Stabilising the Indian business cycle

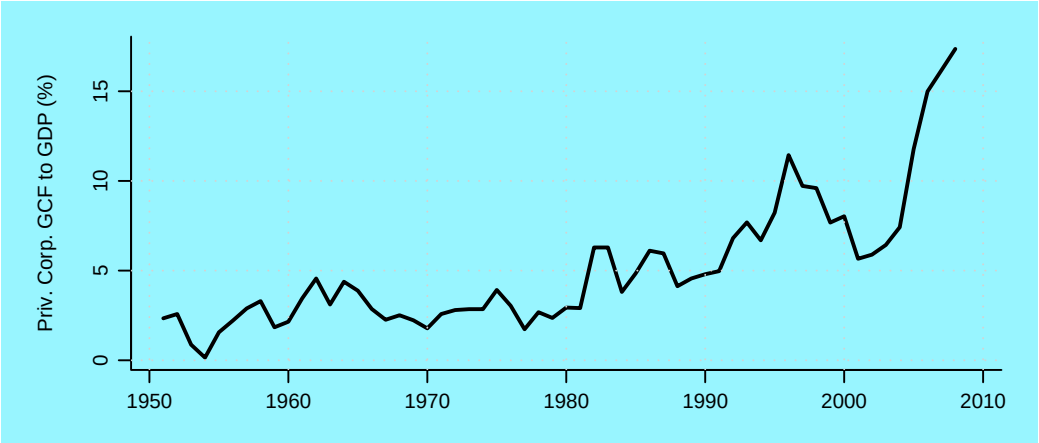
Ajay Shah and Ila Patnaik*

February 9, 2010

Contents

*We are grateful to Nachiket Mor, Vijay Kelkar and Josh Felman for numerous insightful discussions on these issues.

Figure 1 Private corporate investment (percent to GDP)



1 Setting

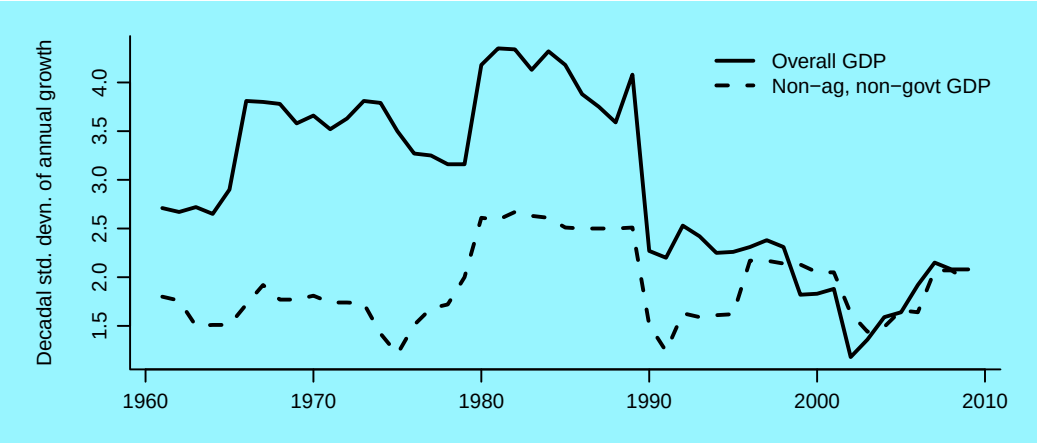
1.1 The new Indian business cycle

In the India of old, good times and bad times were primarily about weather. A good year was one with a good monsoon and vice versa. The business cycle analysis in standard economics textbooks – involving an interplay of expectations, inventories and private investment – did not substantially matter in India. In addition, the domination of government in investment implied a high stability of investment demand, since year-to-year fluctuations in government investment do not take place based on forward-looking expectations.

In the following years, these features of the economy have changed dramatically (Patnaik and Sharma, 2002; Shah, 2008). The share of agriculture in GDP has dropped sharply from 40% to 17% in the three decades from 1979 to 2009. Alongside this decline of agriculture to 17%, there has been a new rise of *private* corporate investment. Figure 1 shows the time-series of private corporate investment, expressed as percent of GDP. All the way till the early 1980s, this stayed below 5%. In this period, the fluctuations in corporate investment would have had little to do with overall macroeconomic conditions.

After 1980, private corporate investment has achieved big values. It has also been strongly linked to business cycle conditions. The two great expansions in India – the mid 1990s and the post-2002 – were each associated with very large expansions of private corporate investment. A change in private

Figure 2 Volatility of GDP growth



corporate investment of as large as ten percentage points was observed in the recent expansion.

Figure 2 turns to GDP volatility. Each point in this graph is the standard deviation of the latest ten values for annual GDP growth. Vijay Kelkar has emphasised that India's growth acceleration, from 1979 onwards, was accompanied by a decline in GDP volatility (Kelkar, 2004, 2005). This is clearly visible in the graph, where this standard deviation declined from values such as three to four percentage points to values such as one to two percentage points in the period after 1990. The first point in the graph (standard deviation over 1951–1961) was 2.71%. The last point in the graph (standard deviation over 1999-2009) was 2.08%, showing a sharp decline of 63 basis points.

Prima facie, this would suggest that India does not have a big problem of macroeconomic stabilisation. Both growth and stability got better, despite no significant change in macroeconomic policy institutions. However, the cause of this decline in GDP growth volatility is primarily the decline in the volatility of agriculture, the share of agriculture in GDP and the linkages (covariances) between agriculture and other parts of the economy. Figure 2 also shows a dashed line which is the volatility of non-agriculture and non-government GDP. This shows a broadly stable pattern from the early 1960s onwards. The first point in the graph (standard deviation over 1951–1961) was 1.8%. The last point in the graph (standard deviation over 1999-2009) was 1.96%: a worsening of 16 basis points.

The decline in volatility of overall GDP, despite the minimal extent of in-

stitutional reform on macroeconomic policy, might make us complacent that for reasons that we might not be able to fathom, macroeconomic volatility is declining on its own. However, once agriculture and government is removed from the picture, the story changes to one where the minimal extent of institutional reform on macroeconomic policy was (unsurprisingly) associated with a slight worsening of GDP volatility.

1.2 The new problem of macroeconomic stabilisation

Macroeconomic stabilisation, or business cycles, have not been prominent in Indian economic policy thinking in previous decades. However, several arguments motivate a greater interest in these issues:

- Higher GDP volatility is likely to induce greater idiosyncratic variation of individual stock returns. If capital controls or incomplete markets inhibit full diversification and hedging of portfolios, then there is a possibility that the cost of capital required for investing in India could be higher when GDP volatility is higher. Through this, macroeconomic stabilisation could deliver a reduced cost of capital and thus higher investment.

- Greater stability of consumption could directly improve welfare of citizens.[1] The presence of nonlinearities such as bankruptcy costs – which are likely to be bigger in a developing country – give another argument in favour of a smoother trajectory for output.

- Whether economists think stabilisation is important or not, politicians in a democracy are unlikely to stand aside when a downturn comes. As an example, in 2007-2009, when the business cycle downturn came, politicians in India tried to come out with impromptu responses. The choice that India faces is not one of a framework for stabilisation versus the absence of such a framework. The choice that India faces is one of stabilisation as hectic crisis responses versus stabilisation as a well-planned framework, grounded in law, and well understood and anticipated by the private sector.[2]

[1] However, this proposition needs to contend with the argument from Lucas (1987) that these gains are small. In the standard modern DSGE models, the bulk of the welfare gains from stabilisation come from reducing price volatility. It is hard to reconcile this with the strong interest of politicians in smoothing GDP fluctuations.

[2] An analogy is found in the field of deposit insurance, where it is said that democracies are unable to cope with large bank failures. The choice, then, is not one between having or not having deposit insurance. The choice is one of impromptu crisis response as opposed to sophisticated institutional machinery that is grounded in transparency and law, and fully understood by the private sector ahead of time thus reducing uncertainty.

> This is related to the rules versus discretion theme in economic policy analysis (Barro and Gordon, 1983; Kydland and Prescott, 1977). While a government might not promise to sharply enlarge the deficit in a harsh downturn, the market might know that in the absence of a well enforced fiscal rule, such a deficit enlargement is going to take place anyway. If a rules-based environment could be constructed, it would reduce uncertainty, improve responses in a downturn through better planning as opposed to crisis-management, and stabilise expectations.

In India, the framework of fiscal and monetary policy was established before the business cycle fluctuations of a market economy came about. In the new setting, it is important to carefully design the legal and institutional frameworks for fiscal and monetary policy so as to reduce the extent of business cycle fluctuations.[3]

A natural point of departure for such a discourse is the theoretical analysis, and real-world experience with fiscal and monetary policy institutions in OECD countries. In the last 30 years, a considerable body of work has come together, which has guided a fundamental transformation of rules and institutions (Chari and Kehoe, 2006; Taylor, 2005; Mishkin, 2007).

Erstwhile developing countries like Korea have graduated into OECD membership and are increasingly aligning their institutional architecture to the best practices found amongst OECD countries. As India becomes more of a open economy and a market economy, there is undoubtedly a lot to learn by going along this path. At the same time, there are certain unique features of India which are likely to be with us for a decade or two. These unique features have a significant influence on strategic thinking in India about the monetary and fiscal policy frameworks that will be the most useful. The remainder of this paper seeks to achieve a judicious blend of sound ideas from theory and OECD practice, attenuated by the critical aspects where the Indian reality suggests first order modifications.

[3] A more complete treatment would examine the mechanisms through which financial sector policy also induces procyclicality (or can be modified to reduce procyclicality. In addition, there are intimate linkages between fiscal, financial and monetary policy, as examplified in the issues surrounding the establishment of the Debt Management Office (DMO) (Aziz, 2008). In this paper, we restrict ourselves to a treatment of fiscal and monetary policy frameworks.

2 Stabilisation through monetary policy

2.1 The monetary policy transmission (or lack thereof)

In advanced economies, when the central bank changes the short-term interest rate, the financial system induces changes in a broad swathe of interest rates in the economy, across a diverse array of maturity and credit quality. Through this, changes in the short-term rate influence aggregate demand and thus output and prices. In many countries, central banks use this capability to stabilise the economy by focusing on achieving low and stable inflation.

When the financial system is weak, the monetary policy transmission is relatively ineffective. An illiquid and inefficient bond market implies that changes in the short rate do not transmit to a diverse array of interest rates. When there is a lack of competition in the banking system, changes in the cost of funds at the short end do not rapidly turn into changes in the cost of borrowing from banks.

In an underdeveloped banking system, the magnitude of borrowing (expressed as percent of GDP) is small, so that changes in the policy rate have a small impact upon borrowers. As an example, in India, 'non food credit' at the end of calendar 2009 stood at Rs.29 trillion, or roughly half of GDP. When the financial system is under-developed (Mistry, 2007; Rajan, 2008; Patil, 2005; Thomas, 2006; Shah, Thomas, and Gorham, 2008), changes in the policy rate do relatively little in terms of altering aggregate demand. In other words, countries with a weak financial system tend to have a feeble monetary policy transmission.

The monetary policy transmission is critically about the capability of the banking system and the bond market. These are areas where India is relatively weak. As an example, the World Federation of Exchanges shows NSE and BSE at 3rd and 5th rank in the world, by number of transactions. There is no ranking of banking or bond market characteristics where India or an Indian entity is in the top 25 in the world.

In terms of empirical evidence of the impact of short-term monetary conditions upon the Index of Industrial Production or upon prices, Bhattacharya, Patnaik, and Shah (2010) find that after controlling for the exchange rate channel, the null hypothesis of no-effect cannot be rejected. This is consistent with the idea that the Indian bond market and banking system are so highly undeveloped that, for all practical purposes, they do not deliver a monetary policy transmission. Even if monetary policy in India desired a

role in stabilisation, this is (at present) infeasible.

2.2 Implications of a large informal sector

The formal financial system in India is relatively small. A substantial part of the economy works through what is termed the 'informal' financial system. This includes equity financing from friends and family, borrowing from moneylenders, indigenious methods of trade financing, etc.

In recent years, there has been a considerable focus on the problem of 'financial exclusion', which is defined as the class of individuals or firms who are not part of the formal financial system. Concerns about financial exclusion are primarily motivated by a sense that the lives of these individuals would be improved if they could also connect to the formal financial system.

For the present discussion, the persistence of a large informal sector in India accentuates the ineffectiveness of the monetary policy transmission. When RBI raises the short-term interest rate, this can (at best) influence the price charged by the banking system and the bond market to formal sector borrowers. It is likely to have little impact upon the cost of capital in the informal sector.

The focus on financial inclusion has traditionally been motivated by the agenda of poverty reduction. However, financial inclusion, and the full integration between the formal financial system and the world of informal finance, should legitimately be a part of the policy agenda for building an effective monetary policy transmission. Recent innovations in financial engineering connected with informal finance, such as linking up micro finance institutions to the wholesale bond market through securitisation, would help improve integration between formal finance and informal finance, and thus help further this agenda of creating a meaningful monetary policy transmission.

2.3 Exchange rate flexibility : a tool for stabilisation

As argued above, in countries where financial sector reforms have made little progress, we get problems such as a weak bond market and banking system, low levels of private debt to GDP, and a large informal financial system which is poorly integrated into formal finance. This generates a weak monetary policy transmission.

In many countries afflicted with weaknesses in financial sector reform, however, the process of trade reform has made considerable headway. When goods arbitrage takes place, 'exchange rate pass-through' is observed, where fluctuations in the exchange rate influence local prices.

This yields a channel for influence for monetary policy. Changes in the policy rate influence the exchange rate (though *de facto* capital account openness), and thus influence prices. Raising interest rates would lead to capital coming into the country, which would lead to an exchange rate appreciation, and thus lower domestic prices. Even though changes in the policy rate may have a limited impact upon aggregate demand, changes in the policy rate could be a useful tool for targeting inflation, through the impact upon the exchange rate and thence the exchange-rate pass-through.

When capital flows come into the country, on one hand it is expansionary since this is generally associated with increased investment demand. But at the same time, with a flexible exchange rate regime, an exchange rate appreciation would be obtained. This would reduce profitability and thus investment demand in the tradeables sector. While the empirical magnitudes need to be determined, there is an element of stabilisation that is inbuilt, when shocks to capital flows are allowed to influence the exchange rate.

The exchange rate is the only monetary tool for stabilisation where significant effects are empirically visible in India today. A proper configuration of monetary policy in India should hence involve exchange rate appreciation in good times. When times are good, capital flows (which tend to be procyclical) would come into the country; the exchange rate would appreciate; this would crimp the profitability and thus investment demand of the tradeables sector. When times are bad, capital flows would leave the country; the exchange rate would depreciate; thus augmenting the profitability and investment demand of the tradeables sector.

Volatility of the exchange rate (and stability of reserves) is the path to stabilisation of the business cycle. Conversely, instability of reserves and a stable exchange rate generate enhanced business cycle fluctuations. The idea that the central bank should buy reserves at a time of increased capital inflows (and thus achieve an invariant exchange rate) is synonymous with giving up the only tool for stabilisation – the exchange rate – which the central bank in India possesses (Patnaik, 2005).

These insights put a new perspective on the evolution of monetary policy in India. In a closed economy with a fixed exchange rate, and without a sophisticated financial system, monetary policy is largely ineffective. It is ironic

that RBI's efforts, in preventing a capable bond market and banking system from coming about, have implied that RBI as a central bank is relatively ineffective. Exchange rate flexibility and capital account openness gives a first avenue through which stabilisation can take place.

2.4 Short term strategy

In the short term, the long-standing weaknesses of financial sector policy cannot be changed. In the short run, the bond market cannot be brought to life; an efficient and competitive banking system cannot come about.

Hence, in the short term, the only tool for stabilisation is the exchange rate coupled with an open capital account. Capital flows are inherently procyclical. In good times, money would come into the country, the exchange rate would appreciate, inflation would be curtailed, profitability and thus investment demand of the tradeables sector would be crimped. All these things would operate in reverse in recessions.

The traditional monetary policy transmission requires sophisticated institution-building: on financial sector policy and on monetary policy. In contrast, exchange rate flexibility only requires inaction on the part of the central bank. It does not require a sophisticated institutional machinery in order to deliver useful stabilisation.

2.5 Medium-term strategy

In the medium term, the long-standing weaknesses of the financial system can and should be addressed. This involves attacking the problems of the bond market, the banking system and financial inclusion. The technical roadmap for this has been defined by a series of committee reports (Mistry, 2007; Rajan, 2008; Patil, 2005; Aziz, 2008).

Once a monetary policy transmission has been achieved, a strong monetary policy process is also required, based on the key principles of independence, accountability and transparency. Through this, changes in the short-term interest rate would be an important tool for stabilisation of the economy. This can, however, only happen in the medium term, since it requires a sophisticated financial system and a new RBI Act.

3 Stabilisation through fiscal policy

3.1 Generic difficulties of discretionary fiscal policy

From the 1960s onwards, the use of discretionary fiscal policy in business cycle stabilisation has come under increasing criticism. Two major constraints that have been identified are: speed and politicisation.

In the NBER data for US business cycles, in the 10 downturns from 1945 to 2001, the average recession lasted 10 months. This short duration is hard to reconcile with the real world delays of fiscal policy. For discretionary fiscal policy to come into play, the following delays are encountered:

1. The first delay is the time taken for the statistical system to discern a recession. As an example, we now know that the three month moving average growth of seasonally adjusted IIP peaked (at 20%) in late 2006.[4] But till the end of 2007, most analysts had not understood that IIP growth had peaked in the previous year.[5]

2. Substantial responses by the government – e.g. an expansion of the deficit by more than 0.5% of GDP – can only happen through a budget. This generally induces a delay between the date that a downturn is seen and the date of the budget. Conversely, in February, when a budget is being formed (and when data about the previous December has not yet come in), relatively little is known about business cycle conditions in the year that is to start from the coming April.

3. Large changes in a budget made in February typically do not generate modified expenditures until June.

Hence, under ideal conditions and assuming no mistakes are made, a downturn in September would be clearly visible by February; it would induce a response on the part of discretionary fiscal policy which would hit the economy by the coming June. This is a delay of nine months. This shortest delay is possible for a recession that begins in September. For all other starting dates of a recession, the delay for discretionary fiscal policy would be larger.

If, as in the US, recessions are a year long (on average), then these delays make discretionary fiscal policy ill-suited for the task of stabilisation.

[4] *Source:* http://www.mayin.org/cycle.in

[5] This problem is not unique to India. As an example from the US, the NBER dating committee made the announcement that December 2007 had been a peak in December 2008, i.e. a full year later.

The second problem with discretionary fiscal policy is its politicisation. Prior to an election, it is likely that politicians will favour expansionary fiscal policy, thus inducing election cycles exactly as is the case with central banks that lack independence. Further, the design of taxation or expenditure programs as part of a fiscal stimulus, in a crisis environment, can lead to favours being given out to marginal constituencies.[6]

The research literature has shown sombre empirical results about discretionary fiscal policy. It is found that GDP volatility is higher in countries where there is more discretion in fiscal policy. Countries which put more constraints on fiscal policy fare better. Further, these effects are stronger with poor countries. These conceptual arguments and evidence suggest that India should avoid utilising *discretionary* fiscal policy responses to a downturn.

3.2 Unique Indian features of discretionary fiscal policy

These arguments, about the delays and politicisation of fiscal policy, and thus the optimality of avoiding discretionary fiscal policy, have been widely accepted worldwide. When we think about India, there are some unique features of the Indian economy which need to be taken into account.

India has an unhappy history of chronic fiscal indiscipline. In the 31 years from 1979-80 onwards, the median value for the gross fiscal deficit of the Centre was 6.26% of GDP. Large primary surpluses are the hallmark of a period where a country achieves fiscal consolidation. It is only in the brief period from 2003-04 till 2007-08 that India ran small primary surpluses. The overall picture is one where the median primary surplus was -2.19%. Owing to this failure to achieve primary surpluses, in these three decades, India has never had a period where the debt/GDP was paid down significantly, in the fashion seen in many other countries.

In the period after 1990-91, the median value of the central government's debt/GDP ratio was 57.13 and the latest value (for 2009-10) was 63.83%.

[6]Other consequences of the use of discretionary fiscal policy include an increase in uncertainty for the private sector. The ideal tax system is one in which there is long-term stability of tax rates. Once major reforms of the tax system are finished, and India is on a framework that emphasises the personal income tax and the GST, the aim should be to have atmost one change to one of these rates per decade. This stability will assist the ability of the private sector to undertake long-term planning in confidence. Year to year fluctuations in tax rates damage plans of the private sector.

This is a worrisome level of indebtedness, when we consider that government debt was below 60 per cent of GDP in most episodes of default by governments in emerging economies in recent years (Reinhart, Rogoff, and Savastano, 2003).

In this setting, of fiscal fragility as the normal condition, suppose discretionary fiscal policy is used to achieve stabilisation when a downturn comes along. This has important negative ramifications. Fiscal fragility is worsened, which exacerbates the downturn in various ways. As an example, the cost of borrowing of private firms abroad goes up in a downturn since the credit rating of the sovereign gets downgraded.

Indian-style chronic fiscal distress thus involves a new channel for procyclicality through increased fiscal fragility when discretionary fiscal policy is used in a downturn.

3.3 Procyclicality of the fiscal balance in India

The other channel for fiscal procyclicality lies in the budget constraints faced by the government. When a country has weak fiscal institutions, and deficits and debt have reached uncomfortable levels, in bad times or in normal times, finance ministers are cautious about spending. In booms, the pressure of deficits and debt appears to be alleviated owing to automatic stabilisers (the response of tax revenues to good times, and the smaller expenses that some existing programs incur in good times). In such times, finance ministers feel comfortable about the fiscal situation, and governments embark on enlargement of spending programs.

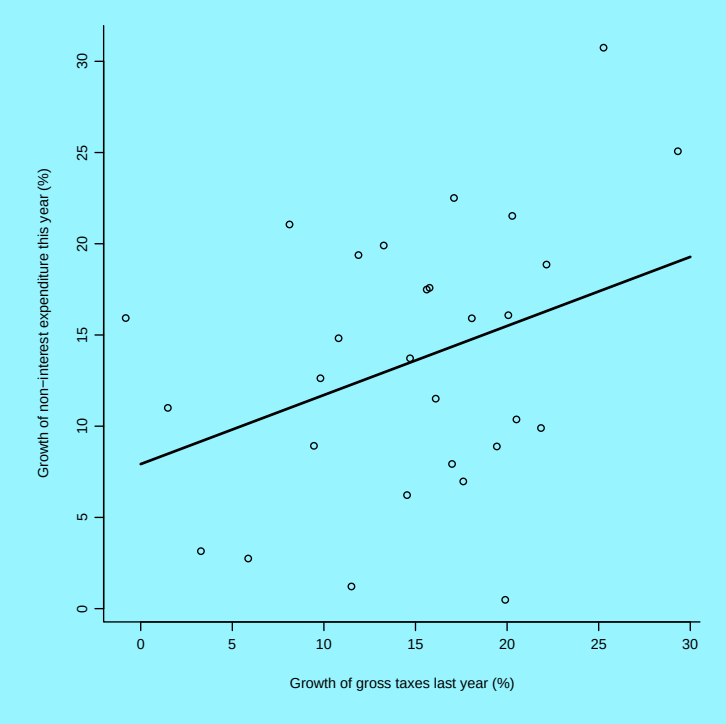
Conversely, when there is a business cycle downturn, deficits and debt achieve uncomfortable values, and governments embark on austerity drive.

Such behaviour yields pro-cyclical fiscal policy. When times are good, government expenditure makes them better. When times are bad, government tightens its belt, making things worse.

Figure 3 illustrates this problem in India's central government finances. It shows that on average, the growth in expenditure in 2010-11 is likely to be bigger by 0.3786 percentage points for each percentage point of growth in gross tax revenues in 2009-10 (and vice versa). A government making a budget in January and February is likely to spend more in the coming year when growth in gross tax revenues in the current year has been better

Figure 3 Central government spends more in year t when gross tax revenues grew well in year $t-1$

The x axis of this graph shows the growth in gross taxes in the year (in percent), using data from 1980 onwards. The y axis shows the growth in non-interest expenditures (in percent) of the central government in the *next* year. It highlights the idea that in February 2010, when a budget is being prepared, a strong performance on gross tax revenues in 2009-10 generates a bigger bias in favour of expansion of expenditure for 2010-11.
The coefficient of the regression line is 0.3786 (with a t statistic of 1.983). On average, a 1 percentage point improvement in gross tax revenue growth in year t yields bigger non-interest expenditure growth, of 0.3786 percentage points, in year $t+1$.



(and vice versa). Through this, government spends more when business cycle conditions are buoyant and vice versa, inducing pro-cyclicality.

The other dimension of fiscal policy and stabilisation pertains to rare and catastrophic events. When a country has healthy values for debt and deficits under ordinary times, this creates the space through which the rare use of discretionary fiscal policy can help the economy in rare and extreme events. The deeper consequence of this fiscal space is that the private sector feels more confident in the outlook for the country, knowing that the State has the capability to marshall remarkable responses when extreme situations arise once or twice a century. This confidence induces bigger investments in financial and human capital.

3.4 Looking forward

In this difficult situation, how can India's fiscal policy framework best cater to stabilisation? The three key ideas appear to be:

1. Fiscal consolidation needs to be the first area of focus. The channels of procyclicality described above are critically related to fiscal fragility. India needs to cap the consolidated debt/GDP ratio (of centre and states) at 60%, and credibly ensure that it will not rise above 60% even in a sharp downturn.

2. Discretionary fiscal policy induces many problems. In terms of fiscal policy, the sensible path would involve expansion of programs such as NREG, which are automatic stabilisers. That is, they yield bigger deficits in bad times and smaller deficits in good times, without discretionary action by the government. The fiscal space for these programs can be made by shrinking expenditures of the government which yield little by way of public goods such as subsidies, and existing programs on health and education.

   As with the analysis of informal finance above, this emphasis on the safety net (through programs such as NREG) is another area where the poverty alleviation agenda is consistent with institution building for India as a mature market economy. While the NREG is desirable from the viewpoint of poverty alleviation, it is also desirable from the viewpoint of business cycle stabilisation through non-discretionary fiscal policy.

3. Progress on monetary policy reform will yield a new mechanism of stabilisation, which will reduce the pressure upon politicians to engage in discretionary fiscal policy when faced with a downturn.

4 Economic reforms as a tool for stabilisation

Economists generally think in terms of counteracting business cycle fluctuations using fiscal policy and monetary policy. But in India, both fiscal policy and monetary policy institutions are relatively feeble. They do not have the capability to make a substantial difference if the challenge that is posed to them is counteracting a decline in private corporate investment of 10% of GDP or Rs.550,000 crore a year.

In coming years, India must build up high quality fiscal, financial and monetary policy institutions. These institutions will give the institutional capability through which stabilisation can be done. This is a desirable goal, and should be undertaken. In the short term, when faced with a storm, the institutional capabilities required for stabilisation are largely absent. If the challenge is a potential decline of investment by Rs.550,000 crore a year, fiscal policy and monetary policy are mere spectators.

In a downturn, the private sector tends to be concerned about the outlook for Indian GDP growth. The private sector needs to be persuaded that India is serious about economic policy reform, so as to get back to an optimistic environment where India is on the move, growth expectations are strong, and investment gets going again.

The will to invest of the private sector is thus shaped by 'animal spirits' of private corporations. Accelerating broad-based economic reforms is an important tool for stabilisation. In a downturn, it can induce greater optimism about India, and yield increased private corporate investment. The magnitudes involved here are larger than those which can be mustered through monetary or fiscal policy.

5 Conclusion

Drawing together the key ideas of this paper, the policy directions emphasised in this paper, in order to achieve macroeconomic stabilisation in India, may be summarised as follows:

- Fiscal consolidation needs to be the first area of focus. The channels of procyclicality described in the paper are critically related to fiscal fragility. India needs to cap the consolidated debt/GDP ratio (of centre and states) at 60%, and credibly ensure that it will not rise above 60% even in a sharp downturn.

- Discretionary fiscal policy induces many problems. In terms of fiscal policy, the sensible path would involve expansion of programs such as NREG, which are automatic stabilisers. That is, they yield bigger deficits in bad times and smaller deficits in good times, without discretionary action by the government. The fiscal space for these programs can be made by shrinking expenditures of the government which yield little by way of public goods such as subsidies, and existing programs on health and education.
- Progress on monetary policy reform will yield a new mechanism of stabilisation, which will reduce the pressure upon politicians to engage in discretionary fiscal policy when faced with a downturn.
- In the short term, business cycle stabilisation through the short-term interest rate is largely ineffectual, owing to shortcomings of both financial sector policy and monetary policy.
- In the short term, exchange rate flexibility is a tool through which stabilisation can be obtained. A rupee appreciation reduces inflation, reduces profits of the tradeables sector and thus the investment demand of the tradeables sector. Through this, a rupee appreciation is contractionary (and vice versa).
- In the medium term, the implementation of the four major committee reports on financial sector reforms will yield a financial system with a meaningful monetary policy transmission. This would need to be accompanied by commensurate reform of monetary policy arrangements.
- In the short term, structural economic reform is a tool for stoking investment demand in a downturn, by increasing optimism about India.

References

Aziz, J. (2008): "Report of the Internal Working Group on Debt Management in India," Discussion paper, Ministry of Finance.

Barro, R. J., and D. B. Gordon (1983): "Rules, discretion and reputation in a model of monetary policy," *Journal of Monetary Economics*.

Bhattacharya, R., I. Patnaik, and A. Shah (2010): "Monetary policy with a weak monetary policy transmission," Discussion paper, NIPFP.

Chari, V. V., and P. J. Kehoe (2006): "Modern macroeconomics in practice: How theory is shaping policy," Discussion paper, NBER.

Kelkar, V. (2004): "India; On the growth turnpike," Discussion paper, Australian National University; K. R. Narayanan Memorial Lecture.

——— (2005): "India's economic future: Moving beyond State capitalism," Discussion paper, Gadgil Memorial Lecture.

Kydland, F., and E. Prescott (1977): "Rules rather than discretion: The inconsistency of optimal plans," *Journal of Political Economy*, 85, 473–490.

Lucas, R. E. (1987): *Models of business cycles*. Oxford.

Mishkin, F. S. (2007): *Monetary policy strategy*. MIT Press.

Mistry, P. (2007): "Making Mumbai an International Financial Centre," Committee report, Sage Publishing and Ministry of Finance, Government of India.

Patil, R. H. (2005): "Report of High Level Expert Committee on Corporate Bonds and Securitisation," Discussion paper, Ministry of Finance.

Patnaik, I. (2005): "India's experience with a pegged exchange rate," in *The India Policy Forum 2004*, ed. by S. Bery, B. Bosworth, and A. Panagariya, pp. 189–226. Brookings Institution Press and NCAER.

Patnaik, I., and R. Sharma (2002): "Business Cycles in the Indian economy," *Margin*, 35(1), 71–79.

Rajan, R. (2008): "Committee for Financial Sector Reforms," Committee report, Planning Commission, Government of India.

Reinhart, C. M., K. S. Rogoff, and M. A. Savastano (2003): "Addicted to Dollars," Working Paper 10015, National Bureau of Economic Research.

Shah, A. (2008): "New issues in macroeconomic policy," in *Business Standard India*, ed. by T. N. Ninan, chap. 2, pp. 26–54. Business Standard Books.

Shah, A., S. Thomas, and M. Gorham (2008): *India's Financial Markets: An Insider's Guide to How the Markets Work*. Elsevier.

Taylor, J. B. (2005): "Thirty five years of model building for monetary policy evaluation: Breakthroughs, dark ages and a renaissance," Discussion paper, Stanford University.

Thomas, S. (2006): "How the financial sector in India was reformed," in *Documenting reforms: Case studies from India*, ed. by S. Narayan, pp. 171–210. Macmillan India, New Delhi.