0.7995	3.5471		1967	-2.7586	3.2449
1960	-0.3640	3.6143		1968	-7.2893	2.5461
1961	0.3188	3.7196		1969	-6.8433	2.6149
1962	-1.4662	3.4443		1970	2.4537	4.0489

VIII Conclusion

Thus, we can conclude that the main goal for countries adopting repressionary interest rate policies has been to direct credit to the various priority sectors at cheap rates of interest and also to ensure that governments are able to have access to large amount of resources at low interest rates. However while directed credit programmes have not been

used to correct the inadequacies in the financial structure in developing countries, there have been individual sectors which have undoubtedly benefited from these programmes. But, its effects on overall growth has been difficult to assess. Also, difficult to assess has been whether sectors that have been the recipients of such credit have used their resources more productively as compared to those who haven't received them. For instance, in India about one-half of bank assets had to be placed in reserve requirements or government bonds, and 40% of the remainder had to be lent to the priority sector at controlled rates of interest while in Pakistan in 1986, 70% of new lending by the national banks, which dominate the banking system, was targeted by the government.

It must be remembered that financial repression in the South East Asian economies has been slightly different from that in the Latin American and other economies in at least three different ways: (ii) the degree of repression has been relatively moderate with few short-lived exceptions did not result in persistently negative real interest rates. (ii) repression was undertaken in an environment of macroeconomic stability and was not the unintended consequence of rapid inflation, and (iii) bank regulators squeezed the deposit-lending rate spread, ensuring that the low rates paid to depositors (households) were passed on to borrowers (corporations) (World Bank, 1993).

While several studies have shown that credit rationing results in inefficient and negative consequences for growth under conditions of severe financial repression for countries with positive real interest rates and moderate financial repression these effects on interest rates may be weak.

As regards, financial repression and its impact on growth, we find support for Mihir Rakshit's writing that, ' the hypothesis relating to financial repression does not seem to be borne out by the Indian experience. The nominal or real rate of interest had little impact on either household or total savings; nor was there any strong evidence to suggest that the appropriation of bank credit by the government adversely affected private investment or growth of the economy' (Rakshit, 1994, p.268). The amount of revenue the government has been able to raise from financial repression when the government bond yield rate was the measure of nominal interest rate varies around a low of 0.02% of

GDPC to a maximum of 0.74% of GDPC during 1971-86 while from 1987 onwards this revenue has turned negative (i.e. the government is not able to garner any revenue from financial repression). When the nominal interest rate is proxied by the rate on ad hoc 91 day Treasury Bills (TBRATE) then the government is able to collect revenue generally in the ranges of 0.15% to 0.50% of GDPC. Also as regards, the impact of financial repression on growth we find two distinct impacts of the effect of financial repression. When the period 1955-98 is considered we find that the cost of financial repression is 0.06% of growth foregone for every 1% the real interest rate is held below its market equilibrium level. When the period considered is 1955-70 we find a similar relationship between growth and the real interest rates whereas for the period 1971-98 we find that holding real interest rates below their market equilibrium levels has an a positive impact on growth by about 0.11% of growth for every 1% the real interest rate is held below its market equilibrium level.

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