Chapter Three

THE MODEL - REDUCED FORM EQUATIONS

1. Introduction :

For underdeveloped countries like India, which are capital scarce, saving as a source for financing this capital is an important constraint on growth. If these economies have to grow, it is essential that their saving ratio increases at a higher rate. Total saving in the economy originates from three sectors : the corporate sector, the government sector and the household sector. Our intention is to study only the saving originating from the household sector, not because the other two are unimportant, but because of its share in total savings, movements in the former are directly affecting the latter; also this is the only sector which is the net surplus sector providing funds to the deficit sector. Therefore while studying the behaviour of saving in the economy; household saving behaviour is particularly important as a source of financing capital formation in the economy.

a) Importance of the Study of Portfolio Behaviour : The study of household saving behaviour is split into two steps:

i) The portfolio behaviour of household saving i.e studying the factors determining actual holdings of different assets in the capital account of the household.

ii) The household total saving behaviour.

Most of the earlier studies have concentrated on the second aspect and neglected the first on the assumption that

in the study of household behaviour it is the wealth effect which predominates. Perhaps it is true that composition of saving may have no significant effect on the growth process when the asset available is only money and other assets are commodities that are hoarded. But as the economy grows, with more and different kinds of financial assets being available, composition of saving would probably have effects on the growth process; i.e. portfolio behaviour of household can have effect on total saving, current consumption and on the growth of the economy.

In contrast to the neoclassical argument that changes in stock of money are neutral in its impact on real values in the final equilibrium.[1] It is possible with the aid of portfolio analysis to explain the dynamic disequilibrium process, which an economy adopts to a monetary change in uncertain world. On the theoretical and empirical evidence that prices adjust most rapidly to eliminate excess demand in organised financial asset markets and much less rapidly in markets for current output and factor services, an increase in nominal stock of money changes the composition of aggregate demand between investment and consumption goods. Thus monetary

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1. The arguement rests on the assumption that events in disequilibrium process followed by the system do not itself influence the final equilibrium position and so may be ignored. This is true if all price adjustments are instantaneous.

disturbance will be non-neutral. This non neutrality of money depends upon a number of factors, the important ones being, the elasticity and stability of portfolio preferences and the duration of the price adjustment process. When wealth owners attempt to maintain a preferred portfolio composition, the portfolio balance effect will generate excess demand for reproducible wealth forms and hence for final output of a magnitude large in relation to the initial change in nominal money balance.[2] Thus while analysing the effect of changes in prices two effects are simultaneously operating (a) The Real balance effect (b) Portfolio balance effect. Changes in price level cause (i) an inverse movement in aggregate real cash balances, whichthrough the real balance effect induces an increase or reduction in consumption and investment spending. Alongwith this it changes the proportion of monetary assets in wealth portfolio, which through the portfolio balance effect operates to increase or reduce incremental demand for other asset

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2. Moore, B.J. (1968) - "In a growing economy (for an economy in balanced growth) failure of money stock to grow at the balanced growth rate g, generates excess demand for or supply of other assets throughout the transition period, as a result of the portfolio balance effect. A growing economy is characterised by continuous wealth owner adjustment of existing asset stocks to some higher desired level. As long as the rate of price adjustment to excess demand for money balances is not instantaneous, a constant rate of nominal money increase different from the balanced growth rate may be shown to affect incremental demand for other assets and so the rate of real capital accumulation. The economy is thus pushed into a perpetual disequilibrium configuration and remains held at some phase in its adjustment path".

forms. The neoclassical and Keynesian analysis have ignored the implications of portfolio diversification considerations.

Our intention is to study the portfolio behaviour of household & examine how switching operations among the new financial assets (available to the household) and with the physical assets (that they have been used to) affect growth in an inflationary condition in underdeveloped economy.

There are certain conditions in underdeveloped countries which increase the transition phase and others that reduce it, e.g. capital markets are not developed and so primary securities are not popular in the household portfolio. Therefore increase in monetary assets in household portfolio, may not necessarily increase demand for these, but for securities of financial intermediaries. These financial intermediaries, who now have access to large flows of saving can then supply funds to deficit sector at lower cost. Thus the increased demand for investment goods by the deficit sector can be met. The channelisation of saving into intermediaries, increases the transitional period and positively affects growth. If increases in monetary assets are directly used for increasing consumption/or stock piling inventories, then the lag between money supply and price is reduced. Here then neoclassical theory would hold, with little or no portfolio balance effects.

Thus by examining the portfolio behaviour of the household, we can analyse whether money effects are non neutral in underdeveloped countries. These are the direct effect of portfolio behaviour of household. Then there are indirect effect of these on the saving ratio, "there does exist a close relationship between structure of saving in the country and the rate of saving. The countries with a high ratio of financial to tangible assets in household saving, recorded high rate of saving and vice versa. Even within a country, it is found that with a rise in the rate of household saving, the proportion of saving infinancial assetsalso tends to rise. This shows that a change in the form of saving is essential for raising the rate of household saving"[3]

b) Components of Saving : To study the behaviour of household saving composition as noted in chapter 2[4], we have bifurcated the assets of the household in the following categories

i) Saving in liquid assets, i.e. currency and demand deposits.

ii) Saving in illiquid assets i.e. in the form of time deposits with commercial banks and non credit societies, provident fund and in life insurance corporation.

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3. Lokhnath, P.S. (1966-67).
4. Chapter 2. Section 3 (b).

iii)Saving in direct investment in corporate sector and government sector,

iv) saving in consumer durables,

v) saving in physical assets,

vi) negative saving i.e. net borrowing of the household.

The reasonsfor this categorisation are : We have separated (i) and (ii) categories because of their differential impact on growth. The former are short term assets which are likely to promote growth only on introduction of these assets, i.e. when households displace commodity inventories by money.[5] Once money is displacing other financial assets then it might not be growth promoting. As monetisation is still around 80 - 86%,[6] currency holding associated with greater monetisation, is likely to promote growth through facilitating exchange. But its role is very limited once a country becomes monetised.

Category ii includes all long term assets which are growth promoting. These assets, because they have a minimum maturity period of at least a year, are used mainly to finance increases in the fixed capital in the form of heavy machinery equipment and construction. As all these assets are transferred to the financial institutions, who are said to perform

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5. Rama Mohan Rao, T.V.S. (Jan. 1979).
6. Madalgi, S.S. (June 1976).

the function of efficiently allocating credit in the economy, therefore any increases in their asset holding implies funds flowing into more productive and efficient sectors, which in turn implies increasing growth rates.

Expenditure on consumer durables is another category. On equity considerations, consumption of consumer durables by a small proportion of population would lead to demonstration effect on the other sections of the society who cannot afford to waste their income on this. The gap between the haves and the have nots may lead to social tension which may increase instability in the economy. Therefore at the present stage it is desirable to put curbs on consumption of consumer durables as a proportion of income, for otherwise it would imply diversion of resources towards consumption or imports, which could otherwise have been directed towards capital goods industries.

Savings in direct investment are very close to illiquid assets, as these too are long term assets and therefore have the same favourable effect on the growth. These could have higher potential for growth as these assets are directly acquired by the borrowing agencies/institutions e.g. corporate & government. These assets give freedom to the deficit sector issuing it, and therefore they can use the funds so acquired as they deemfit. The reason for separating these assets is that these

saving media are not strictly in the same class as bank deposits. Their appeal is more limited as they cater principally to the urban and relatively sophisticated groups, who are interested and knowledgeable about alternative investment possibilities and scope for maximum return.[7] These assets flow directly to the deficit sector without any intermediaries. We want to examine whether any substitution exists between saving in illiquid assets & direct investment in particular. If it does, then the corporate sector by improving its return relative to other assets, can get direct charge on financial savings of the household sector and therefore has to rely less on the financial institutions.

Saving in physical assets is an important category for the Indian households, as a large proportion of income is still contributed by agriculture and unincorporated business, which are included in our household sector. Essentially people who are saving in these assets are producers. We would like to examine whether physical assets are being substituted for other monetary and financial assets. If we find that asset substitution is there, then total saving might not increase but the portfolio mix may change, which might affect the growth and saving ratio in next periods. If introduction of new assets reduces consumption as a proportion and not other

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7. Tyagarajan, Meenakshi, (October 23, 1982)

assets, then it has two effects on growth (1) it increases total saving (2) the portfolio of household gives greater mobility to the movements of funds and thus promotes growth.

Saving in negative assets i.e. borrowing of the households: Instead of separately considering it as an asset all the assets could have been adjusted to the borrowings against them and only net asset function could have been estimated. Such a procedure would not have given us a clear picture of the household borrowing. If borrowing of household increases, it implies that less of funds are flowing to other sectors. A word of caution may be added; if we find that borrowing is mainly by the agriculturist and unincorporated business enterprise, then the impact on growth might not be negative, for then it's financing the productive activity of the producers in the household sector. But if this borrowing is mainly for religious and social functions or building luxurious houses then its impact will not be so growth promoting.

Total saving is the sum of all its components. Any factor that, generally increases the financial ratio of saving; reduces consumption and diverts funds from hoarding towards any of saving components increases total saving. If different assets in the portfolio are substitutes then saving income ratio cannot be increased substantially. When different assets are held in the portfolio, because of the specific demand they fulfill and therefore are not substitutes for other assets;

then inflation & other factors can be said to increase saving ratio, as they encourage substitution between asset holding and current consumption and hoarding.

Growth rates in an economy can be raised either by increasing the saving ratio or by reducing incremental capital output ratio i.e. the productivity of capital. Therefore we have estimated this function also.

2. The Model : Presentation of Equations:

(a) Saving Model - Model A

Equation A 1 $$\frac{S_{LA}}{Y_d} = \alpha_1 + \beta_{11} Y_d + \beta_{12} P^e + \beta_{13} r_{BB} + \beta_{14} r_{1yr} + \beta_{15} r_{CD} + \beta_{16} r_{DI} + \beta_{17} r_{PA} + \beta_{18} r_{Gt} + \beta_{19} r_{SB} + u_1$$

Equation A 2 $$\frac{S_{PLA}}{Y_d} = \alpha_2 + \beta_{21} Y_d + \beta_{22} P^e + \beta_{23} r_{BB} + \beta_{24} r_{1yr} + \beta_{25} r_{CD} + \beta_{26} r_{DI} + \beta_{27} r_{PA} + \beta_{28} r_{Gt} + \beta_{29} r_{SB} + u_2$$

Equation A 3 $$\frac{S_{CD}}{Y_d} = \alpha_3 + \beta_{31} Y_d + \beta_{32} P^e + \beta_{33} r_{BB} + \beta_{34} r_{1yr} + \beta_{35} r_{CD} + \beta_{36} r_{DI} + \beta_{37} r_{PA} + \beta_{38} r_{Gt} + \beta_{39} r_{SB} + u_3$$

Equation A 4 $$\frac{S_{DI}}{Y_d} = \alpha_4 + \beta_{41} Y_d + \beta_{42} P^e + \beta_{43} r_{BB} + \beta_{44} r_{1yr} + \beta_{45} r_{CD} + \beta_{46} r_{DI} + \beta_{47} r_{PA} + \beta_{48} r_{Gt} + \beta_{49} r_{SB} + u_4$$

Equation A 5 $\frac{S_{PA}}{Y_d} = \alpha_5 + \beta_{51} Y_d + \beta_{52} P^e + \beta_{53} r_{BB} + \beta_{54} r_{1yr}$

$+ \beta_{55} r_{CD} + \beta_{56} r_{DI} + \beta_{57} r_{PA} + \beta_{58} r_G + \beta_{59} r_{S\cdot B} + u_5$

Equation A·6 $\frac{S_B}{Y_d} = \alpha_6 + \beta_{61} Y_d + \beta_{62} P^e + \beta_{63} r_{B\cdot B} + \beta_{64} r_{1yr}$

$+ \beta_{65} r_{CD} + \beta_{66} r_{DI} + \beta_{67} r_{PA} + \beta_{68} r_G + \beta_{69} r_{SB} + u_6$

Equation A 7 $\frac{S}{Y_d} \equiv \frac{S_{LA}}{Y_d} + \frac{S_{LA}}{Y_d} + \frac{S_{CD}}{Y_d} + \frac{S_{DI}}{Y_d} + \frac{S_{PA}}{Y_d} - \frac{S_B}{Y_d}$

Substituting the above components in equation A·7 by equations A·1 – A 6 and then adding them we get:

Equation A 7' $\frac{S}{Y_d} = \alpha_0 + B_1 Y_d + B_2 P^e + B_3 r_{BB} + B_4 r_{1yr}$

$+ B_5 r_{CD} + B_6 r_{DI} + B_7 r_{PA} + B_8 r_G + B_9 r_{S\cdot B} + u$

where $B_1 = \sum_{i=1}^{6} \beta_{i1}$, $B_2 = \sum_{i=1}^{6} \beta_{i2}$ and so on

Equation A·8 $\frac{D\cdot S}{Y} = a + b \frac{S}{Y_d}$

Substituting $\frac{S}{Y_d}$ in the equation A 8 by equation A·7' we get:

Equation A 8' $\frac{D\,S}{Y} = A + \beta_1' Y_d + \beta_2' P^e + \beta_3' r_{BB} + \beta_4' r_{1yr}$

$+ \beta_5' r_{CD} + \beta_6' r_{D\cdot I} + \beta_7' r_{PA} + \beta_8' r_G + \beta_9' r_{SB} + u'$

where $\beta_1' = bB_1$, $\beta_2' = bB_2$ and so on.

(b) Incremental Capital Output Equation - Model B

Equation B 1 $$\frac{\Delta C}{\Delta O} = Z_1 \frac{S_{FA}}{Yd} + Z_2 \frac{S_{CD}}{Yd} + Z_3 \frac{S_{PA}}{Yd} + \mathcal{U}$$

Substituting the value of $\frac{S_{FA}}{Yd}$, $\frac{S_{CD}}{Yd}$ and $\frac{S_{PA}}{Yd}$ from equation A 1 – A.6 we get the following equation.

Equation B 1' $$\frac{\Delta C}{\Delta O} = A_0 + A_1 Yd + A_2 P^e + A_3 R_{BB} + A_4 R_{1yr} + A_5 R_{CD} + A_6 R_{D\cdot I} + A_7 R_{PA} + A_8 R_G + A_9 R_{SB} + \mathcal{U}$$

(C) Rate of Growth Equation.

Equation C 1 $$\frac{I}{Y} = \frac{D \cdot S}{Y} + \frac{F \cdot S}{Y}$$

Equation C 2 $$\frac{\Delta Y}{Y} \equiv \frac{I}{Y} \times \frac{\Delta O}{\Delta C}$$

Equations A.1 to A.7 are household saving behavioural equations, consisting of six components from equation A.1 to Equation A.6. Equation A.7 is an identity defining saving ratio as sum of its components. But to get the effects of the exogenous variables on this ratio we have estimated A.7' equation.

A.8 equation relates domestic saving ratio $\left(D\ S/Y\right)$ to household saving ratio $\left(S/Yd\right)$. Because of its weight in domestic saving, we have postulated a simple linear relationship

between the two. But again as we are not interested in household saving impact on domestic saving ratio but on the effect of Inflation, income & different rates of return on domestic saving ratio, therefore we have estimated equation A.8' which brings out the relationship between the exogenous variables & domestic saving ratio. Thus in all the above equations of Model A, we are analysing the demand for each asset as a proportion to disposable income, which depends on the two relative profitability, as well as on the availability of its close substitutes, apart from factors like income and inflation.

A few points may be mentioned that the 1st subscript in the coefficient refers to the equation and the 2nd one to the variable in question. All the components of saving from equation A.1 to A.6, and A.7' and A.8' are directly estimated by ordinary least square method as they are linear in all independent variables. u refers as usual in all equations to the error term.

In Model B, incremental capital output ratio is estimated. We have preferred to estimate B.2 to B.1 as we are interested in the full impact of the exogenous variables. It is again a linear equation and the different, βs are summation of βs attached to the same variables in asset equation of Model A.

Model C consist of two equations both definitional, where C.1 is investment ratio which is equal to saving ratio and net inflow of Capital ($\frac{FS}{Y}$). The inflow of capital is

determined outside the model; therefore investment ratio is directly affected by the domestic saving ratio. Any increase in the latter increases investment ratio also. Equation C.2 defines growth of income. We shall first examine the effect of inflation alongwith other factors on (1) domestic saving ratio and there by on investment ratio - through Model A, and (2) incremental capital output ratio through Model B. Then combining these effects of Inflation on Model A & B, we shall derive conclusion of the effect of inflation on growth.

3. General Remarks : A General Discussion of the Effects Of Independent Variables on Saving Ratios :

Before we explain each of the above equations in detail, a few observations are made which in general are applicable to all the equations. In all our equations, the following independent variables are considered : Disposable Income; expected inflation, Own rates of return and returns on all other assets.

a) Disposable Income : All individuals are motivated to save; whether they are able to save or not depends on a number of factors. Their income is perhaps the most important one. If income level is not high enough to provide the necessities and perhaps some comforts, the forces motivating saving cannot come into play. Therefore only when the consumption needs of the household are met can they save. At very low levels of income, when their consumption needs are

not satisfied, households will dissave either by selling off their wealth if they have or by borrowing to meet the basic consumption needs. This is the current income hypothesis that Keynes advocated. The reason for opting for current disposable income as against permanent income for underdeveloped countries are mentioned in chapter 1.[8]

b) Anticipated Inflation : When households expect inflation and therefore realise that their real incomes and real value of financial assets (both the capital and returns in real terms) are falling, they would under the circumstances switch over towards physical assets (that they are already used to and so it's not relatively inconvenient for them to have them). The reduction in financial assets is likely to be more than when price inflation was unanticipated and therefore the effects of inflation on future generation of savings are likely to be negative. But then there are other characteristics associated with inflation like increase in uncertainty, which might increase saving.[9] Dorrance referring to Latin American experience suggests, "that speculation almost inevitably accompanies inflation and that it carries costs in addition to the simple distortion of investment. Some speculators are bound to gain, so inflation creates a class of new rich with low propensity to save and ostentatious consumption pattern that can exacerbate social tensions".[10]

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8. Reference may be made to chapter 1, section 1 (b).

9. (a) Juster, F.T. & Taylor, L.D. (May 1975).
   (b) Katona, G. and Muller, E. (1968).

10. Dorrance, G. (March 1966).

Thus in the underdeveloped economies, the portfolio effect is likely to lead to a reduction in the saving ratios while, wealth effect because of the large initial holdings of physical assets may increase saving ratio. Also an important factor operating in these countries is recurrent shortages of commodities which alongwith inflation is likely to make households purchase commodities in advance of their actual consumption. Overall we expect that factors which increase the saving ratio are likely to outweigh those which decrease, therefore we expect saving ratio to increase (As physical assets share in total saving is high).

c) Rates of Return : Introduction of rates of return alongwith inflation is because, households realise that differential rates of return no longer reflect the real productivity of capital but are partly on account of speculative activity which increases with inflation. Most of the households' main source of income is salaries and wages. As inflation proceeds, this falls in real value (wage lag hypothesis), so they are relatively worse off. The households resent this fall in income. Now their income can either increase with wage revision or by investing their saving into those assets which yield speculative gains during inflation. Thus when inflation is not anticipated households on consideration of liquidity, convertibility, convenience etc. hold different assets to meet basically the transaction

and precautionary demand for saving. With inflation, because of erosion of real income it is essential that they invest into assets which yield higher return, so that they are able to maintain their real consumption. So there is now a change in the attitude of savers (with emergence of speculative assets, they invest in these to add to their real income) i.e. from saving for precaution and transaction demand to speculative demand. Thus household would look at the relative yields on all the assets available and according to their preference for risk, convenience etc. choose that asset composition from which they get higher yields. Any asset whose own return increases vis a vis others, its proportion in income is likely to increase and therefore the two are positively related, whereas relative increases in the yield of other asset will invariably lead to a fall in its proportion.

4. Description of Model A : A Detailed Description of the Effect of Independent Variables on the Composition of Saving and Total Household Saving :

(a) Saving in Liquid Asset

$$\frac{S_{L\cdot A}}{Y_d} = \alpha_1 + \beta_{11} Y_d + \beta_{12} P^e + \beta_{13} r_{BB} + \beta_{14} r_{1yr} + \beta_{15} r_{C\cdot D} + \beta_{16} r_{D\cdot I} + \beta_{17} r_{PA} + \beta_{18} r_G + \beta_{19} r_{SB}$$

β_{11} is the coefficient attached to personal disposable income. Money is primarily demanded to satisfy the precautionary, transaction and speculative motives of the household. If money is held on account of the first two motives, then we expect that this will be a constant proportion of income i.e. with increase in disposable income, the demand for money will increase proportionately; this is especially true of

monetised economy. Hence we expect income elasticity to be one. In case of economies,which are still in the process of monetisation, higher income levels will lead to more than proportionate increase in money and therefore elasticity could be greater than one during this initial phase of development. But at very high levels of income it is possible that the proportion of disposable income set aside in money asset may fall, so that though income elasticity is high, it is not equal to one, This rest on the hypothesis that"the services derived from the stock of real balances rise proportionately with an increase in stock. On the contrary as the stock of real balances rises relatively to other forms of wealth, the services derived from the stock decrease on the margin in precisely the same way that a rise in the stock of physical capital relative to other forms of wealth results in its marginalphysical productivity, although total productivity rises as the stock grows".[11] In case of an underdeveloped economy like India, where all the transactions are still not monetised we expect $\beta_{11} > 0$

Money is also demanded to satisfy the speculative demand. This speculative demand for money has been usually discussed in the context of a model with money and at least one other financial asset. In the standard Keynes model, this other asset is assumed to be a consol "But it is interesting to note that the existence of a pure non money asset is not necessary for speculative motive to be operative. Money necessarily competes with inventories of good as a store of value".[12]

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11. Marty, A. (Feb. 1969)
12. Gupta, S.B. (April-June 1972)

In most of the underdeveloped economies where near non money financial assets are new to the economy, goods inventories and gold are an important form of holding wealth. If prices of goods and gold are subject to fluctuations thenthey encourage speculation in these. Therefore during inflationary periods in these economies, such speculation leads to substitutions between inventories of goods, gold and money. This leads to speculative demand for money to hold on the same grounds on which Keynesian speculative demand for money to hold emerges. Therefore different returns on assets and expected rate of inflation, in this equation would allow us to enquire, whether Indian households have speculative demand for money.

β_{12} is the coefficient of expected rate of Inflation. As the households/^{expect} this rate to increase, they will add more to commodity inventories as returns on these have increased. Households demand real cash balances to meet their transaction, precautionary and speculative motives. If these balances are essentially held to meet the first two motives then inflation, if it does nothing to transaction motive, would have at least increased uncertainty and thereby lead to an increase in the precautionary demand. On the whole therefore the real cash balances should increase. But households also have these balances in their saving portfolio to meet speculative demands i.e. to reap certain speculative gains. As expected rate of

inflation increases, speculative gains on commodity inventories increases; therefore any real cash lying idle with the household would be diverted towards increasing commodity inventories, so there should be a fall in this asset holding.

Further underdeveloped countries are not fully monetised therefore with the increase in the use of money as a medium of exchange, households in general should demand more money than otherwise.

The emergence of black money which is mainly associated with inflation is likely to make physical assets like land, residential construction, consumer durables and gold more profitable to be held in household portfolio alongwith hoarding currency.

On the other hand because of the wealth effect (i.e households initially hold a sizable proportion of wealth in physical and other hoards) there are capital gains during inflation. On selling these assets, the households are likely to keep these in the first instance in currency itself, therefore this ratio might increase.

As the effects are many, nothing definite can be postulated about the sign of the coefficient β_{12}, it can be positive or negative

β_{13} is the coefficient with respect to the expected market rate of interest. This rate is the one charged by local shroffs for discounting local bills in the unorganised sector

These rates are not administered though subject to certain upper limit, so to a greater extent fluctuation in them reflects the market condition. This rate is therefore treated as the market rate of interest. When households expect this rate of interest to increase, to avoid capital loss they would save more in the form of currency and demand deposits. This is because no sooner the actual rate of interest rises they can easily shift from liquid asset to other financial assets where capital gains accrue. Therefore we expect $\beta_{13} > 0$

β_{14} is the coefficient with regard to commercial bank one year deposit rate. An increase in this rate would lead to an increase in its own asset ratio, and if this increase is at the expense of money then the two assets are substitutes. Most of the studies conclude that these two assets are not substitute but satisfy different types of demand of the household and are therefore independent. As nothing a priori can be said $\therefore \beta_{14} \gtrless 0$

β_{15} is the coefficient attached to expected rate of return on consumer durables : If household behaviour is such that they first save in the form of money and then liquidate it for consumer durables then, an increase in the desire to have consumer durables will simultaneously increase this asset ratio, but when they are purchased and actually held by the households, then liquid asset ratio falls. Therefore, we

expect that with increase in expected returns, if there are no lags between desirability and acquisition then $\beta_{15} < 0$ but if there are lags then $\beta_{15} > 0$. On a priori grounds we are not sure therefore $\beta_{15} \gtrless 0$

β_{16} is the coefficient with regard to expected rate of return on direct investment : If rates of return are expected to increase then, to take advantage of these capital gains any money held idle for speculative purposes, must be diverted towards these assets in their portfolio (i.e. mainly the urban household). Therefore an increase in this expected rate of return should negatively affect the proportion of this asset and thus $\beta_{16} < 0$

β_{17} is the coeficient with regard to expected rate of return on residential construction. As expected rate of return on physical assets increases, we shouldnormally expect its own asset ratio to increase. But as having them in the portfolio, needs lumpsum investment, therefore there are bound to be some lags between the desire to have them and to actually acquire them. Thus savings have to be accumulated in the intervening period and one of the convenient means of accumulating savings is in liquid assets, therefore we expect $\beta_{17} > 0$

β_{18} is the coefficient with regard to expected rate of return on gold. If this rate is expected to increase then the demand for gold (as speculative asset) increases. This will generally be at the cost of liquid asset, which can be easily converted. As the nature of the demand for

gold is essentially to meet the social obligation, therefore with higher price of gold, to purchase the same amount of gold more savings need to be diverted. On both these grounds the money ratio should fall.

On the other hand there is considerable amount of initial wealth that is held in the form of gold, so the value of wealth increases for these households. On selling gold, the most convenient asset to be held is currency at least in the short run and therefore its ratio might increase; of the two effects the former effect is likely to be more predominant and therefore $\beta_{18} < 0$

β_{19} <u>is the coefficient with respect to borrowing rates</u>. If the borrowing rates are going up, then the producers in the household sector will like to increase investment by self-financing to avoid higher interest cost, therefore currency asset ratio is likely to decrease $\therefore$ we expect $\beta_{19} < 0$

b) <u>Saving is illiquid asset</u> :

$$\frac{S_{2 \cdot L \cdot A}}{Y_d} = \alpha_2 + \beta_{21} Y_d + \beta_{22} P^e + \beta_{23} r_{B \cdot B} + \beta_{24} r_{UTI} + \beta_{25} r_{C \cdot D} + \beta_{26} r_{D \cdot I} + \beta_{27} r_{P \cdot A} + \beta_{28} r_G + \beta_{29} r_{S \cdot B}$$

β_{21} <u>is the coefficient with regard to real disposable income of household</u> (Y_d) : As Y_d increases, household saving in these assets is likely to increase as these are non inferior assets which are likely to be preferred by households. As income increases saving in contractual form should increase for with growth we expect the share of agriculture sector

to fall and that of secondary and tertiary to increase. As contractual saving are made by household in the urban sector, who derive their income from secondary and tertiary sectors, any increase in the latter sectors' share in income is likely to increase the share of financial asset in household portfolio, therefore we expect $\beta_{21} > 0$

β_{22} is the coefficient with regard to expected rate of inflation (ρ^e). When households expect the rate of inflation to increase, they are aware that the real value of their illiquid saving is falling and so also their relative real returns, yet they continue to save at least as much in nominal terms because (1) Penalties in case of discontinuing the payments of premium on insurance policy are heavy. (2) Provident fund is deducted at source according to government regulation.

Further these savings are in the nature of precautionary saving (especially life insurance) and therefore if households view the saving in this asset in real terms, they would add enough of nominal savings to maintain the real value of this asset and therefore the ratio could remain constant.

It is also possible that households instead of opting for life insurance under inflationary condition, prefer other financial assets of shorter maturity period as uncertainty regarding returns increases in these. There might be switching

from life insurance to time deposits which is our intra composition item and so the effect of ρ^e might be weakened.

On the other hand with black money transactions increasing a convenient asset to invest this black money is time deposits. Therefore this ratio might increase. With increase in nominal income(because of inflation) more and more households will be covered inthe category of tax payers and those already paying in the category of higher taxation slab. To save on taxes, household would invest their saving in assets which gives them tax benefit. Most of these assets are of this nature. Therefore we cannot say on a priori grounds, whether $\beta_{22} \gtrless 0$

β_{23} is the coefficient of expected market rate of interest: When the market rate of interest is expected to increase, households would expect rate of interest on this financial asset also to increase (though these are administered). Instead of opting for insecure and higher return, household would prefer secure assets where expected returns are also likely to increase, therefore saving ratio in this is likely to increase. On the other hand if households are more risk taking then instead of opting for these assets they will temporarily hold liquid assets until actual returns on risky assets increase, when they divert their liquid assets towards

these assets. Therefore nothing apriori can be said, Thus $\beta_{23} \gtrless 0$

β_{24} is the coefficient with regard to commercial bank one year deposit rate : This is its own rate of return and therefore likely to have positive effect on this asset ratio $\beta_{24} > 0$

β_{25} is the coefficient with regard to expected return on consumer durables : As expected rate of return on consumer durables increases, household desire to have this asset will increase. If households under such circumstances were planning to save in time deposits, they would divert it towards consumer durables, therefore these two assets are substitutes. On the other hand life insurance fund and provident fund are savings towards which households have already committed therefore the flow of saving towards this will not be affected but the maturity amount that is repaid might get diverted towards consumer durables, instead of time deposits and to that extent again illiquid asset ratio might fall. But as the total of premium amount in any particular year is likely to be much more than the maturity amount therefore the latter effect is likely to be of a smaller magnitude. On the whole we expect $\beta_{25} < 0$

β_{26} is the coefficient with respect to expected return on direct investment: As returns on direct investment are expected to increase (and because these assets would necessarily compete with illiquid assets) it is expected that illiquid

asset ratio will fall i.e. $\beta_{26} < 0$

β_{27} is the coefficient with respect to expected return on residential construction($\gamma_{\rho A}$) : When expected return on residential construction is expected to increase, the desire to have physical assets increase, but as these are lumpsum investment household cannot immediately own them, therefore when $\gamma_{\rho A}$ increases, the ratio of illiquid assets increases (particularly of Time deposits) to finance eventually these assets. Also on maturity of life insurance Fund and Provident fund, or, withdrawals from these might be made to finance investment in these; to that extent a rise in the actual investment of physical assets will reduce all components of illiquid assets. As there are expected to be lags betweendesired and actual increase in physical asset ratio, therefore in the intervening period this ratio may increase. $\beta_{27} > 0$

β_{28} is the coefficient with respect to return on gold. If this rate increases and if gold and this asset are competing in the portfolio of households, then an increase in gold investment will be at the expense of illiquid assetstherefore, $\beta_{28} < 0$. But as these two assets are generally not held by the same group of households the relationship is expected to be weak.

β_{29} is the coefficient of rate of interest on borrowing. If borrowing rates are increasing, then household would borrow less for financing any activity and would prefer to self-finance their capital expenditure. Therefore they would

decrease their saving in time deposits to finance their capital expenditure. Generally it is noticed that rates of interest on one year deposit and borrowing rates move together as both are administered, so when this rate increases, return on illiquid asset should also increase and therefore this asset ratio too should increase. Thus we postulate $\beta_{29} > 0$

c) Saving in The Form of Expenditure on Consumer Durables:

$$\frac{S_{c.D}}{Y_d} = \alpha_3 + \beta_{31} Y_d + \beta_{32} P^e + \beta_{33} r_{BB} + \beta_{34} r_{myr} + \beta_{35} r_{c.D} + \beta_{36} r_{DI} + \beta_{37} r_{PA} + \beta_{38} r_{GS} + \beta_{39} r_{SB}$$

Consumer durables are held primarily for the specific services they provide, which for the most part are not close substitutes for other assets. But with the existence of these, household incentive to save may increase to finance expenditure on these assets.

β_{31} With increase in disposable income of the household, the proportion of income allocated to consumer durables increases, these are the preferred assets of the households. In the modern economy from the ownership of these, certain social status is acquired. At lower levels of income, the households will not be able to afford the luxury of having these . As income increases and unnecessary consumption is satisfied, household would then allocate their increases in income more to these assets. The desire to have these increases; with (1) the availability of these assets and (2) through the demonstration effect. As the economy moves towards

higher income levels, expenditure on consumer durables increases at the expense of other financial assets. So that with the availability of these goods, household may be expected to first increase their financial saving to acquire these goods and on purchase liquidate these savings, Therefore we expect $\beta_{31} > 0$

β_{32} Coefficient of expected rate of Inflation : There are two conflicting effects of expected inflation on this asset ratio. "The inter temporal substitution effect resulting from a higher expected rate of inflation is most likely to affect consumer Durable, because such goods are costly and have a long life time. The benefits from acquiring them when prices are low, relative to what they are expected to be in future, can be considerable. It is generally easier to accumulate and store stocks of durables than of non durables and services. Moreover hoarding of durables is facilitated, by the ready availability of consumer credit".[14] The other effect of inflationary expectation is that, it creates uncertainty about real income and therefore makes the attitude of the household pessimistic.[15] As a result, consumers revise downward their real income expectation and lower their current consumption level on consumer durables by either postponing the purchases,

14. Springer (August 1977)
15. Dorrance, G. (March 1966)

or by switching over to inferior products.[16] Thus an increase in the expected rate of inflation is said to depress the mood or sentiment of the consumer and this is reflected in a decline in spending. But in underdeveloped economies inflation isaccom-pained by black money, whose main outlet is in these commodities. Therefore we expect the black money and intertemporal substitution effect to be stronger than the uncertainty effect, and thus our hypothesis is that $\beta_{32}>0$

β_{33} is the coefficient of expected market rate of interest : If this rate is expected to increase, households would not like to invest in securities as they would then incur capital loss. To avoid this they would divert their savings from these to investment inconsumer durables. Also all those households who are borrowing for investing in consumer durables would prefer to borrow more now and incur the expenditure on consumer durables as borrowing in future is expected to become expensive, so $\beta_{33}>0$

β_{34} Coefficient of return on commercial bank one year deposit : If these two assets, consumer durables and illiquid assets, are substitutes in the household portfolio then it will be negative, but if they are complementary in the sense, that those household who increase their illiquid asset ratio are also those who increase their expenditure on consumer durables, then this coefficient could be positive

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16. Wärneke, D and Buch, S.W. (May 1975)

as well. On apriori grounds we cannot say any thing, therefore $\beta_{34} \gtrless 0$

β_{35} Coefficient of return on consumer durables i.e. its own rate of return : Its own rate of return is defined as the ratio between expected price increase in these durables and general price. Its own return is likely to have positive effect. As returns on holding these assets increases, then by purchasing these assets earlier, household would make capital gain and therefore intertemporal substitution effect is likely to predominate. Also prices of consumer durables are highly elastic in their taxes, and therefore any expectation that a particular durable good/or its component is likely to be taxed at a higher rate, will shoot up its demand just before the tax announcements. During inflation, government may tax these commodities at higher rate at each successive budget and there by its demand is likely to increase just before the budget and raise its asset ratio. On the whole we expect $\beta_{35} > 0$

β_{36} Coefficient of return on variable dividend security. If this is positive it implies that the two goods are complementary in the sense that the households who increase this asset ratio i.e. direct investment also simultaneously increase their expenditure on consumer durables. In case it is negative it implies that these two assets are substitutes, i.e. with increase in return on alternative investment,

investment in consumer durables is reduced and diverted to the other assets. On apriori ground nothing definite can be said, therefore $\beta_{36} \gtrless 0$ depending upon how households view these two assets in their portfolio.

β_{37} Coefficient of return on construction : If this rate increases saving in consumer durables will fall, as now savings are diverted towards physical assets. But it is also likely that ownership of residence provides incentive to spend in consumer durables & therefore might increase this asset ratio; this is the long run effect, while in the short run we expect it to be negative, therefore $\beta_{37} < 0$

β_{38} Coefficient of rate of return on gold : As return on gold increases more of desposable income will be held in the form of gold and less in consumer durables but this effect is likely to be small as gold is primarily held by rural households and consumer durables by urban. We expect $\beta_{38} < 0$

β_{39} Coefficient of rate of borrowing: As the rate of borrowing is expected to increase, this ratio is likely to fall, as it has become more expensive to borrow and so the effective price of consumer durables has actually increased. As borrowing can be important source for financing these, we expect $\beta_{39} < 0$

d) Saving in the Form of Direct Investment :

$$\frac{S_{DI}}{Y_d} = \alpha_4 + \beta_{41} Y_d + \beta_{42} P^e + \beta_{43} r_{BB} + \beta_{44} r_{iyr} + \beta_{45} r_{c.D} + \beta_{46} r_{DI} + \beta_{47} r_{P.A} + \beta_{48} r_G + \beta_{49} r_{SB} -$$

β_{41} coefficient of disposable income: As income increases, the share of these assets is likely to go up as these are non inferior assets, especially company stocks which are speculative assets. Because of the rise associated with it and knowledge required for its investment, people at higher income would be willing to hold these, therefore we expect $\beta_{41} > 0$ Also investment in small saving and national certificates is done with the intention of saving on taxes. At higher incomes, when the tax rates are higher the need to save on these taxes increases, therefore an increasing part of income may be set aside for these assets.

β_{42} Coefficient of Anticipated rate of inflation : When inflation is anticipated at lower rates, there would be buoyancy in the capital market and therefore we expect gains from investment in equities. Traditionally these assets are considered as inflationary hedges. Therefore if movements in their yields and inflation are positively related their, increasing proportion of saving and income will flow into these assets, though it may be at the cost of other assets. As far as investments in government securities are concerned they are likely to fall as return on these are falling, but certain indirect benifits of tax exemption may continue to make households have this in their portfolio. With inflation, tax rates are high and therefore tax evasion becomes profitable. A part of these assets are deposits with post office which

in the rural sector serve as transaction balance and are as liquid and convenient as money, therefore inspite of returns falling their proportion at constant prices remains stable. If capital gains are not there inequities with Inflation, which is likely to be in an underdeveloped economy (profitability is low also because of structural bottlenecks and not only due to deficiency of demand), then because the relative returns on these assets are falling, this asset ratio is likely to fall therefore nothing can be said on a priori ground $\beta_{H2} \gtrless 0$

β_{H3} Coefficient of expected Market Rate of Interest: When the market rate of interest is expected to increase, then household would save in those assets, which can be easily switched over to assets where capital gains accrue; therefore there is going to be an increase in liquid and time deposits savings which can be even at the expense of direct investment. Therefore we expect $\beta_{H3} < 0$

β_{H4} is the coefficient of one year deposit rate on commercial bank deposits : If households, in the asset portfolio treat these two assets as substitutes, then an increase in the deposit rate is likely to make this asset less attractive to have in their porfolio and therefore their share is likely to fall; thus $\beta_{H4} < 0$. But if the assets are complementary then $\beta_{H4} > 0$. Thus on aprori grounds we are not certainabout the sign of β_{H4}; thus $\beta_{H4} \gtrless 0$

β_{45} is the coefficient of expected return on consumer durables : If the two assets are substitutes in household portfolio then it shall be negative otherwise positive. Nothing aprori can be said about its relationship, therefore $\beta_{45} \gtrless 0$

β_{46} is the coefficient of expected return on direct investment : As it increases this asset ratio is likely to increase, therefore $\beta_{46} > 0$

β_{47} is the coefficient of expected return on construction : As return on construction increases funds would be diverted towards these assets. This increase in physical assets could be at the expense of direct investment, therefore we expect $\beta_{47} < 0$

β_{48} is the coefficient of expected rate of return on gold: We expect the relationship to be weak as gold is primarily demanded by the rural and this asset by the urban. To the extent rural population think of these assets as substitutes for gold, an increase in the rate of return on gold is likely to divert funds from small saving to these speculative assets (Gold) and therefore we expect $\beta_{48} < 0$

β_{49} is the coefficient of rate of interest on borrowing (γ_{sB}) : If borrowing is done by household to purchase these assets, then an increase in this rate will reduce this asset ratio. Also an increase in this rate increases the burden on households, as a result household now have less resources for saving in other forms (especially for the rural population it will be the post office saving). Therefore a rise in γ_{sB} will reduce this asset ratio ; $\beta_{49} < 0$

e) **Saving in Physical Asset** :

$$\frac{S_{PA}}{Y_d} = \alpha_5 + \beta_{51} Y_d + \beta_{52} P^e + \beta_{53} \eta_{B\cdot B} + \beta_{54} \eta_{iy_2} + \beta_{55} \eta_{C\cdot D} + \beta_{56} \eta_{O\cdot I} + \beta_{57} \eta_{P\cdot A} + \beta_{58} \eta_{G} + \beta_{59} \eta_{S\cdot B}$$

β_{51} **is the coefficient of disposable Income** : When disposable income of the household increases it generally also means that the economy is progressing. With the over all development in the economy, there is going to be financial development i.e. different types of assets would now be available. With the availability of financial assets of different sorts we expect that households who were earlier saving in physical assets, would divert their savings into more suitable assets, the financial assets. As a result the proportion of physical assets is likely to decline when development takes place in the economy. Therefore we expect the coefficient of disposable income to be negative i.e. $\beta_{51} < 0$

β_{52} **is the coefficient of expected rate of Inflation**: In India prices have been moving up on account of numerous factors[17], like increase in money supply, failure of monsoon leading to food shortages, (and therefore there is a sharp rise in prices of food products. This inturn leads to increase

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17. Sinha, S.L.N. (1974)

in general price index because of its weight), Structural rigidities etc. The dependence of agriculture sector on monsoon is substantial, and increases in general prices because of food prices will reduce the total income of the rural sector at constant prices, which would lead to fall in investment in farm equipments by household. Recurrent failure of crops may not provide the right incentive for accumulating farm assets; rather it might divert funds from these to holding up their stocks of commodities, gold etc. and thus reduce marketable surplus, while in the urban areas, the unorganised business enterprise, due to pressure of demand, increase their profits and therefore expand their activities by further investing in machinery and equipment.

On the other hand, with inflation continuing for long and it being expected, households will particularly find it attractive to divert funds towards increasing inventory holding where speculative gains are large (especially for an economy which faces recurrent shortages). Also luxurious residential constructions are good investment outlet for black money which is usually accompanied by inflation. Therefore on these considerations the proportion of physical assets might increase, thus we expect $\beta_{52} > 0$

β_{53} **is the coefficient of expected market rate of Interest** : When household expect market rate of interest

to increase, then to avoid payment of higher interest in future they will purchase physical assets which they would have otherwise delayed, this is particularly true of stocks. Also those households who are lending at market rate of interest are optimistic about future earnings, and this optimism increases their asset accumulation of physical assets the same way they do of consumer durables, therefore $\beta_{S3} > 0$

β_{S4} is the Coefficient of one year deposit rate with commercial bank: If physical assets are substitutes for deposits with bank then, an increase in this rate will increase deposits with banks and reduce physical assets i.e. $\beta_{S4} < 0$

β_{S5} is the coefficient of expected return on consumer durables: With increases in this rate, expenditure on consumer durables increases. If this increase in consumer durables leads to increase in saving ratio and, reduction in current consumption then other asset ratio will not be affected and generally as these are mainly consumed by urban households, their impact is likely to be less on physical assets, though there might be some substitution between them. Therefore $\beta_{S5} < 0$

β_{S6} is the coefficient of expected return on direct investment: As this increases physical assets are likely to be reduced. We expect $\beta_{S6} < 0$

β_{S7} is the coefficient of expected rate of return on residential construction: As it is its own rate, an increase

in it is likely to increase its share and therefore $\beta_{57} > 0$

β_{58} is the coefficient of expected rate of return on gold: As expected rate of return on gold increases, households to have speculative gains would divert their saving from other assets to gold, or reduce their consumption ratio to invest in gold. In that case the physical asset ratio might decline On the other hand those who already have a large proportion of gold in their saving portfolio might realise capital gains by selling these assets (wealth effect). This increase in real wealth might increase physical asset ratio. Also gold is a good collateral for borrowing and with increase in the value of gold, borrowings can be effectively increased. As these borrowing are essentially to meet social and religious demands, therefore the potential of households to save in future will fall and with it the accumulation of physical assets. Thus on a priori grounds one cannot say anything definite about the sign of β_{58}; it can be positive or negative $\beta_{58} \gtrless 0$

β_{59} is the coefficient of borrowing rate : As the real cost of borrowing increases, investment ratio in physical assets should fall, because their net profitability by investing on these assets reduces; therefore we expect $\beta_{59} < 0$

f) Saving in the Form of Net Borrowing from other Sectors:

$$\frac{S_B}{Y_d} = \alpha_6 + \beta_{61} Y_d + \beta_{62} P^e + \beta_{63} \gamma_{BB} + \beta_{64} \gamma_{iys} + \beta_{65} \gamma_{CD} + \beta_{66} \gamma_{DI} + \beta_{67} \gamma_{PA} + \beta_{68} \gamma_G + \beta_{69} \gamma_{SB} +$$

β_{61} **coefficient of disposable income:** As the disposable income of household increases, this ratio is expected to fall if borrowings are made by the household having lower consumption levels. But if borrowing is incurred for increasing the share of other asset like consumer durables, construction of houses etc, then with the increase in income, the desire to have these assets increases and therefore to finance these assets accumulation, borrowing will increase. The effect of disposable income will depend upon the purpose for which borrowing is done. Here the borrowing figures relate to, institutional credit to the household sector, who are catering mainly to their own asset holders. These asset holders are likely to be in the upper classes e.g. life insurance corporation gives loans against the premium paid by the household in question, similarly loans are granted against provident fund outstandings and loans against term deposits are given to its asset holders. Only that proportion of loans advanced by commercial banks and cooperative banks are for financing agriculture operations and trading, which are not to its asset

holders. As the proportion of the latter is high we expect farm households and other selfemployed households to increase their borrowing as disposable income increases, $\beta_{61} > 0$

β_{62} <u>coefficient of Anticipated rate of Inflation</u>: As households anticipate inflation, they realise that their real incomes are falling; this makes them pessimistic about the current situation and also increases uncertainty. Therefore they are likely to reduce their borrowing for purposes of any asset accumulation;on the other hand,there are now some assets on which speculative gains can be made. Due to intertemporal substitution effect as noted in equation ($\frac{Sc_0}{Y_d}$), households in the expectation of rising prices may hoard these commodities. Also some components of physical assets,like residential construction and inventories may be good investment during inflation and therefore borrowing to increase this asset holding may increase.

During inflation debtors gain; therefore borrowing will increase as it entails smaller cost. Borrowing in India is mainly done by farm households and self employed households for productive purpose and not to finance expenses on consumer durables or investment in direct securities (though lately households might be borrowing for this also but its proportion is still likely to be small). As Inflation is mainly

due to structural rigidities, therefore during inflation the investment outlook may not be very optimistic; as a result borrowing may also fall; so nothing apriori can be said about the effect of expected rate of inflation on borrowing i.e. $\beta_{62} \gtrless 0$

β_{63} **is the coefficient of expected market rate of interest:** As this rate increases, less of farm households and self employed would borrow from market and switch to cooperative and commercial banks immediately, therefore borrowing would increase from institution. Thus we expect $\beta_{63} > 0$

β_{64} **is the coefficient of one year deposit with commercial banks:** As these rates increase, saving in term deposits will increase; this will increase the potential of households to borrow against these deposits. But rate of interest on borrowing is positively related to this rate, and therefore borrowers would reduce their demand for borrowing i.e $\beta_{64} < 0$

β_{65} **is the coefficient of expected rate of return on consumer durables:** As this rate of return increases, borrowing made to finance these additional investments in durable goods should increase. If households have a tendency to self finance these purchases rather than borrow (because of attitudes towards incurring debts and due to non existence of such loans being available either from the manufacturer, retailer or the financial institution) then purchases in consumer durables may

lead to a fall in either liquid assets or illiquid assets, rather than in increasing the borrowing ratio. With increasing loan facilities being available, an increase in returns on these assets will increase borrowing ratio share; therefore we expect $\beta_{65} > 0$

β_{66} Coefficient of return on direct investment: As this rate increases and if borrowings are made to finance these savings, then borrowings ratio too would increase, but the effect is likely to be small $\beta_{66} > 0$

β_{67} Coefficient of return on Residential dwelling: As this rate increases, borrowings will increase to finance this saving in physical assets, therefore $\beta_{67} > 0$

β_{68} Coefficient of return on gold : As return on gold increases the effect may be two fold (1) to increase holding of gold, borrowing may increase. Also the initial holders of gold find that, its value has increased and therefore, borrowing amount against the same amount of gold increases, therefore, $\beta_{68} > 0$ (2) On the other hand, with more of wealth, Some borrowers may liquidate their debt by selling of small quantity of gold. But the former effect is likely to predominate, therefore $\beta_{68} > 0$

β_{69} Coefficient of rate of borrowing : In the usual circumstance with the real cost of borrowing increasing households would borrow less, therefore $\beta_{69} < 0$

g) **Saving of the Household Sector** :

$$\frac{S}{Y_d} = L + B_1 Y_d + B_2 P^e + B_3 r_{BB} + B_4 r_{1yr} + B_5 r_{cD} + B_6 r_{D\cdot I} + B_7 r_{p\cdot A} + B_8 r_G + B_9 r_{s\cdot B}$$

B_1 **Coefficient of Disposable Income**: As disposable income increases, saving ratio increases, but some minimum level of income is required for households to have positive saving ratio. The increase in S/Y_d ratio, due to income increases is because there are lags in consumption behaviour Households are used to some level of consumption of goods and services and they find it difficult to change these immediately. It takes them some time to adjust to the new income levels and therefore when income increases the consumption ratio does not increase correspondingly, while S/Y_d ratio increases. Also as income increases the income originating in urban areas increases relative to the rural areas and the households of the former as pointed out by various studies[18] have higher marginal propensity to save than the latter, therefore too S/Y_d ratio would increase. On the portfolio front with increase in disposable income, financial assets would increase with the emergence of financial institutions; households with higher saving ratio would like to diversify their asset holding by including these new assets in their portfolio. With

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18. Refer to Chapter 1

the availability of these assets the saving ratio is further likely to increase, so we can expect that in underdeveloped countries with increase in disposable income saving ratio should increase $\beta_1 > 0$

β_2 coefficient of anticipated rate of inflation : Anticipated rate of inflation can theoretically affect saving ratio both positively and negatively, that is why a lot of empirical work has been done to study the effects of inflation on personal saving ratio.[19] The effect of inflation, will depend upon how households view price rise and then how do they react to it. This would depend apart from other factors on, the stage of development of the economy and what is the present level of living of the households, their aspirations and attitudes. The allocation of income and wealth to different components depends essentially on the perception of the households i.e. how they view and how much important consumption saving and different forms of saving are and to what extent each one of them satisfy their goal. If more importance is given to preserving the real value of money and other income earning assets then saving will increase during inflation (provided the financial asset ratio in the household wealth portfolio are high. It is only then possible for the

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19. Reference may be made to chapter 1 section 1 (c)

real value of the household wealth to fall with inflation). The saving ratio with inflation is likely to increase, when income earners are fairly satisfied with their present level of consumption (of atleast the neccessary consumption) and therefore are not enthusiastic about increasing the consumption ratio; such behaviour is usually noticed among the households in higher income groups of underdeveloped countries or is generally true about advanced economies. In underdeveloped economies, the levels of per capita consumption is far below the minimum required for a large section of population. Therefore, households, when they expect inflation, are not expected to increase their saving, rather they struggle hard to maintain the little real consumption that they had before. It is only the middle class and upper income groups who might increase their saving ratio. It is thus upper class which contributes maximum towards saving (so inflation is inducing concentration of saving). They in the past had savings and therefore would like to continue to have these for future uncertainties; on the other hand, as most of the households have a higher proportion of physical assets and other hoards in their wealth portfolio, therefore capital gains on these (which are usually accompanied by inflation) are likely to increase their consumption of consumer durables, conspicuous consumption like luxurious residential accomodation, where as they will reduce the financial saving ratio as returns during

inflation are falling and sometimes even become negative.

In the underdeveloped economies, most of the households are still not exposed to different financial assets and therefore most of their saving is either hoarded or is in real assets and commodities, therefore substitution from financial assets to these assets offering capital gains are likely to be greater in underdeveloped countries than in the developed countries, where the convenience that financial assets yield, is given more importance i.e. at such higher income levels these households can enjoy the luxury of having the same proportion of money in their assets which is a convenient asset to hold. Therefore inflation in underdeveloped economies is likely to have different effects from those in developed countries.

Most of the studies[20] relating to developed countries have concluded that saving ratio increases with inflation, the reason being that households place much utility on a fairly constant liquid asset to income ratio both on account of liquidity and, less transaction cost involved in holding these assets and due to lumpiness of other real assets, whose imperfect knowledge about future returns deters households to have these in their composition', Thus the real balance effect is predominant in these economies. Another reason for saving ratio to increase with inflation is that, the latter increases uncertainty regarding real incomes and this makes the household pessimistic, which then leads to reduction in consumption ratio.

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20. Reference may be made to chapter 1 section 4(b)

Therefore in the advanced countries on account of both the factors (1) the real wealth of the households falls with inflation as most of it is held in financial assets, (2) the portfolio of the household is fairly rigid in real terms (because of the real balance effect liquid assets are held in a fairly fixed proportion), therefore, saving ratio at current prices has been rising with inflationary condition.

But in underdeveloped countries like India the effects of inflation are mixed and one cannot draw a definite conclusion about the effect of inflation on household saving. This is partly because household sector sonsists of a heterogenous group which included both the pure household and those which are selfemployed. These two categories of household are likely to react differently and the behaviour of one may negate the behaviour of the other. Keeping this in mind we have to discuss the effect of inflation. In the household saving composition physical assets form approximately 50% of the total saving, therefore it is not necessarily true that the real wealth of the household falls. In case of household, who have a large wealth ratio in which land, building, gold are supposed to be predominant assets, large capital gains can accrue to these households. This will give the incentive to increase their consumption ratio and expenditure on consumer durables, speculative assets, inventories of goods. Only those households, i.e. the wage and salary earners, who are saving some proportion of

their wealth in financial assets will find their real value of wealth falling. It is these households that will reduce their consumption ratio. But as there are greater incentives to switch from these financial assets to speculative assets even these households would alter their portfolio compositions, such that it favours physical assets like residential construction, commodity inventories, foreign exchange etc. Hence in underdeveloped countries (1) The wealth effect during inflation periods is such that it may increase the conspicuous consumption ratio (2) there is more flexibility in the portfolio composition of household. The households switch over to physical assets and gold, which they are accustomed to hold, and therefore do not attach much importance to holding liquid assets. Therefore on both these considerations we might find that the saving ratio declines with inflation; since in our definition we have included consumer durables and some physical assets, the portfolio switch over to these from financial assets would leave the saving ratio unchanged at a point of time (though these switching operations may affect the saving ratio negatively in the future). If increases in physical assets and durables are at the cost of reducing consumption ratio then only, saving ratio would increase. Our hypothesis is that $\beta_2 < 0$

β_3 is the coefficient of expected market rate of interest: As this rate is expected to increase, the primary effect is of increase in liquid assets. If this increase in ratio

is not compensated by an fall in other assets of the household, then saving ratio will rise. But if a rise in this asset ratio leads to fall in other asset ratio, then the effect may not be substantial on saving ratio. Looking to all the components' effect we see that all saving components rise except borrowing which is expected to increase, and that on illiquid assets the effects are uncertain. On the whole therefore we expect $\beta_3 > 0$

β_4 is the coefficient of one year deposit with commercial banks: As the proportion of household saving in commercial bank deposits is very high the effect is expected to be positive on saving ratio. Any increase in the rate of interest on these safe assets is likely to lead to reduction in other asset ratios like, direct investment and consumer durable ratio and to smaller extent in physical assets, because these combine certain functions like liquidity, safety etc. which make it a preferred asset. If increases in illiquid asset ratio is at the cost of hoarding, gold and consumption then S/Y_d ratio will increase with increase in 1 year deposit rate, but if this is not the case then at the same point of time the effect on S/Y_d ratio might not be much, but over a period S/Y_d ratio will increase, so $\beta_4 > 0$. On the portfolio front an increase in this rate, reduces liquid asset, direct investment, consumer durables, physical assets, while it increase illiquid asset ratio and [illegible] borrowing. Therefore depending upon the strength of positive versus negative effects on

assets of saving would the exact effect of saving ratio be determined. Therefore on aprori grounds we are not certain, therefore $\beta_4 \gtrless 0$

β_5 coefficient of rate of return on consumer durables: With the increase in the rate of return on consumer durables we expect its own asset ratio to increase. If this increase in consumer durable asset ratio is at the expense of other financial assets then saving ratio at that point of time may not be affected. But an increase in this ratio over time is likely to have negative effect on saving ratio because increased expenditure on consumer durables implies complimentary expenditure which increases current consumption and reduces saving ratio. Its effect on the portfolio are as follows: it increases consumer durable and borrowing ratio, reduces physical asset and illiquid asset ratio, while the effect is uncertain on liquid assets and direct investment. As the share of physical assets and illiquid assets is high and increase in borrowing reduces saving, therefore we expect $\beta_5 < 0$

β_6 is the coefficient of expected return on direct investment: The effects of these are likely to be small on saving ratio as the proportion of this asset is very small. Due to the presence of large unorganised sector and underdeveloped capital markets, industrial equities are generally held by urban households only. A rise in this rate is likely

to reduce liquid asset ratio illiquid asset ratio and physical asset ratio, whereas it will increase direct investment and borrowing and its effects are uncertain on consumer durable ratio. So the portfolio effect is likely to reduce saving ratio. On the other hand the wealth effect i.e. (capital gains on the initial holdings of these assets) will not be substantial because of its small proportion in total wealth. Therefore we expect $\beta_6 < 0$

β_7 is the coefficient of expected rate of return on construction: As rate of return on this increases, other assets being substitutes, their ratio should fall, while that of physical assets should increase (provided there are no lags between desirability and actual ownership). The greater the substitution between physical and financial assets the weaker would be the effect on saving ratio at that point of time but over a long time a higher ratio of physical assets in wealth reduces saving ratio in future. On the other hand, if there are lags in the behaviour of household, then an increase in this rate of return will lead to temporary increases in other assets of household saving particularly is liquid assets. So that in the short run it will increase financial asset and saving ratios.

On the other hand because of the wealth effect (i.e. there are large capital gains accruing to the holders of physical assets) luxurious consumption and hoarding is likely

to increase and therefore other assets ratio might fall except consumer durables whose proportion is expected to increase. Therefore on aprori grounds we are not certain of the effect of this rate of return. Thus $\beta_7 \gtrless 0$.

β_8 coefficient of expected rate of return on gold: With increase in the expected rate of return on gold, household saving will flow increasingly in gold, if it held as a speculative asset in the household wealth portfolio. But if the demand for gold is to meet certain social and religious obligations then real investment in these will not be related to rates of return. If increases in gold are by substituting other assets included in our saving defination, then saving ratio will fall; on the other hand, because of large initial holdings of gold any increase in its prices will increase the real value of wealth of these households, who can increase their current consumption ratio and therefore reduce saving ratio/ or can increase consumer durable ratio and therefore increase this ratio. Further gold is a good collateral for borrowing and therefore increases in its values implies that higher financial borrowing is possible, for investment in forms etc. and therefore increases in its return can stimulate physical asset ratio which are not likely to be at the cost of other asset ratios. Its effects on portfolio composition are negative on illiquid asset ratio, Consumer durables ratio and direct investment, while positive on borrowing & uncertain

on liquid assets and physical assets. Therefore on aprori grounds nothing definate can be said about its effect on saving ratio so $\beta_8 \gtrless 0$

β_9 coefficient of borrowing rate: An increase in the real cost of borrowing is expected to reduce physical assets, consumer durable expenditure and borrowing and increase illiquid asset and liquid asset ratios. As the primary effect is on its own asset i.e. borrowing, we expect β_9 to be positive

5. Description of Model B :

Incremental capital output ratio is a technical concept which implies how productively a factor of production capital (which is scarce and important for growth in underdeveloped countries) is employed to yield output. The productivity of capital depends on a number of factors like, the present state of technical knowledge including educational standards achieved by the country, the funds that are diverted towards research and development programmes, the factor availability and how easily can surplus be transferred to the deficit sectors etc. In the long run all these factors could be acted upon to reduce the ratio.

In most of the studies which have dealt with raising growth rates, saving ratio has been given the due importance as a factor affecting it, but reduction in incremental capital output ratio has not been considered as (it was perhaps assumed that these ratios cannot be changed by the deliberate economic

policies in the short run) a factor affecting growth rates. In the short run we do find that there are wide fluctuations in this ratio, therefore growth rates would generallybe affected by this.

a) Factors Affecting Incremental Capital Output Ratio:

In the long run the factors affecting $\Delta c/\Delta o$ (incremental capital output ratios) are:

i) The relative price ratio of different factors of production. If the price of labour i.e. wage rate rises faster than the price of loanable funds i.e. interest, then producers in the long run will increase their profit ratios by choosing the technique of production which employs capital as a factor of production more than labour per unit of output i.e. as w/i increases K/L increases and therefore K/O ratio increases. But any increase in factor price ratio w/i does not immediately lead to higher K/L because once machines are installed with a particular capital intensity they cannot be changed (without being used these cannot be just thrown) because investment decisions are primarily irreversible over short periods. In case of underdeveloped countries even if this factor price ratio moves up, more capital may not be profitable as cooperative factors of production especially

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w/i = Factor Price ratio w = wages & i.= interest rate
K/L = Capital Labour ratio K/O = Capital Output ratio

technical skilled man power may not be available.

ii) Another factor affecting it is the quantum of resources available, that could be diverted to increasing each factor productivity and general productivity of the economy.

iii) With the availability of resources proper financial structure is required which transfer the saving of the surplus sector to the deficit sector, So that financial funds do not hamper the development process.

But in the short run, a government dedicated towards achieving higher growth rates can lower incremental capital output ratio (and thereby, given saving ratio, can increase growth rates) by following policies of (1) directing investment in the short run towards bottleneck sectors where capacity creation effects are substantial (2) of raising utilisation of existing capacity (3) giving incentives to small scale and indigeneous sectors which employ more labour intensive techniques.

b) <u>An Analysis of Effect of Inflation on Incremental Capital Output Ratio</u>:

Our primary concern is to study the effect of inflation on incremental capital output ratio. Does inflation simultaneously affect saving ratio and incremental capital output ratio. If so, then its effect on growth can be analysed in "Harrod Domar - framework". At the outset it may be mentioned that inflation effects on this ratio (incremental capital output ratio) may not be direct and it may take long

time but still an attempt is made to study the same.

During inflation relative prices change and so redistribution takes place. Inflationary effects are basically through this redistribution. The greater this redistribution the greater the effect on growth in the short term (but such large redistribution is not desirable on equity grounds). In the context of Model A, we have studied how inflation that is anticipated, leads to changes in the composition of households' net worth. The composition of saving can affect incremental capital output ratio in two ways: (1) the portfolio of households in response to inflation may become such that the financial flow of funds to deficit sector falls. This coupled with their (deficit sector) inability to raise resources from internal sources, will starve them of funds. This will results in lower capacity being utilised and/or in a continuous situation like this, prefer a lower productive technique using less capital so that incremental capital output ratio increases. (2) If inflation changes the composition of demand for commodities and diverts it to consumer durables then, producer will have the incentive to produce these commodities as demand is high over here and therefore it is more profitable to manufacture and trade in these. Generally this category of goods requires more sophisticated technology and therefore capital labour ratio in these industries are higher.Further these commodites have higher import intan-/

sity[21] i.e. certain components are imported - as a result secondary and tertiary (linkages) effect of production, of these commodities in the short run are not realised within the economy.

Thus an increase in the asset portfolio of these in households capital account is likely to increase incremental capital output ratio in the short run and also due to high import intensity reduce growth effects on the domestic economy.

Also inflation by making physicalassets attractive relative to financial assets, not only reduces the funds that can be borrowed by the deficit sector but also makes the relatively less productive assets among the physical assets more attractive "The form of investment induced by inflation is as significant as its aggregate amount. Not all investment contributes in equal degree to the attainment of increasing production and higher standard of living. Inflation encourages investment in construction and inventories rather than in industry and agriculture"[22]. If in the share of total investment, inventories and construction proportion are high then because of their lower degree of contribution to output, overall incremental capital output ratio will rise.

Apart from inflation induced households composition of saving effect, incremental capital output ratio is

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21. Chandra, Nirmal Kumar (April 1982)
22. Bernstein, E.M. and Patel, I.G. (November 1952)

affected by the capacity utilisation ratio. The published figures on this ratio relate to changes in output due to changes in capital stock, without any reference to the effective utilisation rate of Industry; therefore from this statistical measurement it will be possible, that with better utilisation output increases and hence the ratio will fall. In the short run then can Inflation have some effect on capacity utilisation? In the standard Keynesian analysis inflation by increasing the effective demand puts pressure on the producers to work at or near full capacity installed and thereby reduces incremental capital output ratio and increases growth in the short run. This is possible when installed capacity already exists and the main cause for lower utilisation is the lack of effective demand. In most of the underdeveloped economies, the installed capacity may exist but the low level of utilisation is not mainly on account of demand deficient factors, but other factors like shortage of raw materials, foreign exchange bottlenecks, labour troubles and other structural rigidities. Therefore in these countries the relationship between inflation and capacity utilisation is not as simple and straight forward as in developed countries, rather it is indirect and complex. Generally we expect inflation to positively affect incremental capital output ratio

c) <u>The Structural Equation of Model B</u> :

Equation c.1 $\frac{\Delta C}{\Delta O} = Z_1 \frac{S_{FA}}{Yd} + Z_2 \frac{S_{CD}}{Yd} + Z_3 \frac{S_{PA}}{Yd}$

$S_{F.A}$ means saving in assets like currency, demand deposits, illiquid assets and direct investment. $S_{C.D}$ is saving in the form of consumer durables and $S_{P.A}$ is saving in physical assets. In this equation the terms are endogeneously determined by our model A. From our earlier discussion we expect $\gamma_1 < 0$, $\gamma_2 > 0$ and $\gamma_3 \gtrless 0$. The effect of physical assets will depend upon the relative growth of its different components e.g. if inventory and construction of residential houses increases then $\gamma_3 > 0$, but if machinery and equipment ratio is increasing, then because it has strong linkages effect, therefore incremental capital output ratio will fall.

For estimation purpose, we are estimating not the structural form but the reduced form of the above equation as we are interested in the total impact of the various variables. Thus in its estimation form the equation is:

Equation C.1' $$\frac{\Delta C}{\Delta O} = \gamma_0 + \gamma_1 Y_d + \gamma_2 P^e + \gamma_3 r_{B.B} + \gamma_4 r_{iy_2} + \gamma_5 r_{C.D} + \gamma_6 r_{DI} + \gamma_7 r_{PA} + \gamma_8 r_{G} + \gamma_9 r_{SB} + u.$$

d) <u>An Analysis of the Effect of Independent Variable on Incremental Capital Output Ratio - The Reduced Form Of Model B</u> :

The expected signs of the various coefficients are explained below:

γ_1 <u>When disposable income of the household increases</u>, their saving ratio increases and therefore all the assets being non inferior, their ratio too increases. But with development and increase in income, household are likely to prefer financial assets to physical assets, Therefore although

each individual asset amount increases, the ratio of financial assets increases at a faster rate, on account of: availability of these assets, change in the outlook of household with development and the reduction in risk and increase in convenience that financial intermediaries provide. Thus with growth we expect the ratio of financial saving to increase faster, which implies that more capital is available to the deficit sector. The deficit sector in turn can improve their techniques of production and scale of production too, as a result the overall productivity increases and incremental capital output ratio falls.

With financial intermediaries, increasingly supplying the credit to the deficit sector, more efficient projects that have growth potential and higher productivity will be given preferance over those projects which were self financed or were financed by money lenders, who give credit mainly on the basis of collaterals offered. Thus increase in financial intermediaries implies that finances will gradually be available to the entrepreneurs who have modern outlook, have technical background and sound projects rather than to wealth owners who have only collateral value to offer. Thus a new class of enterpreneur is encouraged which helps in pushing the economy towards higher growth rates. Therefore with increase in disposable income, the ratio of financial assets increases, which implies that funds flow to more efficient entrepreneurs who with latest technology utilise capital a scarce factor in the best manner and thus increase the

productivity as capital reducing $\Delta C/\Delta O$. Therefore $\gamma_1 < 0$.

In our Model A, we have already noted that when households in the underdeveloped countries expect prices to rise, unlike their counterpart in developed countries (where real cash balance effect is predominant, which results in increasing real cash balances being held as the proportion and therefore increases the saving ratio), are not likely to increase the ratio of liquid assets, for here real commodity effect and real gold effect are likely to be predominant. As a result we expect real consumption to increase. Therefore in underdeveloped countries saving ratio may fall. Also as switching operations between financial and physical assets are swift and easy, with returns rising in physical assets, financial asset ratio is likely to fall, and that of physical assets is likely to rise. Among the physical assets, as inventories are good inflationary hedges diversion of funds is likely to take place both from farm machinery and equipment and financial assets towards inventories and construction, which as discussed above leads to increase in $\Delta C/\Delta O$. With expected inflation the ratio of consumer durable expenditure is likely to increase which through the demand factors will lead to higher share of this product in output. A higher ratio in output of these commodities will increase $\Delta C/\Delta O$. So on the portfolio front because financial asset ratio decreases.

consumer durable expenditure ratio increases and physical asset ratio and its composition towards inventories increase. All these have the same effect on incremental capital output ratio, that of increasing it, therefore we expect $\gamma_2 > 0$

γ_3 is the coefficient of expected market rate of interest. When the expected market rate of interest increase, the household will increase liquid assets, consumer durables and physical assets while it will reduce direct investment. The effects on illiquid assets are not certain. Consumer durables and physical assets would increase incremental capital output ratio, while liquid assets would reduce it. A reduction in direct investment will increase incremental capital output ratio. As the effects are conflicting, nothing definitecan be said about its effect on $\Delta C/\Delta O$ therefore $\gamma_3 \gtrless 0$

γ_4 coefficient of one year deposit rate: As this rate increases, the proportion of illiquid assets will increase, which will reduce $\Delta C/\Delta O$. Its effect on consumer durables is uncertain. It will also reduce physical asset ratio & so increase/decrease $\Delta C/\Delta O$. On the whole we expect $\gamma_4 < 0$

γ_5 coefficient of return on consumer durables: As return on consumer durables increases, their asset ratio will increase at the cost of other financial assets, which would mean an increase in $\Delta C/\Delta O$. It is expected to reduce illiquid asset ratio, while its effect on liquid assets and direct

investment are uncertain. The share of physical asset will fall and thereby increase/decrease $\Delta C/\Delta O$. Therefore overall γ_5 is expected to have positive effect on $\Delta C/\Delta O$ ie $\gamma_5 > 0$

γ_6 Coefficient of return on direct investment: Regarding the effect of return on direct investment on incremental capital output ratio nothing definite can be concluded on apriori ground. If increases in its return lead to increase in financial asset ratio at the expense of other hoarding, then with more long term funds being available, the deficit sector can increase the capital base, which in the short run will increase capital output ratio but in the long run decrease it as some gestation period is required for capital to be productive. On the other hand it might increase/decrease expenditure on consumer durables and reduce physical assets, which positively effects $\Delta C/\Delta O$. Regarding its direct effect, if increasing returns on these assets generally reflect increasing profitability of the corporate sector, which in turn implies efficient use of resources, If this is true then an increase in return would lead to lowering $\Delta C/\Delta O$. On apriori ground nothing definite can be said. Whether the direct effects are stronger than the portfolio, therefore $\gamma_6 \gtrless 0$

γ_7 Coefficient of return on construction: As return on construction increases, the share of financial assets is likely to increase; this in turn will increase funds flowing

to deficit sectors with the result $\frac{\Delta C}{\Delta O}$ will decrease. Also this will lead to fall in consumer durables. But if with investment in residential construction, expenditure on consumer durables increases especially the component furnishing, then the two would be complementary and thus increase the share of consumer durables which in turn would increase $\Delta C/\Delta O$, but if they are substitutes i.e. an increase in residential construction leads to post-ponement in consumer durable expenditure especially transport, then its share will fall and $\Delta C/\Delta O$ will fall. But the proportion of physical asset will increase and since construction is highly capital intensive $\frac{\Delta C}{\Delta O}$ is likely to increase. Therefore it is expected that as it increases financial assets and physical assets, no matter what its effect on consumer durables are, it will generally decrease capital output ratio i.e. we expect $\gamma_7 < 0$

γ_8 Coefficient of return on gold: If gold is not held for speculative motive, but for precautionary motive and other social and religious needs, then increases in its returns will necessarily reduce financial asset ratio. Further because they are used as collaterals for borrowing, therefore investment in physical assets might increase and particularly of farm investment which will reduce $\Delta C/\Delta O$. Its effects on consumer durables are likely to be negligible and that on physical

asset predominant because gold asset ratio is higher in rural areas. Therefore $\gamma_8 \gtrless 0$

γ_9 Coefficient of borrowing rates: As borrowing rates increase, borrowing proportion will fall and so will the physical asset ratio especially in farm investment which will increase $\Delta C/\Delta O$. It will also reduce expenditure on consumer durables and therefore reduce $\Delta C/\Delta O$. It will increase financial asset ratio and therefore reduce $\Delta C/\Delta O$. Because of these conflicting effects nothing apriori can be said, therefore $\gamma_9 \gtrless 0$

Thus in the nutshell these are the expected signs of the coefficients of Model A and Model B.

TABLE 3.1 : Postulated Relationship Between The Endogenous and Exogenous Variables.

Endogenous Variable	Exogenous Variables								
	Y_d	p^e	r_{SB}	r_{HP}	r_{CD}	r_{DI}	r_{PA}	r_{LA}	r_{SB}
S_{LA}/Y_d	>0	$\gtrless 0$	>0	$\gtrless 0$	$\gtrless 0$	<0	>0	<0	$\gtrless 0$
S_{ILA}/Y_d	>0	$\gtrless 0$	$\gtrless 0$	>0	<0	<0	>0	<0	>0
S_{CD}/Y_d	>0	>0	>0	$\gtrless 0$	>0	$\gtrless 0$	<0	<0	<0
S_{DI}/Y_d	>0	$\gtrless 0$	<0	$\gtrless 0$	$\gtrless 0$	>0	<0	<0	<0
S_{PA}/Y_d	<0	>0	>0	<0	<0	<0	>0	$\gtrless 0$	<0
S_B/Y_d	>0	$\gtrless 0$	>0	<0	>0	>0	>0	>0	<0
S/Y_d	>0	<0	>0	$\gtrless 0$	<0	<0	$\gtrless 0$	$\gtrless 0$	>0
DS/Y	>0	<0	>0	$\gtrless 0$	<0	$\gtrless 0$	$\gtrless 0$	$\gtrless 0$	>0
$\Delta C/\Delta O$	<0	>0	$\gtrless 0$	<0	>0	$\gtrless 0$	<0	$\gtrless 0$	$\gtrless 0$

6. An Analysis of the Relationship Between Composition of Saving and Growth :

Inflation is a short term phenomenon, which moves the economy into disequilibrium. Here relative prices change, therefore there are distributional changes and thus composition of various aggregates is affected: like Income product saving and investment. These changes then affect the quality & the rate of growth of the economy. Here effects of inflation on composition of saving are studied. The composition of saving in turn affects the (1) ratio of household saving and therefore the domestic saving ratio. (2) Incremental Capital output ratio.

Apart from these two effects composition of saving may affect growth in a qualitative manner by easing the flow, reducing the risks, providing certain conveniences, which affect growth directly rather than affecting the quantitative magnitudes like saving ratio and incremental capital output ratio.

By definition the saving ratio is sum of all its components' ratios, therefore any increase in any one of its components will increase the saving ratio provided, this increase in one component is not at the cost of the other component. If there are substitutions within the portfolio then saving ratio at that time period may not change, but because of this portfolio future saving ratio can change. Herewe are

analysing the asset ratio effect on the generation of future saving. Any asset which leads to higher saving ratios in future is preferred to one which reduces the potential saving ratioin future, because the former helps in promoting growth. Similarly an asset ratio which reduces incremental capital output ratio is preferred to one which increases it as far as growth generating effects are concerned.

We shall now consider how each component of household saving is, in promoting growth:

a) Saving in Liquid Asset: A part of household assets is in the form of money. Money is demanded primarily as an asset because of the numerous functions that it performse.g. means of transaction, store of value, a means of deferred payments etc. Therefore "Though the raison d'etre of money is basically service, it cannot do it alone. Its role depends on the state of combination of other resources. It must serve as a lubricant mechanism in some stages, means of diversification in others, enhance integration still in others and so on. Money behaves somewhat differently from other factors of production in that after a certain stage of growth and development its effectiveness as an engine of growth falls rapidly"[23]. Thus this asset ratio is likely to affect saving ratio and incremental capital output ratio differently, depending upon the stage of development of the economy.

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23. Laumas, P.S. and Khan, A.M. (April-June 1973)

In most of the underdeveloped economies like India where transactions are still not cent percent in money, therefore by introducing money barter transactions are replaced. Here money can therefore play a multitude of roles and is therefore called a 'quasi factor'. Money affects real factors by: (1) Providing basis for credit creation , and (2) increasing certain types of utility and efficiency. In the absence of money, where barter exists, trade takes place in real terms. Here borrowing and lending of real resources cannot differ from the amount saved.[24] The introduction of money frees borrowing and lending from the existing volume of available saving. Therefore saving is generalised. It is this generalisation of saving that frees current investment from current saving resulting in 'forced saving'. Therefore a movement from barter to money makes the economy efficient by releasing the real resources that were tied for future transactions, which can now be used productively to increase the growth of the economy. Thus it increases saving ratio at the same level of income by avoiding wastage of resources in barter. Because money provides a sense of security & pride of possession, household will now be willing to work hard to hold this asset.

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24. Gail, Pearson (August 1972)

So long as introduction of money, reduces commodity hoarding of real goods and of gold (which were held for future transactions), it diverts the real resources to its producers (i.e. government). There is not cost or marginal cost in printing currency notes. By having these in the portfolio the household release real resources (i.e. s/y ratio increases) which government can use for development purpose. But as monetisation increases further, and when all the transactions are in money then increasing money asset ratio, will no longer displace commodity hoarding, but will be at the expense of other financial assets. If money holding increases at the expense of other financial assets, then its positive effects are nullified.[25] We are still at that stage where monetisation is increasing for most of the time[26] and therefore increases in money ratio would have positive effect on saving ratio, particularly in the rural areas.

Regarding its effect on incremental capital output ratio, we have to see its impact as a factor of production. Schumpeter believed it to be very significant in rearranging

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25. a) Johnson, H.G. (Feb. 1969)
    b) T. Siang, S.C. (May 1969)
    c) Rama Mohan Rao, T.V.S. (Jan. 1979)
26. Reserve Bank of India (1976)

production by entrepreneurs to bring about economic growth. Levahari & Patinkin[27] state ".....an economy without money would have to devote effort (Labour and capital) in order to achieve the multitude of'double coincidence' or buyers who want exactly what the seller has to offer on which successful barter is based. Hence the entrance of money into the production function reflects the fact that it frees Labour and Capital for the production of commodity proper". Stressing on the services that money provides, Johnson states that money serves a form of producers' Capital goods rendering a direct service in the production process, its contribution to economic welfare consisting in an increase in the flow of final goods available to consumers.[28]

Therefore if households in their portfolio in the initial stages have higher money asset ratio it would raise the productivity of the capital too and therefore incremental capital output ratios are likely to reduce with a higher ratio of these assets.

Thus if the share of money asset in the household portfolio increases (especially in the initial stages when money is introduced and therefore its share is low) then it is likely to have positive effect on growth both by increasing saving ratio and by lowering incremental capital output ratio.

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27. Levahari & Patinkin (September 1968)
28. Johnson,H.G. (Feb. 1969)

b) Saving in Illiquid Assets: A higher ratio of illiquidassets i.e. time deposits with commercial banks and contractual saving in provident fund and life insurance corporation implies that more of household's savings are being channelised through the financial intermediaries/institutions. These savings are mainly from the urban household. The existence and increases in the activity of financial intermediary institutions mean that more and more of securities with different risk, maturity, liquidity etc. are issued by these institutions, to cater more and more to the household preference for different assets, and therefore in this process, the institutions are able to tap at alteast inactive portion of the money holdings. Also by offering assets which suit household preference, they are able to generate additional demand for these from their increased income i.e. they might compete with current consumption and reduce it to divert it to these asset holdings.

The increase in demand for these assets is likely to be at the cost of money, in case of monetised economy,[29] (household have money assets ratio in excess due to lack of alternatives) or a shift from traditional forms of saving like commodities, gold, precious stones (this is possible when with money being introduced in traditional societies - finan-

29. Khan, M.Y. (November 11, 1978)- "Currency ratio has shown a declining trend over the period 61-62 - 74-75. As against this, currency ratio had shown a rising trend during 51-52 - 61-62, due to lack of banking habit and backwardness of banking system and financial market".

cial intermediaries too are there, so that the money that would have gone in hoarding is diverted to these financial intermediaries). Therefore financial intermediaries by improving the financial technology (over money) and by diverting increasing hoardings towards their securities are likely to increase saving ratio.

This is corroborated by the experience of advanced countries, where ratios of financial assets are related to higher rates of household saving and vice verse.[30]

Apart from time deposits, contractual savings which are in the nature of satisfying precautionary saving are assets of long period maturity and because they cannot be easily converted into cash, therefore a higher ratio of these in comparision to liquid assets is likely to depress consumption. So a portfolio with higher illiquid asset ratio is likely to reduce the consumption ratio as compared to one where liquid asset ratio is predominant, and therefore saving ratio is likely to increase with a higher illiquid asset ratio.

Regarding its effect on incremental capital output ratio, we shall have to see how these financial intermediaries in their ordinary business allocate their funds and whether it has some effect on growth. While studying the

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30. NCAER Occasional Papers (1966-67)

effect of financial intermediaries on growth most of the authors following Gurley and Shaw note that these institutions have the ability to ensure the most efficient transformation of mobilised funds into real capital. "It helps to allocate the surplus investible resources by a sort of objectivity test, which would be based on the opportunity cost of the scarce financial resources of the economy. However such objectivity of allocative efficiency in the growing economy can be attained only if self financing yields place progressively to institutional indirect financing"[31]: These financial intermediaries in the pursuit of higher returns, would allocate their funds to such activities which earn high profits, i.e. funds would be directed in a free private economy where the produc-tivity is highest. Spellman[32] argu-ing for higher financial intermediary ratios states "financial intermediaries affect growth by allocating capital resources to earn an average yield much higher than under self finance. This financial intermediary raises the marginal product of capital for each capital intensity. The more the financial intermediaries in terms of lower unit financial cost the higher will be the rate of return of capital and greater will be the capital intensity".

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31. Mckinnon, R. (1973)
32. Spellman, L. (1976)

Almost all these intermediaries are nationalised in India, therefore an increasing amount of saving being diverted to these implies that large scale projects involving long gestation lags with higher productivity can be undertaken especially in those fields where there are high spill over effects, which increase the general productivity of the economy and particularly that of capital.

Therefore we expect that with higher ratios of illiquid assets incremental capital output ratio will fall and that saving ratio will increase. These effects are more enduring than money i.e. though both liquid assets and illiquid assets promote growth, but illiquid assets effect growth with higher propensity and its effects are long term and therefore a higher ratio of these are more growth promoting.

c) Saving in Consumer Durables: A higher ratio of these in the household portfolio is most likely to lead to fall in saving ratio in the future. If increases in consumer durable expenditure is either by borrowing or by liquidating illiquid assets, then the effect on saving ratio, at that point of time may be little or none. If these are at the expense of current consumption expenditure then saving ratio would increase.

Regarding its effect on incremental capital output ratio, it can be stated that these commodities have (1) higher 'import intensity than traditional goods'. Therefore wasting our valuable foreign exchange on the consumption of few at

this stage of development is not advisable, especially when much better use can be made of this in other neccessary consumption goods and capital goods industries, so that rate of growth increases with social justice. (2) The employment and income generating effects on the domestic economy are likely to be less because of high 'import intensity' and also because these require a higher capital intensive technology, it would result in increasing incremental capital output ratio.

Therefore we expect that increases in consumer durable expenditure will have a negative effect on growth. They reduce (1) the saving ratio; as associated with these expenditure are some other current expenditure, such as car, its maintenance, petrol etc. and (2) increase incremental capital output ratio.

Argu-ing from the otherside Friedman states, "the acquisition of modern consumer durables makes some unique contribution to the development process. Economic development requires widespread and profound change in the structure and functioning of a society. The adoption of new ways in consumption, is a more palatable form of change - one which brings its own source of gratification, since any change from traditional ways will make subsequent change a little easy to accept, modern consumer durables may ease the transition to modern ways in production", He concludes that families who were having modern consumer durables in their portfolio also exhibited modern economic behaviour in directions which are important to

a development effort. They were more likely to save, to utilise modern saving medium, to be innovative in their business and to hold positive attitudes towards the efficacy of the work effort as a means of advancement.[33]

True, consumer durables can motivate households and can therefore be treated as 'incentive goods'. Only if this positive effect is much higher than its negative effect, will it be desirable to increase expenditure on consumer durables. Probably the negative effect out weighs the positive effect on the economy in the short run, therefore it is desirable to reduce their ratios if the short run growth is the target.

d) Saving in Direct Investment: The proportion of these assets in the household portfolio is very little. But over-time especially investment in Corporate Sector equities is likely to be favoured by households as shown by the trends in advanced economies, whereby household portfolio is gradually shifting from financial intermediaries to investment in stock and shares.

With the development of capital market this asset is likely to be preferred. With each introduction of a financial asset, a financial innovation takes place e.g. from barter to money to financial intermediaries assets to now equities. It has been shown that such improvement leads to

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33. Friedman, D.S. (October 1970)

borrower's and lender's desire being met more and more, thus raising both saving and investment ratio. Also by their introduction wealth becomes more attractive to hold and therefore wealth ratios increase.[34] Thus, as long as there is little substitution between these and other financial asset ratios, saving ratio should increase. A large part of this consists of direct investment in government securities, post office deposits and saving certificates and they are primarily held for tax exemption. On the whole these assets are likely to increase saving ratio.

Regarding its effect on incremental capital output ratio, the main difference between direct investment and illiquid assets is that the former is a direct charge by the borrower on the lender and therefore no intermediaries are involved. Also these assets are of long term maturity. These funds are preferred by the corporate sector to the intermediary funds as there is no restriction on their use. These funds will be used to expand their capital stock and no interest payments are required, therefore the cost component falls. An increase in their share like that of illiquid assets is likely to make more funds available to the deficit sectors, who can then expand their operation, reduce cost, adopt better techniques, resulting finally in increasing productivity and therefore incremental capital output ratio is likely to fall. These

34. Moore, Basil (1968)

are all long term effects; in the shortrun the effects might be marginal. Therefore on both counts, these assets by increasing saving ratio & by reducing capital output ratio, promote growth.

e) Saving in Physical Assets: Saving in physical assets includes investment in machinery and equipment, construction and inventories. Its effect on growth can be analysed depending upon which of these three components increase relative to others. With an increase in investment by farm household/ unincorporated business enterprises, in machinery and equipment, their incomes are likely to increase, which at higher levels will generate higher saving ratio. The very desirability of investing in these, raises the saving ratio of this class, as a part of it is self financed and in traditional economy like ours, self finance may be an important source. As these are 'lumpy investment', household have first to accumulate enough money to finance these; this could either be currency or inbank deposits; therefore its desirability would increase financial asset ratios in household portfolio.

An increase in the share of inventories ratio is generally directed towards making speculative gains and therefore is likely to be at the expense of other assets. An increase in inventory ratio, which leads to higher capital gains will lead to higher saving ratio (as our definition

includes consumer durables). But this higher ratio will be held in assets like consumer durables luxurious residential construction, which increases saving ratio in the short run, but has negative effects in the long run.

Similarly the desire to own house (and this being primarily self financed) will increase saving ratio. But once this investment is realised it will lead to fall in saving ratio both because certain costs like repair and maintenance etc. have increased and the desirability of having this asset again, which induced earlier saving, is no longer there.

Further, though it stimulates saving ratio in the same way that acquisition of machinery and equipment does, but because in the latter case these household are producers, who on once acquiring machinery and equipment are not satisfied; rather the urge to improve and expand operation further increases demand for machinery and equipment and therefore they have all along positive effect on saving ratio, whereas in the case of pure households once a house is acquired the urge to replace it is much less than among other households who want to add to machinery and equipment. Therefore construction might not have as strong effect as machinery and equipment.

Regarding its effect on incremental capital output ratio, again the effects are different for each component.

Plant and machinery investment if utilised optimally leads to increases in higher outputs and therefore promotes growth. Construction too is productive and it has impact on output. In the process of constructing a house, incomes to labour are made, employment increases, other inputs are demanded, which via the 'linkage effect' affect the output and employment. On the other hand construction of luxurious houses has much less linkage effect as compared to machinery and equipment. But machinery and equipment is more productive as an asset than construction. Inventories are basicially held to avoid discontinuities in production, they smoothen the production process, but directly do not increase the productivity of the economy. Any increase in their holding in excess to the required amount, not only will lead to creating artificial shortages in the economy and its repurcussion on the prices and household portfolio, but at the same time increase incremental capital output ratio as total investment now embodies more of inventory ratio which is less productive.

Therefore if in the physical assets the proportion of machinery and equipment increases relative to others then it will promote growth otherwise the effects may be uncertain.

f) Borrowing of Household: These are negative saving; an increase in these will reduce the flow of funds and is

therefore likely to have negative effects on growth. But if these savings are to finance productive activity of the households then their effect on saving ratio may be positive and so on growth. But if these funds are used for consumption purposes then it is likely to reduce saving ratio and growth.

7. Conclusion :

The main purpose of the study is to analyse the behaviour of household saving, especially when the economy is facing inflation of a mild order. It has often been recommended in the context of underdeveloped countries that fiscal measures cannot push the economy towards higher rates of growth because of its very nature : the large proportion of mixed income group, the low level of disposable income and all transactions not being routed through the market. As a result they recommend the use of inflation as a tool for development in underdeveloped countries. Here too in the same way that fiscal policies have limitations, the monetary policies also may not have the desired impact, because of the small base of money use. In underdeveloped countries, because households are used to having real commodity and gold in their saving portfolio, they will find it relatively easy to give up money and other financial assets(inspite of their convenience) for the other real assets where speculative gains are higher e.g. in land, gold, inventories. So that inflation, instead of having the beneficial effect of raising saving ratio and reducing capital

output ratio by increasing capacity utilisation, may actually distort household portfolio by reducing the ratio of financial assets. This will in turn reduce saving ratio and growth rates. Also it will inhibit development of Money and Capital markets and the household portfolio preferences will continue in traditional items, thus hampering growth. On the other hand with inflation are associated controls, foreign exchange restrictions which lead to increasing capacity building and less utilisation, resulting in waste of resources.

Therefore in the context of an underdeveloped economy, we find that inflation changes the relative composition of savings in terms of various assets, favouring physical assets in comparison to financial assets and among the financial assets favours short term maturity assets to long term (as uncertainty increases). Such a reallocation may tend to increase saving ratio because, due to speculative gains, these are encouraged, but growth will be negatively affected as investment will be directed into assets by the deficit units, where personal gains are higher than use value. "Inflation tends to widen the gap in return between investment whose social benefits are high (in agriculture and industry) and investment whose private benefits are high(e.g. inventories, luxury housing etc.) in favour of the latter. The windfall profits and capital gains associated with inflation broaden the scope for private profitable investment and direct resources to them at the expense of socially profitable investment and thus reduces growth"[35].

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35. Bernstein, E.M. & Patel, I.G. (November 1952)

APPENDIX - 3.1

' BLACK MONEY '

Black economy consists of 4 elements[1]: black money, black income, black wealth and black transaction. Black money is black wealth accumulated from saving out of black income and kept in the form of currency notes. Black income is the income that ought to form the basis for income tax assessment but has not been whereas Black wealth is the accumulation of saving from black income in the form of various assets including cash. Unlike white economy, it is called black because it carries a special stigma: of disgrace as seen from at least legal standard of society. This disgrace arises from the fact that it has originated basically by violating one or the other law of the country. Here there are two type of violations:

1) Law is violated by unreporting or underreporting of quantities related to or originating from the activities which are basically legal - i.e. when traders, manufacturers and other professionals , engaged in perfectly legal activities suppress some portion of their output, turnover, income or show ficticious expense on their account in order to evade direct and indirect taxes.

2) Law is violated because of indulgence in activities which are basically illegal and therefore unreportable as such

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1. For details on these concepts reference may be made to "Black Money - A financial Express symposium" Financial Express, December 6, 1982.

irrespective of the quantity involved. These may arise from illegal activities such as gambling, smuggling, prostitution, corruption or from unauthorised 'sale of permits', licenses or from black marketing of products and services which are legally required to be sold at controlled prices and/or through specified channels.

The principle motive for unreporting or underreporting of the quantities of turnover, income and assets - related to legal activities is to minimise tax liability and thereby increase the disposable income and in case of second type of activity, it is their nature.

During periods of continu-ous inflation real incomes are falling and to protect these more and more people would resort to these tax evasion and avoidance. Also inflation is usually accompained by controls and changes in relative prices such that investment in few assets like gold, land becomes profitable, where underhand dealings are possible. Under such conditions illegal activities of smuggling and selling goods at black market price lead to greater generation of black income and wealth. Also to keep up the real level of public investment, the government to finance its projects (which escalate in costs) increases tax rates, which further gives incentives at higher rates to avoid these taxes. Thus though Black Income and money may exist even in an economy not facing

inflation, yet it basically thrives in an economy under condition of inflation only.

This phenomena is very complex and has varied effects. Its basic quality is that once it comes into existence it multiplies. Once somebody has some blackmoney, which he uses for other economic activities and because this cannot be disclosed, as financing has come from black source, therefore a legitimate economic activity turns into black; this keeps on multiplying.

Black and white money are not really parallel economy; rather they are perpetually interlocked; conversion of black money into white or vice versa is taking place all the time. Since official statistics are based on the relevant statistical and other information of the quantity reported or recorded of legal activities, they relate, it is believed, to the white economy only and therefore exclude the black economy. As the principle motive for under reporting or unreporting is to minimise tax payments, Some of these activities could be reported else where, where tax liability is less or absent rather than its right place of origin, and illegal activities may however be stated as originating from other legal activities. Thus to some extent these transactions are getting reported in the official statistics under one or the other legal activity, but there is no doubt that underestimation of national income is there on account of Black

money.

For India the estimate of black or unaccounted economy range from 5% of officially measured gross national product to 50%. "This enormous variation is due partly to the difference in years for which the estimates are made, partly due to differences in the definition of Black money and mainly due to the variety of methodologies deployed to grapple with an intrinsically difficult task"[2]. Dr. Rangnekar[3] has estimated that black income in 1980-81 was Rs.18,241 crores (which came to about 63% of gross national product) and suggested that the compound rate of growth of black economy at current prices over nearly the whole of last decade was in the neighbourhood of 18% p.a. Another study[4] has estimated an understatement to the extent of nearly 50% of recorded official gross national product in the year 1978-79. For a couple of years earlier, i.e. 76-77 another study[5] estimated the figure to be 12% only.

The estimates which put Black economy as high as 50% of gross national product are improbable, if not impossible. This is so because agriculture and certain other activities including public administration, defence, railways, public

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2. Acharya, S. (March 1983)
3. Rangnekar, D.K. (September 1982)
4. Gupta, P. and Gupta, S (January 1982)
5. Chopra, O.P. (May 1982)

utilities and organised banking and insurance, where black economy is unlikely to be significant, account for almost 60% of National output. Thus any claims that the official gross national product data are underestimates by the order of 50% imply that the sector where the unaccounted economy can be plausibly believed to flourish, it is larger than the officially estimated output from these sectors[6]. Sandesara[7] places black money at roughly about 10% at current prices in 1982. Similarly Pandit[8] argues that underestimation for black money reasons cannot exceed 10-12%. Therefore it is generally believed that our gross national product is underestimated to the extent of 10%. Though the ratio may seem to be small, but its effects are widespread.

Thus this leads us to the question under which condition black economy thrives. Among the basic causal factors are inflation, taxation, controland immorality. Each of this is positively associated with black money. A high inflation, higher rate of taxation, more controls and widespread immorality make for a larger size of this economy. Inflation reduces the real value of (money) income. One way of protecting oneself against such a reduction is by underreporting the quantity

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6. Acharya, S. (1983)
7. Sandesara, J.C. (March 20, 1982)
8. Pandit, V.N. (December 1982)

involved in turnover, income and wealth at the levels, which attract lower rates than otherwise, so that more post tax money helps to retain the real value. An environment of scarcities and inflation is an ideal breeding ground for black money more so if people expect the scarcities to aggravate or prices to continue to rise at the same or faster rates. Shortages make hoarding profitable. There is a scramble to get possession of scarce goods, even though it may mean borrowing money in black market to finance hoarding operation.[9]

Another cause is the rate and structure of taxation alongwith the administration of taxation. It has sometimes been argued that it is human nature to evade taxes irrespective of whether tax rates are high or not. This is very difficult to verify. But nonetheless it seems plausible that the higher the tax rates the higher will be the number of instances of tax evasion and once an assesee evades taxes and gets away with it then it becomes increasingly difficult to convert him again to be an honest tax payer even if tax rates are reduced. Though reduction in tax rates may reduce evasion, yet it will be increasingly difficult in a climate where assessees have got used to evading taxes to bring about desirable results.

An important cause for government to increase tax rates must be that it has to increase its sources for financing heavy capital projects and other infrastructure facilities (which increases the overall return on capital). With inflation cost of different projects escalates and the real

9. Pendse, D.R. (September 1987)

revenue of the government falls which it tries to offset by increasing the tax rates. Therefore both the development need and inflation would demand a higher rate of taxes with a steep progressive rate structure "The effect of high marginal tax rates is that the activity called tax evasion begins to yield a high rate of return and accordingly leads to a large degree of indulgence in this kind of activity. The result is further shrinking of the tax base over and above that produced by the creation of black market earnings which by definition reduce the real quantum of tax base"[10].

Another important cause is the existence of not just controls, but the extent and rationality of the regime of controls[11]. Stringent controls are perhaps the most important factor which includes not only statutory controls but also bureaucratic and administrative controls and the delays, the procedural wrangles and all the rest of it[12]. NCAER[13] in its report concluded that during the period 1965-66 - 1974-75, black money to the extent of Rs.840 crores was created due to operation of price controls in respect of just 6 commodities: urea, cement, paper, Automobile types, vanaspati and steel. Dagli Committee[14]

10. Rao, V.K.R.V. & Others (1970)
11. Acharya, S. (1983)
12. Pendse, D.R. (March 1983)
13. NCAER (June 1978)
14. Dagli, (May 1979)

pointed out that "price and distribution controls have in the past led to generation of black money on a significant scale". Thus under price control system, conceived without regard to its economic logic or essentiality in terms of mass consumption, black earnings increase in 3 different and equally important[15] ways:

1. Suppliers have a stake in selling at free market price which is illegal and cannot therefore declare the price for fear of the law.
2. Suppliers have a high motivation to sell quantities in the free market beyond the permissible (rational) limits and cannot declare these extra quantitites for fear of the law.
3. These undeclarable dealings (illegal quantity multiplied by illegal prices) not only expand in each commodity market but as commodity controls multiply the black markets multiply in number.

These controls themselves are partly the result of inflationary policies being followed by the government. "The government of a developing country employing inflationary development policies is likely to be under strong political pressure to protect important sectors of the community from the effects of inflation through control of food prices, rents,

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15. Rao, V.K.R.V. & Others (1970)

urban transport fares and so on"[16]

Controls cannot be done away with because of the adverse effects on black economy. On the other hand they must be implemented with strict vigilance on equity grounds. What is needed is "more discriminate price and quantity controls on articles of luxury and semi luxury consumption and on essential industrial inputs, either leading to a reduction in such controls or based more on elasticity, which will remove the incentive for black market transaction. These commodities will then bear a legal price. He, who sells at that price will feel free to do so and will therefore declare his earnings".[17]

Thus from our analysis of the causes of black economy, it is clear that though all the three factors mentioned above increase black economy the underlying cause for the other two may be related to inflation. Though higher tax rates and controls may be there without inflation, the possibilities of increasing tax rates & control are higher with inflation. So under inflationary conditions black economy thrives.

If this variable was explicitly included in our model as an independent variable, then its portfolio effects are : it is likely to increase currency ratio, as black money can easily be hoarded in this. It is likely to reduce illiquid asset ratio (particularly Provident fund and Life Insur-

16. Johnson, H. (1969)
17. Rao, V.K.R.V. and others (1970)

ance Fund) and direct investment and increase consumer durable expenditure & investment in assets like gold etc. This is because unlike white economy, this income has very limited outlet and use - any asset holding in which they have to disclose the source of financing will be discouraged with black income. Therefore it is easier to invest illegal incomes in certain kinds of assets like urban real estate, jewellery, antiques, precious stones, smuggled goods etc. with black money, by underreporting the value of such assets. It is not easy to understate the value of shares and bonds because their prices are regularly quoted on stock exchange. Similarly it holds for government bonds. This makes the transaction of first kind more remunerative because the tax liability on the gains can also be easily evaded, where as in the other case that cannot be done easily. Therefore the main outlet of black money is in non institutional assets like land, buildings, gold and commodity stocks. Those who sell these assets against black earnings often do so for purpose of tax evasion. Having got the black money they are themselves constrained not to go into capital market and other institutional deposits like bank deposit as there is risk attached to it and the interest rates are low to attract black liquidity into these (~~in this limit~~ for a risk averter there may not exist an interest rate in the white segment which can influence the portfolio choice of the holder of black

income) and therefore they are forced to invest in other non institutional assets like land, gold etc. Black money gets concentrated on such non institutional assets smuggled goods and other consumer durable goods. Most of these assets do not promote growth; rather the income and employment effects of these smuggled goods are in foreign countries from where goods are either smuggled or imported. Also currency hoarding and foreign exchange are convenient means of hoarding black money for both transaction and speculation purposes. Thus its share is likely to increase; this is conclusively brought out by the raids conducted.

Acharya[18] commenting on the disposition of Black wealth conludes that "the most important vehicle for holding black wealth is provided by undervalued real estate, both residential and commercial. Next in significance is undervalued stocks in business followed by gold, silver and other precious metals, benami financial investments, undisclosed holdings of foreign assets and diamonds and other gems". Cash is not found to be a very significant form of holding black wealth. This is partly because it yields no returns and further large quantity of cash is vulnerable to detection during raids, whereas in case of most of the other assets problems of establishing ownership and of valuation serve as

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18. Acharya, S. (March 1985)

effective lines of defence.

The portfolio distribution of black wealth is believed to vary significantly with categories of economic agents. Professionals and salary earners are likely to hold a higher proportion of their black wealth as cash or precious metals and stones than businessmen who have easy access to other alternatives in their own enterprises or in those of interlinked business concerns.

The implication for our study is that as greater proportion of households consist of professionals and salary earners (though we have businessmen in the small scale sector included in our household sector), we expect that with an increase in black wealth there will be increase in our liquid asset ratio and to the extent the precious metals and stones shares increase, we have lost the potential saving that could have been used for development purpose.

Also the estimates of income and saving are likely to be affected by this."The underestimations of savings because of evasion considerations is likely to be less in proportionate terms, than the underestimation of gross Domestic Product. Thus the rate of savings is likely to have been exaggerated."[19]

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19. Acharya, S. (1985)

APPENDIX : 3.2

"EFFECTS OF GOLD"

In most of the underdeveloped countries households in their asset portfolio have a sizable amount of wealth in the form of gold. Gold has been for a long time a traditional form of investment, mainly satisfying the precautionary needs (by which we mean the religious and social needs, especially of the women in the form of jewellery). The tradition seems to continue still, though we expect it to reduce with development, education of women and availability of other financial assets. Thus as a proportion to disposable income, this ratio over time should fall. But during periods of inflation, because of high capital gains, it is considered to be an inflationary hedge. Therefore the demand for this asset will increase, as inflation continues. But the difference is: with inflation it is demanded in the portfolio of assets, due to speculative gains and thus its proportion in disposable income will increase, the higher the rates of inflation. There has been phenomenal increase in the price of gold. The price of gold per 10 grams has increased from Rs.93.54 in 51-52 to Rs.1722.54 in 82-83 (average annual percentage increase is 54.00) while the index no of wholesale prices has moved

from 50.4 in 51-52 to 288.6 in 82-83 (average annual percentage increase is 14.76%[1].

Because of its large initial proportion in total wealth and in the addition to stock each year any study directed towards studying the composition of household assets cannot preclude this asset. Its effects are both on the composition of saving and the rate of saving. Also by diverting some resources into this asset the economy loses potential saving that could have been used productively to increase the capital stock and growth of the economy.

As noted above[2] we could not explicitly consider it as an asset in our model A, because of non availability of data in a time series form. Also because all the increases in stock are mainly from gold smuggled into the country, any estimate about it is likely to be susceptible to large margin of error. Nonetheless its importance cannot be ignored.

The effects of gold hoarding can be studied both via the wealth effect (i.e. on the initial holdings inherited from past) and the portfolio effect (i.e. the way composition of the household assets is affected by additional resources being diverted towards this asset). On a priori grounds we can

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1. On comparing year to year % increase in whole sale price index and gold price, we find that during periods of high inflation. Gold prices have also recorded higher increases, this is particularly so after 1970's. Inflation rate during 72-73, 73-74 & 74-75 was 10.0, 20.2, 25.1 while % increase in gold prices was highest then 20.9, 52.4 40.5& Similarly during 79-80, 80-81 W.P.I increased by 17.1% 18.2% while gold prices increased by 46.0% & 31.3%.

2. See chapter 2.

say that with an increase in the amount of resources that go into gold hoarding each year, the relative importance of financial asset will reduce because these are substitutes in the household portfolio. Therefore an increase in gold ratio at the expense of financial asset/physical assets is likely to (1) reduce the surplus flowing into the deficit sectors and (2) divert investment from productive use to unproductive use, therefore reducing growth rates.

Before we analyse the effect of Gold hoarding, it will be useful to have some idea of the additional resources that go into increasing the stock of this asset every year.

The estimates[3] of gold and silver stock made by Reserve Bank of India, show that the total private stock of gold in India was around 105 million ounces in 1958. This is a large amount in absolute terms being the historical accumulation of gold. The saving pattern in India[4] shows that during the years 1950-51 to 58-59, the proportion of saving in gold asset to household sector saving varied from 1.6% to 13.7%; normally its ratio has been around 3% and its proportion in disposable income has been about 0.1%. The ratio is small and insignificant but inspite of this its effects could

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3. Reserve Bank of India Bullet-in (April 1958)
4. Reserve Bank of India Bullet-in (August 1961)

be wide-spread. For later years no official estimates are available. But Simha, S.L.N.[5] has estimated the private stocks of gold at about 150 million ounces which has been endorsed by Bombay Bullion Association. He has also reckoned that in the last 30 years about 50 million ounces (1500 metric tons) of gold have been smuggled into India. On an average 50 tons have been smuggled in a year[6]. The annual requirements of gold in India are placed at 75 to 80 tons.

By assuming that 50 tons of gold is the annual demand (this is the figure on the lower side & therefore the actual demand should be higher than this), we have estimated the household total saving in gold for a period of 5 years beginning from 1960-61. The amount of additions to gold hoarding i.e. 250 tons over 5 years is evaluated at current prices by taking the average price of gold for these 5 years under consideration[7]. The current value figuresare then deflated at constant price by private consumption expenditure deflator (this is the deflator used for other financial saving in our model). The value of gold hoarding at constant prices is then taken as a proportion to real disposable income and total saving[8]. They are given below in the following

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5. Simha, S.L.N. (November 26th 1977)

6. Gangadhar Gadgil (June 22 1986) - "Data published in the annual publications of consolidated Gold fields of London indicates that between 1968-1980 a huge quantity of 1,066 tons was smuggled into India. Thus on an average in those 15 years, 71 tons of gold came into India every year. In 1985 the inflow was as high as 140 tons"

table 3.2.1

APPENDIX TABLE 3.2.1

Household Saving in Gold

Years	Average Price of Gold(Rs./ 10 gms)	Total Saving in Gold at current Prices (Rs.Crores)	Total Saving in Gold at constant Prices (Rs.Crores)	Total Saving in Gold/ Y_d	Total Saving in Gold/ Total net saving
1	2	3	4	5	6
60-61 - 64-65	116.07	290	466	.37	4.48
65-66 - 69-70	154.82	387	415	.29	2.39
70-71 - 74-75	303.12	857	682	.40	2.67
75-76 - 79-80	736.48	1841	1052	.50	2.71
80-81 - 84-85	1761.20	4403	1680	.62	3.50

Sources : (1) Figures of average price of Gold are taken from Reserve Bank of India, Report on Currency & Finance (various issues), statistical statement, "Prices of Gold and Silver".

(2) For disposable Income, total saving, Private consumption expenditure deflator - See Text Chapter 2.

The appendix table reveals that the proportion of household saving in gold in

7. The average price of gold is obtained from various issues of Reserve Bank of India 'Currency & Finance', Statistical Statements Prices of gold and silver.

8. The ratios when taken at current prices do not differ much. There is a marginal difference but the trend is the same.

disposable income is very small. But what is disturbing is the rising trend over the period (even with the modest assumption of same amount of gold being smuggled each year). With larger capital gains, it is natural for households to invest more and more ingold, therefore particularly in the later years more would have been directed than is evident from these figures. Also its proportion in total saving is rising which implies that with increase in this asset ratio the other asset ratios are falling. Though these asset ratios are small, yet if these are channelised for capital formation perhaps it can contribute greatly towards growth not only by easing the financial flow, but also by relaxing exchange constraint. Thus these could be used for financing growth. From the table what is revealing are the years 65-66 to 69-70, when total addition to gold hoarding is less than in the previous block; also its ratios in income and saving have fallen. A part of the explanation is: Probably with a new series of 7% gold bonds introduced in March 1965 and 3rd series national defence gold bonds 1980 issued in October 65 - where bonds were redeemable in gold of standard purity at maturity, people reduced their hoarding. This could also be a reflection of the strict gold control measures which remained in force till November 1966. In September 1968 Gold control act was passed where in restriction on gold

holdings were made and holdings above the prescribed limits were to be declared. All the above government regulations may have had a negative effect on gold hoarding.

In subsequent years the demand picked up especially in the rural areas with, rural debt relief measures, which have reduced the activities of the money lender.[9]

Before we analyse its effects in terms of our model we will see what are the factors determining the demand for gold by household.

Hoarding of gold can be attributed to conceptually 3 distinct motives: namely precautionary purpose, the psychic income accruing from jewellery and ornaments and expectation of capital appreciation, corresponding to which goldcan be regarded as a liquid asset, a store of value, as a durable consumer good and as a hedge[10].

Precautionary motive for hoarding gold may not be much, by the household, (If an indexof the volume of gold sale by agriculturists to meet their monetary cost or customary levels of consumption is an indicator of precautionary motive) because "the distress sales of gold are not normally of

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9. Hemlata, D. "Gold in Retrospect and Policy Option" in (ed.) Simha, S.L.N. "Aspects of Gold Policy" - "With rising farm output a considerable portion of the enlarged income of farmer has found its way into gold.

10. Chandavarkar, A.G. (1961).

an appreciable magnitude, because of the esteem value attached to gold and is only resorted to in exceptional circumstances"[11]. This argu-ment understates precautionary motive, for though outright sale may not be normally high, but because it's a collateral asset used for obtaining loans, the amount of these loans will then meet their precautionary needs also.[12]

The argu-ment put forward by Bauer and Yamey[13] that gold as a hedge against currency instability and inflation is questionable because a substantial portion of income is derived from non monetised sector may not strictly hold true for an economy progressing where monetisation is increasing. With inflation and gold hoarding, monetisation itself will suffer and therefore the economy bears the losses.

"Gold in the form of peculiarity of ornaments in countries like India cannot be a good hedge because of peculiarity of ornament market - their sale usually involving a capital loss. This means that gold apart from being a non income yielding asset in all forms is subject in its most

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11. Ibid.

12. "Gold loans of commercial banks constituting 2.5% of total advance at the end of 1975 formed 1.2% of total advances at the end of 1969 "Reserve Bank of India Bulletin October 1977.

13. Bauer, P.T. and Yamey, B.S. (1967)

important form (ornaments) to a capitalloss in the event of sale"[14]. This is true, but the rise in gold prices in the past has been so substantial that loss on account of this is partly compensated. Also due to fall in real return on other assets, the capital loss here will be meagre, so that this is still a preferred asset by the household.

It has been argued that the speculative motive does not operate, since it is only the dealer and middlemen in gold who are chiefly connected with making estimates of future prices of gold. Here it may be mentioned that in the household sector, unorganised manufacturing concern and traders are included, which would include dealer in gold in the household sector - this is precisely the household segment that is hoarding substantial addition of this asset in the hope of making large capital gains. Therefore in the household sector itself we have pure households, who predominantly hoard gold to meet some of their precautionary, social and religious demand in the form of ornaments. On the other hand are dealers in gold, who are hoarding gold for speculative motive. As our definition of household includes both the groups therefore both motives are said to operate. But with inflation, speculative motive doesincrease and this is clearly indicated by the amount of gold that is confiscated regularly

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14. Chandavarkar, A.G. (1961)

by the custom department, Nonetheless it can be said that holding of gold is primarily motivated by : the paychic income accruing from possession and use of ornaments and is largely a reflection of sociological and historical milieu of underdeveloped countries.

Thus the factors likely to affect demand for gold are income, its own prices, inflation and returns on other asset.

The demand for gold in under developed countries is determined largely by variations in the level of income. An increase in income is likely to lead to increase in demand for gold. Regarding the effect of other asset return on the demand for this asset, Chandravarkar states: "the demand for gold being interest inelastic no practicable rise in the rate of interest is likely to divert gold from private hoards into banking system or into interest bearing securities or prevent further hoarding". Because of lack of any consistent and determinate relationship between hoarding of gold and price of gold, a rise in price of gold, would be ineffective as a means of preventing gold hoarding or of mobilising the existing hoards. Simha[15] on the other hand states "It would seem that upto a point the demand for gold is elastic in relation to Income and inelastic in relation to price. People in the various strata of society have some notion of a mini-

15. Simha, S.L.N. (1978)

mum holding for the family based on consideration of security prestige and convenience. When once that limit is reached elasticity would be low in relation to income and high in relation to price. Of course as in case of other assets, commodity price expectations also play a part. If for any reason there is expectation of a sharp rise in prices, there would be tendency to buy the metal in order to reap capital gains". All these observations are conjectures based on the behaviour and motives for holding & none of these has been tested because of lack of data. If may be added that gold is a convenient medium for holding tax evaded money and so with inflation its share in assets may increase further.

Inclusion of gold in our portfolio model implies that household have another asset available to them. At lower hoarding levels, they are mainly determined by income, but at higher levels they are affected by inflation and its own price rise, therefore (1) with increases in income, its proportion in income will go up. (2) with increase in prices of gold and inflation its proportion in income too will go up. With consistent higher capital gains on this asset for the past 30 years households who were primarily demanding this asset for precautionary, social and religious function may also add to their motives the speculative demand and therefore its shares both in saving and income are likely to increase. This would lead to a fall in either consumption or more important a fall indemand for other assets. As

the speculative demand is likely to come from higher income groups whose marginal propensity to consumer is low "the purchase of gold would likely be at the expense of other saving which would have been made in one form or another"[16].

Inflation which has been accompanied by (a) rises in prices in gold and fall in relative return on other assets (b) generation of unaccounted income, will have two fold effects: (1) By increasing the value of wealth of the household held in the form of gold, it makes the household feel optimistic and richer; therefore consumption ratio is likely to increase & saving ratio to fall and this fall in saving ratio will be borne more by the physical assets& financial assets rather than consumer durables. On the other hand because of real value of gold increasing, more can be borrowed (because it's a collateral asset) for investment purposes and therefore a rise in price of gold can be productive, if gold is increasingly used as collateral for borrowing for investment in agriculture & manufacturing. Therefore wealth effects on growth are uncertain. (2) The portfolio effect : Inflation is likely to make gold an attractive asset for the household and thus reduce the flow of saving that could have financed the deficit sectors, demand for funds originating in expansion of their capital.

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16. Chandavarkar, A.G. (1961)

The increase in proportion of gold hoarding can have effects on growth by:

(1) Reducing the funds flowing to the deficit sector

(2) By increasing conspicuous consumption in particular

Stressing its positive role Chand-avarkar argues that it can play the role of inducement goods for producers of agricultural commodity and thereby helps to maintain and even increase their marketed surplus "The role of precious metals as an inducement good and consequently as an instrument of monetisation and development of subsistence economy is overlooked in historical and contemporary discussion of the problem".[17] It is not to deny the effects of gold hoard as incentive goods; But the question we are faced with is: whether we should allow such heavy smuggling of gold or reduce restrictions on it, just because these are incentive goods? Are there no better methods of providing incentives to agriculturist, which are cheaper in terms of growth. If they are there then further accumulation of this asset should be reduced drastically.

Again as pointed out by Chand-avarkar[18] "a high or rising level of gold prices has hardly any significant economic consequences ..... A rise in gold prices leaves the total quantum of hoarded gold, unaffected because the economy

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17. Bauer, P.T. and Yamey, B.S. (1967)
18. Chandavarkar, A.G. (1961)

as a whole cannot hoard more gold than the fixed existing supply and it does not raise the general price level or affect the productive potential or real capital formation in the economy". Such analysis neglects the effect of capital gains on the behaviour of household. With the price of gold increasing, ownership pattern among the household will change. By selling this asset a holder makes capital gains; these capital gains, if they raise consumption ratio, would add to inflation rate; if diverted towards real estate or other speculative assets or smuggled goods, the saving ratio would fall; only if they are held in financial assets or physical assets - machinery and equipment, will they directly promote growth - but then inflation by making these assets less attractive is not likely to induce households with capital gains to have these in their asset portfolio. On the other hand, the household which acquires this (Gold) asset, has diverted his income from being spent on goods (that could create employment and income) or in holding financial assets (which could increase funds to deficit sector) while expenditure on gold, especially when it is just transferred, has no effect on growth. Therefore though the transaction on aggregation over household sector cancels out, its real effects are felt in the economy.

Thus from our analysis it is clear that increase in the price of gold, and in the rate of inflation, whether it

increases hoards or not, has negative effects on the growth of the economy. Therefore the policy should aim at not only reducing the incremental demand for gold but also aim at reducing the past hoards of gold. Therefore Simha concludes "The heart of my solution is the need to prescribe a statutory ceiling to individual holdings of gold in all form. The Ceiling should be large enough to meet the so called essential requirements, especially of our women folk for religious and social purpose and at the same time low enough to make a real contribution to the gold problem by weaning our public away from a habit which, whatever might have its merits till 15-20 years ago, has lost much of its relevance today"[19].

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19. Simha, S.L.N. (1978)