

Financial Reforms in an Endogenous Money Economy

The Case of India

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An examination of the Reserve Bank of India's monetary policy leaves little doubt that India can be suitably characterised as an endogenous money economy. In an endogenous money environment, financial reforms will prove ineffective in stimulating credit supply to large commercial borrowers. They may, however, prove counterproductive by sharpening the credit constraints faced by agricultural and other petty producers in the economy.

This paper seeks to examine the rationale for financial reforms using India as a case study. Financial reforms entail measures aimed at: (i) expanding the size of the banking system; (ii) reducing government's draft on it; and (iii) curtailing special provisions made for increasing credit supply to agricultural and other small borrowers. The expectation is that commercial borrowers, who are given short shrift in regulated financial systems, will benefit through greater credit availability. This paper argues that this expectation will fail to materialise when money supply is endogenously determined by the level of economic activity. With endogenous money supply, financial reforms may end up causing banks to hold even larger amounts of government securities (G-secs). Endogenous money theory postulates an elastic deposit base so that credit constraints on commercial borrowers cannot arise because a share of banks' deposit base is reserved for government and priority borrowers. Credit constraints in the endogenous money view arise because banks do not consider their small borrowers sufficiently creditworthy. Thus, reforms in the sphere of priority-sector credit are likely to sharpen credit constraints on small/informal borrowers while doing little to expand credit supply to large/formal borrowers.

The paper is organised as follows. In Section 1, we discuss variants of the endogenous money supply theory. In Section 2, we describe some key features of monetary policy-making in India and argue that money supply is an endogenous variable in India. We describe the key components of financial reforms in India in Section 3. In Section 4, we argue that in an endogenous money environment, the impact of financial reforms should be to increase the share of G-secs in commercial bank assets. We also discuss the trends in asset composition of Indian banks in the post-reform period in this section. In Section 5, we draw attention to credit constraints faced by agricultural borrowers in India and use existing empirical and theoretical literature to deduce the probable impact of priority sector reforms on the Indian economy. We briefly conclude in Section 6 of the paper.

1 What Is Endogenous Money?

Let us begin with a simple textbook presentation of the money market. In this presentation, central banks control both the volume of reserves and the reserve-to-deposit ratio. Since central banks are also assumed to have correct knowledge of

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currency-to-deposit ratio, they determine money supply using the following money multiplier formula:

$$M/H = (c+r)/(1+c)$$

where M is money supply, H is the volume of high-powered or reserve money, c stands for currency-to-deposit ratio and r stands for reserve-to-deposit ratio. The next step of this textbook model is to posit that the cost of holding money is the interest foregone on, say, G-secs so that higher is the rate of interest, lower is the demand for money. Equality between money demand and money supply then yields an equilibrium rate of interest. Money supply is an exogenously specified parameter of this model whereas the interest rate is its endogenously determined variable.

Endogenous money theory inverts the above picture. It proposes an exogenously given interest rate and an endogenously determined money supply. What are the reasons for doing so? We are aware of two reasons. The first came from Davidson and Wientraub (1973) who, like other post-Keynesians, understood inflation as a cost-push phenomenon. When wages increase faster than labour productivity, capitalists raise the price level to maintain their share in value added. A higher price level, in turn, increases the demand for money and, if the central bank does not accommodate higher money demand, it contracts output by increasing the interest rate. Thus, stagflation results whenever the central bank refuses to accommodate increments in money demand that arise due to higher production costs. But, as Davidson and Weintraub (1973: 1131) themselves put it: "Public pressure to ameliorate unemployment is likely to prevent a seriously constrictive policy; with the labour force growing an expansion in money supply will, sooner or later, become unavoidable." Davidson and Weintraub's explanation for money supply endogeneity will have few takers today. Inflation control has now acquired precedence over full employment as the main objective of central bank policy across the world. India, of course, is no exception to this rule.

A more plausible explanation for money supply endogeneity came from Kaldor (1985) and Moore (1983) who perched it firmly in the lender of last resort responsibility of a central bank. Free convertibility of deposits into cash is the bedrock on which the public's trust in a fractional reserve commercial banking system is built. The convertibility itself is underwritten by the central bank that stands ready to lend reserves to commercial banks through its discount window, even if, at a rate of interest of its own choice. Moreover, a tight leash over money supply "would result in an unacceptable range of interest rate variations, which would prove destabilising to financial markets" (Moore 1983: 540).¹ The supply of reserves is therefore perfectly elastic at the rate of interest fixed by the central bank.

It turns out that, just as the central bank, commercial banks also have little control over the volume of their liabilities because (creditworthy) borrowers have access to credit lines and overdraft facilities. New deposits will be created every time borrowers draw cheques on their overdraft accounts. Commercial banks can decide the rate of interest on overdraft loans but have little control over their volume that (till the

overdraft limit is exhausted) is demand determined. The demand for loans, in turn, depends on the value of production and the corresponding requirement for working capital deposits.² In a nutshell, the supply of both reserve money and bank deposits is demand determined.

The above characterisation of money supply endogeneity, sometimes known as accommodative endogeneity, is due to the work of Moore (1983), Kaldor (1985), and Lavoie (1984). Some others, such as Pollin (1991) and Palley (1996), subscribe to the structural endogeneity view. Pollin (1991), for example, draws a strict distinction between borrowed and non-borrowed reserves. There are administrative limits as well as frowned costs associated with reserves borrowed from the discount window of the central bank. Thus, at least partially, commercial banks meet their reserve requirements in the open market by selling (or borrowing against) their stock of G-secs, treasury bills, etc. The central bank may choose to accommodate commercial banks' demand for reserves through open market operations (OMOs). However, it is not obliged to do so. But, more often than not, out of concern for inflation rate and currency value, its open market stance falls well short of full accommodation. This, however, is not the end of the story. A period of monetary restrictiveness leads to financial innovation. For example, banks may open deposit accounts in offshore locations, where home country reserve requirements are either not applicable or not easily enforceable. The same level of reserves and domestic deposits would then be able to support a higher volume of domestic loans and economic activity. That said, with a given set of liability management practices, partial accommodation implies that beyond a point, the interest rate would rise as economic activity and loan demand picks up.

2 Endogenous Money: The Indian Practice

India adopted a monetary targeting framework till 1997–98. We shall have a word or two to say about India's experience with monetary targeting later in the section. However, we begin by describing the picture as it exists today. The current practice is for the Reserve Bank of India (RBI) to offer overnight loans to commercial banks through its Liquidity Adjustment Facility (LAF), which came into being in June 2000. Through the LAF, the RBI grants overnight loans to banks at a pre-specified rate using a repo agreement; the borrowing bank sells securities to the RBI with an agreement to repurchase those the next day. Commercial banks can also park their excess reserves with the RBI using a reverse repo agreement. The reverse repo rate received by banks, fixed 1% point below the repo rate, is linked to the repo rate.

It must be clarified that the LAF is not an emergency source of finance. It is routinely accessed by commercial banks and involves no cost other than the explicitly stated repo rate announced by the RBI. True, every bank is assigned a borrowing limit equal to a certain ratio of its Net Demand and Time Liabilities (NDTL). However, it is not uncommon for reserve money injections through the LAF to exceed the limit set by the RBI. This was, for example, the case through much of the financial year 2012–13. The limit is flexible and, as we shall

see, indicates a comfort zone beyond which the RBI tries to activate other measures of liquidity injection.

In addition to the LAF, the RBI also provides overnight credit to banks through a Marginal Standing Facility (MSF) that was opened in 2011. MSF loans, like those from the LAF, are granted through a repo agreement, but carry a higher rate of interest. The MSF rate is set 1% point above the repo rate and adjusts automatically when the new repo rate is announced. Together, LAF and MSF provide a corridor for the overnight interest rate in India.

The rationale for introducing the MSF clearly reveals how RBI views accommodation of bank's demand for reserves as its primary responsibility. As a part of their Statutory Liquidity Ratio (SLR) requirement, commercial banks in India must hold government (or government approved) securities in a certain ratio to their demand and time liabilities. Till the MSF was introduced, a bank could use only the non-SLR portion of its g-sec holdings as loan collateral. When monetary conditions tightened, its had no option but to dip its SLR holdings and sought waiver from SLR compliance.³ The waiver was usually granted, but the bank could never be certain whether it would be available. The MSF changed this by allowing banks to use their SLR securities as collateral without having to apply for a waiver from SLR compliance. The main objective was to ensure that the availability of reserves should not be constrained for a want of collateral.

How does the RBI view its conduct of OMOs? The structuralists maintain that central banks can and do use the OMOs to control the quantity of reserve money. We feel it would indeed be odd for the RBI to put the OMOs to this purpose. After all, the RBI has opened standing facilities (LAF and MSF) precisely so that it can stabilise the overnight interest rate. It would be surprising if the OMOs were used by the RBI to work at cross-purposes with its standing facilities. In our opinion, the RBI typically adopts an accommodative posture in its OMOs as well. This comes out clearly from a reading of various annual reports and other documents of the RBI.

2.1 RBI's Accommodative Stance

Let us see how the RBI dealt with tight liquidity conditions that emerged between November and December 2012 (RBI 2013). In these months, LAF injections far exceeded the 1% (of NDTL) limit set on injections through the LAF. According to the RBI (2013: 22), this was mainly on account of high government balances with the RBI and the public's currency demand. The RBI's response was a reduction of the Cash Reserve Ratio (CRR) by 25 basis points effective from 3 November and a resumption of outright OMOs (purchases) on 4 December. In other words, the RBI used OMOs and CRR cuts to neutralise the effect of public's demand for currency and tax payments on the availability of bank reserves.⁴ The RBI thus first accommodates demand for reserves using its LAF window and when loans from the LAF persistently exceed a certain comfort zone it undertakes outright purchase of securities in the open market.

If the words of D Subbarao, former governor of the RBI, are to be believed, the RBI followed a very similar OMO policy in

2010 and 2011 as well. After indicating that the RBI's policy was to hold injections through the LAF at 1% of NDTL, Subbarao (2011) said:

However towards the second half of 2010, systemic liquidity tightened further pushing the injection through the LAF window beyond 1% of NDTL. This was due to a combination of structural and one-off factors. Recognising that the deficit in liquidity was of a durable nature, the Reserve Bank conducted outright OMOs to inject liquidity of a durable nature during November 2010–January 2011. Again, as liquidity conditions tightened beginning early November 2011, partly reflecting intervention operations in the foreign exchange market, we conducted OMOs during November–December 2011.

Going back to a slightly earlier period, when Y V Reddy was at the helm of affairs, we find that the RBI adopted a similar approach of accommodating commercial banks' demand for reserves, when need be, through mechanisms other than the standing facilities. RBI (2006: 26) begins the third chapter of its *Macroeconomic and Monetary Developments in 2005–06* as follows:

Monetary and liquidity conditions remained largely comfortable during 2005–06 although there was some tightness in liquidity conditions during the last four months of 2005–06 reflecting partly the impact of the redemption of India Millennium Deposits (IMDs). The Reserve Bank, therefore, injected liquidity through unwinding of the Market Stabilisation Scheme (MSS) and repo operations under the liquidity adjustment facility (LAF) along with some private placement of the Central Government securities. As a result, the banking system was able to meet the sustained pick-up in credit demand from the commercial sector (emphasis added).

To fully understand this quote, we need to understand the Market Stabilisation Scheme (MSS) of the RBI. The MSS was introduced in 2004 to sterilise the effect of large capital inflows that took place in this period. Securities issued under this scheme did not finance additional government expenditure; instead, the proceeds were kept as government balances with the RBI. Throughout the last decade, the RBI used the MSS not only to remove reserves from the system but also to inject them when the conditions so warranted. As the above quote suggests, this was done in 2005 when the RBI redeemed securities issued under the MSS. Conceptually, redemption of securities, without an issue of an equal amount, is identical to an open market purchase. In essence, the quotation emphasises that the RBI tries to accommodate commercial sector's credit demand.

In periods where reserve money supply increases because, say, the government spends its cash balances held with the RBI or the RBI acquires foreign currency, it is the reverse repo window of the RBI that gets activated. Besides, OMOs are also used by the RBI to mop up excess reserves from the system. In its annual report for 2014–15, RBI (2015: 60) states:

With the increase in spending by the government, liquidity conditions improved significantly in June and July. The Reserve Bank absorbed the excess liquidity through the variable rate reverse repo auctions of varying terms. Besides, the Reserve Bank also absorbed the excess liquidity to the tune of Rs 82.7 billion through OMO sales conducted on 14 July 2015.

The role of the OMOs is now clearly spelt out in the new operating procedures adopted by the RBI. The new operating procedures adopted in 2014–15, besides adding longer term repos to the RBI's armoury, clearly state that the RBI must use

“outright open market operations to manage enduring liquidity mismatches” (RBI 2015: 59). All in all, the operating procedures adopted by the RBI cast doubts on the validity of the structuralist notion that central banks try to control money supply through OMOs. We have discussed evidence for four or five years but the picture would not change if we increased the sample size. We have not discussed the evidence for other years not for want of evidence but for that of space. There is one minor point left to be made at this stage. Endogenous money theorists emphasise the importance of credit lines and overdraft facilities in driving money supply. These facilities, while not equally available to all borrowers, are extremely important in India as well. We shall discuss the relevant evidence in Section 5 that highlights unequal treatment of different borrower categories by banks.

2.2 Experience with Monetary Targeting

From the mid-1980s to 1997, the RBI adopted a monetary targeting framework. Actually, till 1990 RBI only placed a ceiling on the growth rate of M_3 (broad money). However, 1991 onwards, RBI did specify M_3 growth targets but could achieve those only once in 1995 (Mohanty and Mitra 1999). It is sometimes argued that reserve money creation due to monetisation of government’s deficit resulted in a violation of M_3 growth targets.⁵ This argument is erroneous for two reasons. First, the RBI could always counteract the effect of higher reserve money by increasing the CRR. Second, the RBI could counteract the effect of its credit to government by borrowing an equivalent amount back from the private sector. The RBI could also offload its G-sec holdings in the open market so that its net credit to government remained unchanged. In other words, monetisation of deficit by itself does not explain the RBI’s failure to meet its monetary targets. The reason must lie elsewhere, perhaps, in the RBI’s desire to control the cost of borrowing for the private sector.

To appreciate this point fully, let us use a simple IS/LM apparatus. Let us start from an equilibrium point where output equals aggregate demand and money supply, fixed at its target level by the RBI, equals money demand. Assume that the RBI disturbs the equilibrium by lending, say, Rs x to the government (due to monetisation of deficit). As the government transfers this money to its suppliers, the interest rate falls and the LM curve is displaced downwards. At the same time, the IS curve shifts to the right due to increase in aggregate demand. At this point, the RBI counteracts the increase in money supply by offloading G-secs worth Rs x in the open market. As a result, LM curve is now restored to its original position. However, due to excess demand in the goods market, we move up along the original LM curve till the new equilibrium point is achieved.⁶ At the new equilibrium point, both interest rate and output are higher. Higher government spending, with a given level of money stock, stimulates output but also crowds out private investment and, possibly, consumption. Also, as mentioned in the previous section, a very sharp rise in interest rates may destabilise financial markets and even force some indebted units into bankruptcy. Clearly, the RBI could not have ignored the implications of its monetary (in)action on interest rate.

The above model is not intended to, and nor can it, capture the full historical reality. The RBI successfully managed to put the brakes on money growth in 1995, but could do so at the cost of a much higher interest rate. But the adverse impact of monetary tightening on interest rate also forced it to rethink its operating procedures. In the words of Goyal (2011: 35–36):

After the adverse impact of the nineties peak in interest rates, the Reserve Bank moved towards using the interest rate as an instrument, basing its actions on a number of indicators of monetary conditions. It formally adopted a multiple indicator approach in April 1998, following informal changes in practice from the mid-1990s.

This suggests that the RBI’s operating procedure shifted away from quantity to rate variables in the mid-1990s, that is, even before the pronouncement of the LAF in June 2000. Thus, at least since the mid-1990s, and perhaps, even earlier, when quantity targets were only half-heartedly pursued, the practice of interest rate targeting has made money an endogenous variable in India. But, as well shall now see, endogeneity of money nullifies the very rationale for financial reforms.

3 Financial Reforms: The Indian Story

Financial reforms are based on the view that the banking system is reserves constrained. Due to limited reserves, banks can advance more loans to one sector only by curtailing loan supply to other sectors. In India, the concern was with the pre-emption of bank deposits by government and borrowers favoured by it. On the eve of reforms, both SLR and CRR were high, accounting for more than half of the demand and time liabilities of Indian banks. They have been brought down gradually as a part of financial reforms. Currently, CRR and SLR requirements are marginally higher than one-fourth of the demand and time liabilities of Indian banks (Kohli 2015b).

A significant share of the deposit base of Indian banks is also reserved for priority sectors. Priority sector regulations were introduced in the 1970s to improve credit supply to small and agricultural borrowers. The reforms have not been kind on priority sector requirements. The Narasimham Committee report of 1991 suggested that the share of priority sector be whittled down from 40% to 10% of net bank credit. Although this recommendation was not accepted, the ambit of priority sector was broadened that helped banks classify a portion of their commercial loan portfolio as priority sector credit. For example, indirect finance, which is not provided directly to the cultivators but to actors that support agricultural operations (such as dealers in agricultural inputs, owners of cold storage facilities for agricultural produce in urban areas, etc), was allowed to be counted as agricultural credit for the purpose of reckoning priority sector advances (Chandrasekhar 2008; Ramakumar and Chavan 2007). Also, throughout the reform period, banks have been in violation of their agricultural credit targets (Kohli 2015a).

Finally, there has been a substantial deregulation of interest rates in India. Ceilings on both loan and deposit rates have been abolished; the rationale being that “interest rate should increasingly be allowed to perform their main function of allocating scarce loanable funds among alternative uses” (RBI 1991).

However, interest rates have not become any more flexible than they were in the pre-reform period. Reforms have only shifted the authority of fixing the interest rate from the government to the central bank, which sets the policy rate, and commercial banks, which fix their loan rates as a mark-up on the policy rate.

4 Impact of Reducing Government's Role

The outcome of reducing government's draft on the banking system has not been along expected lines. In fact, commercial banks' holdings of G-secs increased quite drastically between 1990, when they stood at only 43% of total bank credit, and 2003, when they reached 78% of bank credit. There was a sharp reduction in banks' stock of G-secs after 2003; the ratio (of G-secs to credit) stood at 42.5% in 2009 and 38% in 2014. In terms of banks' holdings of G-secs, there has not been a significant advance since the pre-reform period.

How do we make sense of these trends? Why did G-sec holdings skyrocket in the first decade or so after 1991 and fall sharply thereafter? One set of explanations has come from Sen and Ghosh (2005) and Chandrasekhar (2008), who argued that the growing importance of G-secs in the commercial bank portfolios reflect a desire for safety in a changed banking environment where non-performing assets (NPAs) are frowned upon and inflict costs due to provisioning and capital adequacy requirements. While not necessarily disagreeing with these explanations, we shall offer a different perspective grounded in endogenous money theory. In our view, some of the reform measures directed towards expanding the resource base of banks may have been responsible for the accumulation of G-secs in commercial bank portfolios. Our explanation is rather close to that already offered by Patnaik (2001).

Let us first take the case of a CRR cut, which has been an important component of financial reforms in India. When money supply is exogenous, a CRR cut should lead to multiple rounds of credit and deposit creation. In an endogenous money world, an increased availability of reserves due to a CRR cut does not enable banks to extend more loans, which are demand constrained. It then makes sense for commercial banks to, at least partially, use additional reserves placed at their disposal by a CRR cut to acquire G-secs. As long as the RBI does not wish to produce a reduction in interest rate, it will have to oblige commercial banks by selling G-secs from its own portfolio.⁷ The CRR cut is an ineffective tool to stimulate credit supply to the private sector in an endogenous money economy.

Let us now take the case of the removal of ceiling on deposit rate. Suppose banks set a higher rate on their time and savings deposits in response to the ceiling removal. This would have three effects. First, as suggested by the votaries of financial reforms, households would reallocate their portfolio from curb-market loans to bank deposits. Second, higher interest rates may also encourage the return of domestic capital from abroad precisely in the manner that supporters of reforms envisage. If the interest rate on deposits offered to foreigners/non-resident Indians increases, foreign capital inflow will also be encouraged. If the RBI wishes to avert currency appreciation, it

will be compelled to buy incoming foreign currency and inject its liabilities into the system. Indeed large capital inflows and RBI's intervention have been a major reason for the build-up of forex reserves that has taken place since the early 1990s (Chandrasekhar 2008; Kohli 2015b). Consequently, capital inflows will also lead to an expansion of the deposit base of the banking system. However, in an endogenous money environment, banks would use the additional deposits to acquire G-secs.⁸

Finally, let us also look at the impact of the removal of ceiling on loan rates. Loan demand and, thus, supply will fall as a result of higher loan rates induced by the removal of ceiling. Deposits, which are created in the process of granting loans, will also fall. If currency holdings are ignored, deposits will fall by the same amount as loans. If public does hold currency, both deposit and currency holdings are likely to decline. In either case, for a given reserve-to-deposit ratio, banks find themselves holding extra reserves that they try to dispose by buying G-secs.⁹

All in all, financial reform measures and, especially, the steady inflow of foreign capital that they caused, are responsible for the growing share of G-secs in the asset portfolios of commercial banks.

But why did the share of G-secs in commercial bank assets fall after 2003? The explanation has to be sought in the expansion of economic activity that was witnessed after 2002. Except for a blip caused by the global crisis in 2008, when the growth rate of the gross domestic product or GDP (at factor cost) was 6.7%, GDP growth stood above 7% between 2003–04 and 2010–11.¹⁰ The significant reduction in interest rate on G-secs and loans that took place between 1999 and 2003 must have contributed to the upward trend. No doubt, expansion of global economy in this period also played its part in ensuring the turnaround in economic growth that was observed in 2003. Overall, not only did we move down along the loan demand curve because of a decline in real interest rate but the loan demand curve itself shifted to the right because of positive spillovers from the expansion of global demand. The surge in loans and deposits that ensued, increased banks' demand for reserves that they met by borrowing from the LAF window and, when the liquidity deficit was considered permanent, through open market purchases conducted by the RBI.

5 Financial Reforms and Priority Sector Credit

The rationale for priority sector reforms is the same as that of reducing SLR and CRR requirements; to free the deposit base for greater lending to commercial borrowers. The supporters of reforms seek to shift the focus from rationing faced by small borrowers, who are the main beneficiaries of priority sector requirements, to repression induced rationing faced by large commercial borrowers.¹¹

However, in an endogenous money world, there is no reason why loan demand from (creditworthy) non-favoured borrowers cannot be met simply because a share of credit is directed towards priority sectors. On the other hand, intended beneficiaries of directed credit, with their limited collaterals and uncertain incomes, often find themselves rationed in formal

credit markets. Not only is the case for reforms theoretically flawed, it is also based on a perversion of reality.

5.1 Discrimination

The reality is that practices of banks are discriminatory towards small borrowers. In an interesting study of the United States (us) banking system, Wolfson (1995) shows that banks extend credit lines and loan commitments to larger borrowers while denying those to smaller borrowers. A neat parallel exists in India where large industrial borrowers meet a very large proportion of their production credit requirements through cash credit and overdraft facilities, whereas agricultural as well as small borrowers mostly rely on demand loans. For example, as at end March 2012, outstanding cash credit and overdraft loans of the agricultural sector were only half of their demand loans. On the other hand, outstanding cash credit and overdraft loans of industrial borrowers were more than three times their demand loans (Kohli 2015a).¹²

Cash credit and overdrafts are running accounts that allow their holders to run a debit balance up to a sanctioned limit. Because of the running nature of the loan facility, borrowers need not apply for a fresh loan every time a credit requirement arises. They can simply increase the debit balance on their existing accounts. Banks usually fix generous cash credit/overdraft limits for their industrial borrowers. For example, at end 2010, unutilised amounts in cash credit and overdraft accounts of industrial borrowers stood at 15% of the industrial GDP in 2011.¹³ The corresponding ratio for the agricultural sector was 0.41% (Kohli 2015a).

On the other hand, agricultural borrowers mainly rely on demand loans that have to be repaid within a specified time limit. Once the existing loan is repaid, the borrower has to apply for a fresh loan. Banks then have the option of renewing or denying credit. By repeatedly requiring fresh applications at their demand loan counters, banks ensure flexibility in selecting their borrowers and the amount borrowed by them. Banks' use of different credit arrangements is suggestive, though not conclusive, of sharper credit constraints faced by small and agricultural borrowers.¹⁴

5.2 Role of Priority Sector Credit

Priority sector intervention should be seen as a way of remedying exclusion that is ingrained in the practices adopted by commercial banks. But do these interventions play an economically useful role? Let me cite some studies that point in this direction. As long as agricultural borrowers (and other petty producers) are credit constrained, their output should respond positively to credit supply. Binswanger and Khandker (1995) provide econometric support for this view by regressing agricultural output on a number of independent variables including formal rural credit.¹⁵ They find that the response of agricultural output to rural credit depends on which institution purveys rural credit. In particular, credit flow from agricultural cooperatives has a significant positive impact on agricultural output while the impact of commercial bank credit is positive but not significant. As the authors explain, this is because agricultural cooperatives directly focus on the financing

of agricultural operations whereas commercial banks also provide finance for non-farm activities. Unsurprisingly, Binswanger and Khandker (1995) also find a positive effect of rural commercial bank credit on both non-farm output and employment.

However, Binswanger and Khandker (1995) argue that gains from extending bank credit to rural areas, impressive on their own, are more or less neutralised by the costs of such credit. The cost of rural credit is the interest income foregone by government (who is the main supplier of rural credit through public sector banks) as interest earned on rural credit is lower than that on commercial loans. Due provision is also made of the likelihood of default on agricultural credit. Binswanger and Khandker (1995) assume that commercial interest rate charged by banks is the true opportunity cost of extending an additional rupee of rural credit. But if banks accommodate all commercial loan demand at a fixed rate, their true opportunity cost of extending rural credit is the interest foregone on G-secs (or the interest paid on loans from the RBI). However, the opportunity cost of additional rural credit to government is zero since commercial banks transfer their G-secs to the RBI (another public institution) when they decide to supply more rural credit. Indeed, our argument would suggest that not only Binswanger and Khandker (1995) but also others, such as Fan et al (2008), who calculate credit subsidies in this manner, are on a shaky ground.

Another interesting study is by Sarap (1990) who, through a survey of villages in Odisha, showed how production credit can constrain the adoption of high-yielding varieties (HYV) technology. In particular, Sarap (1990) showed that even in irrigated villages in his study area, most cultivators did not get sufficient credit to adopt HYV technology at recommended levels. The implication is that higher credit can have a beneficial impact on yield and output levels in the agricultural sector. Sarap's (1990) study is important also because it shows that transaction costs—in the form of land record identification fee, travelling expenses incurred, and wage income foregone in negotiating and repaying the loan, etc—of obtaining formal credit may be substantial. For the smallest farmers in his study area, transaction costs are almost as large as interest costs on loans. This insight is relevant for assessing the desirability of interest rate reforms in India.

Naastepad (1999) explored the economy-wide impacts of directed credit policies using a computable general equilibrium (CGE) model. Her model showed that credit squeeze on the household sector (where small-scale producers are located) can have a significant stagflationary impact on the economy. We revisited this issue by formulating a two sector macro-dynamic model (Kohli 2015a). The model shows that a tightening of agricultural credit reduces agricultural output and increases food prices. Industrial demand falls as agriculture spends less on the industrial input and as households' expenditure on industrial goods is squeezed due to inelastic food demand. Inflation also picks up due to the cost-push effect of higher food prices. Moreover, the study shows that priority sector requirements create a cumulative interlinkage between supply and demand constraints. An injection of aggregate demand caused, say, by government

expenditure, will increase output in the demand-constrained industrial sector. Due to priority sector requirements, a higher credit usage in the industrial sector will now push banks to lend more to the agricultural sector that, in turn, will stimulate agricultural supply. Thus, priority sector requirements, by ensuring that supplies increase along with demand, help moderate the conflict between growth and inflation that is inevitable in an agriculturally constrained economy like ours.

6 Conclusions

An examination of the RBI's monetary policy leaves little doubt that India can be suitably characterised as an endogenous money economy. In an endogenous money environment, financial reforms will prove ineffective in stimulating credit supply to large commercial borrowers. They may, however, prove counterproductive by sharpening the credit constraints faced by agricultural and other petty producers in the economy.

NOTES

- 1 A possible post-Keynesian story could be that, with tight money supply, agents would scramble to obtain liquidity by selling financial assets. The erosion of asset prices that results may trigger bankruptcies in the system. This was the proximate cause of financial crisis in much of Hyman Minsky's work.
- 2 Moore (1983) used regression analysis to show that working capital finance and especially wage bill is the most significant determinant of bank lending in the US.
- 3 A failure to comply would result in an imposition of penalty by the RBI. The penalty is reckoned by applying the bank rate on the volume of shortfall from the SLR requirement. The banks thus asked waiver from the payment of this penalty.
- 4 Taxes, paid from public's deposit accounts with commercial banks, result in a depletion of bank reserves. Reserves owned by the government are, in turn, kept as cash balances with the RBI. The build-up of government balances with the RBI reflects the depletion of bank reserves due to tax payments.
- 5 Mohanty and Mitra (1999: 127) described the conflict between deficit monetisation and monetary targeting thus:
The Reserve Bank also recognised that ensuring price stability through monetary targeting would be effective only if simultaneously, fiscal deficit, particularly, expansion of net Reserve Bank credit to the central government, which has accounted for the bulk of the creation of the reserve money (or monetary base) over the years is contained within a reasonable limit.
- 6 We assume that money markets adjust quickly so that the economy always lies on the LM curve.
- 7 As we have already argued, the initial impact would be for the RBI to borrow the reserves overnight through its reverse repo window and only subsequently to remove them on a more permanent basis through outright sale of securities.
- 8 It may be argued that withdrawal of funds from the curb-market may deflect loan demand towards banks. Thus, higher deposit supply will accompany higher demand for bank credit. In our opinion, this is not very likely because those who borrow from curb markets—small cultivators and other petty producers—are typically not considered creditworthy by the formal banking system. What matters for banks' loan supply is not loan demand per se but loan demand from creditworthy borrowers. In fact, as Rao (1995) has argued, both the McKinnon-Shaw account and its neo-structuralist critique fail to recognise that informal credit markets typically cater to small/informal borrowers whereas formal credit markets cater to large/formal borrowers.
- 9 Suppose loans fall by Rs 100 whereas deposits fall by Rs 90. If the reserve-to-deposit ratio is 10%, banks' demand for reserves will fall by Rs 9. Banks have also come in ownership of additional reserves worth Rs 10 due to a decline

- in the currency holding of public. As a result, they find themselves holding Rs 19 worth of extra reserves that they seek to convert into G-secs.
- 10 All figures are taken from the RBI's *Handbook of Statistics on Indian Economy*.
 - 11 The possibility of rationing of non-favoured borrowers arises if the loan rate charged to them is fixed. Suppose there is sufficient loan demand at this rate so that existing reserves are fully utilised and more reserves cannot be availed from the central bank. However, the banks' potential to create credit, after supplying the stipulated amount of credit to priority sectors (at a specified rate), may be insufficient to meet all loan demand from non-favoured borrowers. As a result of fixed loan rate, rationing of non-favoured borrowers would arise.
 - 12 Kohli (2015a) also provides similar evidence for small v large borrowers.
 - 13 Let us assume that industrial sector is one large industrial complex and its purchase of intermediate inputs from other sectors stands at one-fifth of the value of its output and therefore one-fourth of its gross value added (or GDP). If wage earnings constitute half of industrial GDP, total production costs (including wages and intermediate inputs from other sectors) would stand at three-fourths of the industrial GDP. If it takes three months to process intermediate inputs into final goods and generate revenues from sales, industry's total financing requirement in a year would stand at 18.75% of industrial GDP. If unutilised balances in cash credit and overdraft account stand at 15% of industrial GDP, industry can meet 80% of its financing requirement without requiring any increment in credit limit.
 - 14 It is possible that banks always accommodate the entire credit demand of agricultural borrowers through their demand loan window. This would, however, raise the question why they repeatedly go through the trouble of scrutinising the loan applications of agricultural borrowers instead of offering them a generous running credit line facility.
 - 15 Since the observed level of rural credit can be influenced by credit demand, Binswanger and Khandker (1995) use number of bank branches as an exogenous indicator of credit supply in their regressions. The value of rural credit predicted by number of branches is also used an exogenous indicator of credit supply.

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