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DEFICITS AND RULES:
SOME GUIDELINES FOR THE CONDUCT OF FISCAL POLICY
OVER THE BUSINESS CYCLE

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Abstract

This paper explores four main issues. It first looks at a few of the theories that have been advanced in order to explain the stylized facts of economic fluctuations and then examines some of the main features of business cycles in the Indian economy over the past 50 years. In the process, it obtains quantitative estimates of the impact of the business cycle on the fiscal deficit. Second, it presents a relatively broad definition of some of the major types of fiscal policy rules adopted by countries, including the fiscal management principles suggested for the Indian economy in the *Report of the Commit tee on Fiscal Responsibility* submitted in 2000. Third, it empirically measures as well as investigates the nature of the relationship between discretionary fiscal policy changes and the structural fiscal balance for the Indian economy; and suggests the magnitude of fiscal restraint required to stabilize the structural deficit. Finally, it distinguishes between two key components - consumption and investment - of the primary deficit, and proposes the incorporation of an additional, and highly important, characteristic into the class of fiscal policy rules that needs to be seriously considered by developing countries because of its considerable potential for damping cyclical fluctuations.

Key Words: cyclical fluctuations, fiscal policy rules, structural fiscal balance, discretionary fiscal policy changes, fiscal stimulus/restraint, primary deficit

JEL Code(s): E32, E6l, E62

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1.   Introduction

Cyclical fluctuations in economic activity are a feature of the behaviour of most economies, and an understanding of their patterns and causes is important to the decisions of both policymakers and market participants. The objectives of macroeconomic policy have long included the avoidance of protracted recessions in which resources go underutilized, and of periods of unsustainable growth that can jeopardize price stability. In such a context, a notable achievement of recent times has been the progress made towards reasonable fiscal stability in most advanced economies. This seems partly attributable to the manner in which fiscal policy rules - which are far more heterogeneous and complex than monetary and exchange rate rules - have increasingly been framed within the context of forward-looking strategies based on an improved understanding of the interactions between policies and the business cycle (see Kopits and Symansky 1998). Experiences with inflation targeting in some industrialized countries since the early 1990s also appear to have been successful in allowing fiscal policies to be adjusted in response to early warning signals of inflationary pressures so as to ensure price stability. Such an approach has helped to avoid some of the difficulties that developed with earlier attempts at fiscal targeting and should help to prevent incipient inflation and thereby reduce the risk of large economic fluctuations in the future.

However, their broadly favourable effects notwithstanding, compliance with fiscal policy rules have had major macroeconomic consequences for economic growth, inflation and indebtedness, apart from leading to distortions in the composition of government expenditures and taxation. Of particular concern has been the effect of balanced-budget rules on the short-run variability in output and income. Nevertheless, more than in the case of discretionary policies, the future maintenance, and thus the credibility, of a fiscal rule has been often jeopardized by excessive reliance on low-quality, one-off measures (such as financing from privatization receipts).

The current interest towards adopting fiscal policy rules in the developing countries is largely because the period since the 1980s has witnessed a steady increase in the share of their governments in economic activity and widening fiscal imbalances (see Masson and Mussa 1995). The diverging structural trends in government revenue and expenditure, in combination with a fiscal policy stance guided primarily by short-run stabilization targets, has reflected an increasingly asymmetrical demand management: budget deficits that emerged during recessions were not fully offset by equivalent surpluses during economic expansions.[1] Fiscal developments over the past two decades can be summarized by four observations. First, many countries experienced a deficit bias, reflected in the steady deterioration in public finances. Second, efforts to arrest this deterioration with short- or medium-term discretionary action have generally been unsuccessful. Third, contrary to previously held conventional wisdom - largely derived from Keynesian traditions - fiscal adjustment, if underpinned by structural reform, need not induce a recession. And, finally, a critical ingredient to successful adjustment is a prolonged commitment to fiscal discipline.

In such a context, this paper explores four main issues. It **first** looks at a few of the theories that have been advanced in order to explain the stylized facts of economic fluctuations and then examines- some of the main features of business cycles in the Indian economy over the past 50 years. In the process, it obtains quantitative estimates of the impact of the business cycle on the fiscal deficit. Second, it presents a relatively broad definition of some of the major types of fiscal policy rules adopted by countries, including the fiscal management principles suggested for the Indian economy in the *Report of the Committee on Fiscal Responsibility* submitted in 2000. Third, it empirically measures as well as investigates the nature of the relationship between discretionary fiscal policy changes and the structural fiscal balance for the Indian economy; and suggests the magnitude of fiscal restraint required to stabilize the structural deficit. Finally, the concluding section distinguishes between two key components - consumption and investment - of the primary deficit, and proposes the incorporation of an additional, and highly important, characteristic into the class of fiscal policy rules that needs to be seriously considered by developing countries because of its considerable potential for damping cyclical fluctuations.

2.   Business Cycles

The Indian economy, after experiencing a period of fairly sustained growth over the period 1992-97, seems to have slipped once again into a recession which has not been completely out of line with the trends observed during some of its earlier contractionary phases. More of a surprise in terms of business cycle history has been the significant decline in inflation. In such a context, the recent unusual set of configurations of many relevant macroeconomic indicators for the Indian economy have given rise to a series of questions regarding the possibility of fundamental changes having taken place in the nature of the business cycle in the Indian economy since liberalization. Is the Indian business cycle related to cyclical developments elsewhere in the industrialized countries? If so, does such a synchronization of cyclical activity imply that upswings and periods of stagnation would become more pronounced in future? To what extent do market mechanisms, including fiscal imbalances, contribute towards destabilizing the business cycle? Does the recent experience of the Indian economy suggest that we may be heading towards a new paradigm in which technological developments and policy innovations render the business cycle obsolete? Providing answers to these and other related questions requires an understanding of both the theories of business cycles as well as the main features and causes of fluctuations in economic activity.

2.1   Theories of the Business Cycle

There is a relatively long lineage of economic theories that have attempted to explain business cycles. These theories have, in general, been different from the theories of economic growth, whose primary concern has been to explain observed patterns in long-term trends in output. Business cycle theories focus instead on the factors that cause output to fluctuate around these long-term trends. The approach taken by recent theories of the business cycle has been to focus on combinations of shocks and propagation mechanisms that give rise to fluctuations in economic activity, on the basis of covariations among economic variables that are usually observed in practice. However, while there is a considerable degree of disagreement among various schools of thought on the precise nature of the shocks and the types of propagation mechanisms that generate and drive economic fluctuations, as well as on their ensuing policy implications, there is by-and-large a consensus that shocks often have long-lasting effects.

"New Keynesian" models of the business cycle stress the crucial role played by demand shocks in causing economic fluctuations. These models build upon traditional Keynesian theories that have long emphasized the roles of aggregate demand and market failure in causing the business cycle. The key difference between Keynesian and New Keynesian theories is that the latter models are based on the assumption of optimizing economic agents and are therefore considered by many to have an advantage of being grounded on firmer microeconomic foundations. However, in both class of models, prices and wages are assumed to adjust only slowly in response to disturbances - a feature which is attributed mainly to the environment of imperfect information in which economic agents have to make decisions, as well as to the existence of nominal wage contracts that are fixed in advance for relatively long periods. Consequently, the goods and labour markets do not clear instantaneously, and a variety of aggregate demand shocks can cause fluctuations in economic activity and employment.

In such a context, both these theories argue that policy-induced shocks (e.g. anticipated and unanticipated changes in monetary policy) can cause fluctuations in output. Exogenous disturbances in either consumption or investment arising from shifts in sentiment - that are not warranted by objective changes in economic fundamentals - can also be sources of fluctuations in output, implying that cycles can very often arise solely as a consequence of changes in expectations, which can therefore be self-fulfilling (see Shleifer 1986). Thus, a central implication, of the New Keynesian theories is that economic policy matters and that policy measures can help to stabilize the economy, especially in situations where contractions in economic activity are induced by bouts of pessimism. Thus, the perspectives offered by the New Keynesian theories on the role of policy is in contrast to the early vintage of rational expectation theories of the business cycle which, by assuming that the markets for goods and labour cleared instantaneously despite imperfections in the information available to economic agents, deduced that only unanticipated changes in policy could lead to fluctuations in output (see Lucas 1972).

New Keynesian models of the business cycle therefore provide a useful analytical framework for explaining fluctuations in economic activity arising from both policy- as well as non-policy-induced shocks. Because shifts in policies and in economic sentiment tend to occur irregularly, the framework provided by New Keynesian models is particularly appropriate for explaining fluctuations in economic activity. In this framework, recessions or recoveries begin to dissipate either because policy responds in a counter-cyclical manner to imbalances developing in the economy or because economic agents respond independently of policy to these imbalances.

While supply shocks, such as changes in the terms of trade or in commodity prices, are considered to be a possible cause of cyclical fluctuations in old and New Keynesian models, in "real" business cycle theories, such supply shocks are central. Proponents of real business cycle theories argue that the same economic forces ought to explain both growth and fluctuations and posit that cyclical fluctuations are the consequences of the optimizing responses of economic agents who alter the allocation of their time between work and leisure, and of their income between present and future consumption, in response to random (positive or negative) shocks in production technology. As such, there is little scope for involuntary unemployment or for economic policy in such models. Given the lack of convincing explanations of the type of random productivity shocks that could have caused actual cyclical fluctuations, as well as the absence of adequate empirical support for the propagation mechanisms assumed in this theory, real business cycle models have not found much support or practical use amongst, policymakers.

2.2   Business Cycles in the Indian Economy: Evidence and Features

To detect the existence of business cycles in the Indian economy, we initially generated smoothed estimates of the real growth rate (g) over the 50-year period 1950-51 to 2000-2001,[3] and then fitted both a linear trend line as well as a nonlinear (cyclical) trend line[4] through these smoothed growth rates. The results, which have been presented in Figure 1, are extremely interesting on two counts. First, the empirical regularity in the ensuing pattern of the smoothed growth rates is reminiscent of business cycle behaviour. From 1953-54 onwards, eight so-called Juglar cycles" - which have been superimposed upon the smoothed growth rates - are clearly visible, and in each of these cases, the growth rate has followed the classical pattern of fluctuating around a cyclically increasing trend. It is also seen that the peaks of these Juglar cycles are relatively short-lived (around 1-2 years) as compared to the troughs (almost 2-3 years).

Second, there seems to be a certain pattern of symmetry in the behaviour of the cyclical trend (which resembles the so-called Kondratieff wave) vis-a-vis the linear trend around which it is fluctuating. It is seen that the Kondratieff cycle for the Indian economy has a duration of about 42 years - a peak in 1953-54 followed by the next peak in 1995-96 - and that the absolute deviations of these two peaks, as well as the trough of the cycle - reached in 1974-75 (which is in the neighbourhood of the first oil price shock) - from their respective trend projections are all nearly identical. Thus, in a manner analogous to the business cycle analysis of Schumpeter (1939)[6], it can be surmised that for the Indian economy, there are approximately seven Juglar cycles (of approximately six years duration each) in every Kondratieff cycle (of about 42 years duration). If this two-cycle pattern is indeed an empirical regularity, ihen the contraction of economic activity which, by and large, began to manifest itself from 1997-98 onwards is part of the eighth Juglar c>cle which commenced in 1995-96 and which, in all probability, ended in 2001-02. However, if the long-awaited package of "second-generation" reforms does not contain adequate measures for technological developments, institutional reforms and policy innovations, it is unlikely that future growth rates would be much higher than what we are currently experiencing because from now onwards we would be on the downswing of the second Kondratieff cycle. It would be important to keep this caveat in mind when forming expectations about future prospects.

In the course of this investigation, it is also necessary to examine whether inflation is pro- or counter-cyclical because this question has long engaged the attention of business cycle analysts (see Kydland and Prescott 1990). In such a context, we generated smoothed estimates of the inflation rate *(%)* over the 50-year period 1950-2001[7] and these have been presented in Figure 2. By and large, it is observed that the inflation rate has been clearly counter-cyclical, often mirroring the business cycle with almost identical turning points. However, and this is interesting, during the eighth and latest cycle (1995-2002), both the growth and inflation rates have moved in a clearly pro-cyclical manner belying their earlier co-movements. More information is however needed before we can pass judgment regarding the future course of the cyclical nature of Indian inflation.

The patterns discerned above suggest that fluctuations in economic activity have been a recurrent feature of Indian economic development and that, to a certain extent, they have been characterized by varying degrees of regularity in terms of duration and amplitude. In such a context, a greater understanding of some of the forces underlying these fluctuations can be obtained by analyzing the inter-temporal nature of the correlations amongst the variables within phases. Table 1 below shows some of the relevant patterns across all the eight Juglar cycles.

Figure 1

Business Cycle Behaviour: Indian Economy
1950-51 to 1999-2000

Growth Rates

1953-54   1958-59   1963-64   1968-69   1973-74   1978-79   1983-84   1988-89   1993-94

Years

- - - Trend(linear)Growth   ——— Smoothed Growth Rates   — Kondratieff(Cyclical)Wave   —— Juglar Cycles
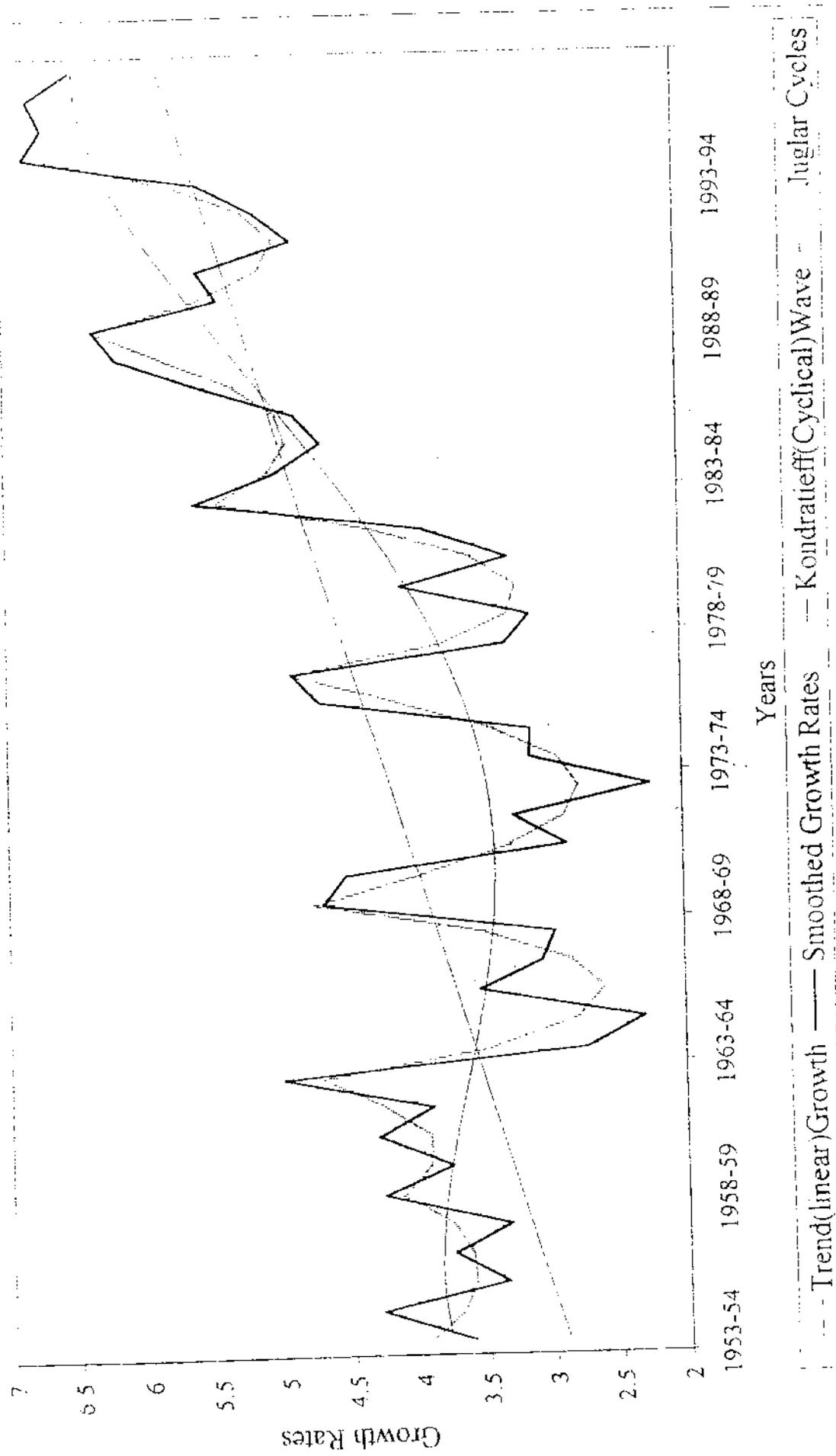
Figure 2
Cyclical Indicators: Indian Economy
1950-51 to 1999-2000

Growth Rates

Fiscal Deficits

Inflation Rates

Years
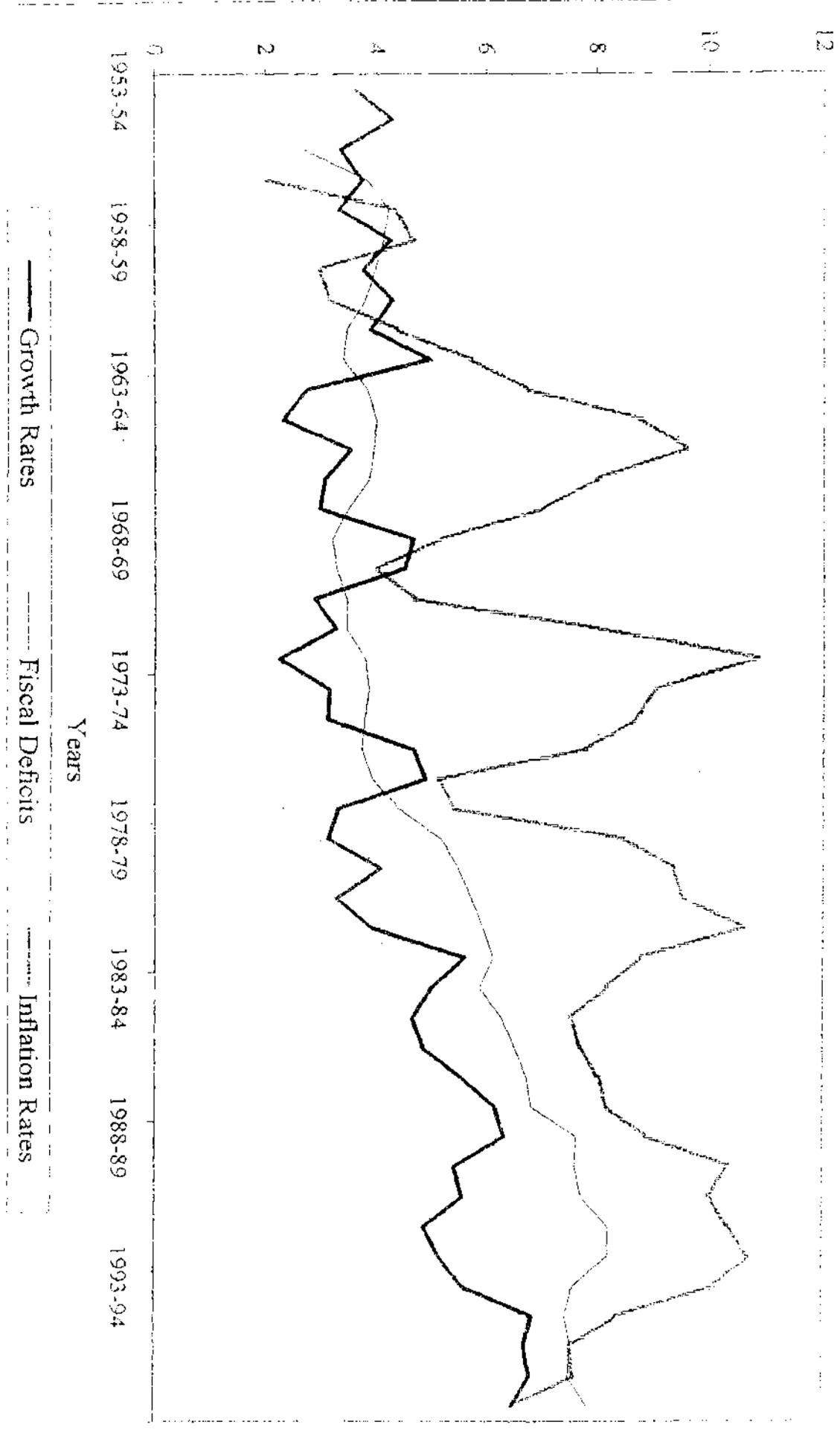
Table 1: Business Cycle Indicators[8] - Indian Economy (1951-2002)

	I Cycle: 1953-58		II Cycle: 1958-62		HI Cycle: 1962-68		IV Cycle: 1968-76		V Cycle: 1976-82		VI Cycle: 1982-88		VII Cycle: 1988-95		VDI Cycle: 1995-2002	
	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD

Means and standard deviations of smoothed growth rates

	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
GDP	3.7	0.4	4.1	0-2	3.3	0.9	3.6	0.9	3.8	0.6	5.3	0.5	5.7	0.6	6.3	0.3
Private Consumption	3.1	0.3	3.7	0.6	2.9	1.1	2.7	1.0	3.7	1.0	4.6	0.8	4.8	0.9	6.2	0.4
Public Consumption	6.8	1.5	6.2	2.3	5.4	2.5	6.1	1.7	5.8	1.5	7.4	1.1	5.9	1.0	10.2	1.4
Investment	11.8	2.8	5.7	2.3	4.9	2.2	6.2	1.5	6.2	3.6	6.6	3.0	7.3	2.6	5.0	2.1
Exports	1.0	1.7	2.4	2.5	2.8	1.7	13.6	7.9	**12.7**	2.9	6.0	2.5	10.6	1.9	8.3	2.1
Imports	7.2	4.4	2.1	3.6	2.7	4.9	10.7	10.0	18.3	4.1	5.3	2.7	8.7	4.9	9.0	3.2

Correlation coefficients with smoothed GDP growth rates

GDP	1.00		1.00		1.00		1.00		• 1.00		1.00		. 1.00		1.00	
Private Consumption	0.63		0.35		**0.94**		**0.92**		**0.43**		0.31		0.59		0.31	
Public Consumption	0.29		**-0.31**		0.31		**0.21**		**-0.37**		**-0.34**		0.55		**0.23**	
Investment	**0.25**		**0.53**		0.08		**0.11**		**0.52**		0.57		**0.86**		0.54	
Exports	-0.88		**-0.38**		0.42		**-0.50**		**0.23**		0.87		**0.61**		0.35	
Imports	-0.47		**0.18**		**0.34**		-0.55		**-0.16**		0.87		0.77		0.56	
Trade Balance	0.52		**-0.18**		**-0.15**		**-0,49**		**0.24**		**-0.07**		**-0.91**		-0.58	
Inflation	-0.45		**0.28**		**-0.50**		**-0.60**		-0.30		0.64		-0.96		0.81	
Fiscal Deficit	-0.40		0.30		-0.66		-0.55		**-0.42**		0.52		-0.78		-0.85	

As measured by its standard deviation (SD), it is interesting to note that, contrary to stylized facts, the growth of GDP is smoother than that of private consumption; while the growth of public consumption, investment, exports and imports is much more volatile. It is indeed pertinent to note that, during the VIII Cycle (1995-2002), public consumption (investment) recorded its highest (lowest) ever annual growth rate in Indian business cycle history: in effect, any quest for the genesis of the current recession should end right here! By and large, it is seen that the growth rate of GDP is positively and quite strongly correlated with the growth rate of private consumption and, to a certain extent, with the growth rates of public consumption, investment, exports and imports. Both, the fiscal deficit and trade balance have been very strongly counter-cyclical, especially over the last two cycles (1988-2002). As observed earlier, while the inflation rate has been reasonably counter-cyclical hitherto, during the last cycle (1995-2002), this robust and well-accepted relationship between growth and inflation seems to have been perturbed. Despite this seemingly sudden pattern reversal, it would be rather premature at this juncture to surmise that we may be heading towards a new chapter in Indian business cycle history.

The general perspectives provided by the various theories of the business cycle, as well as by the empirical evidence gathered in this regard, help to offer useful guideposts for interpreting the main cyclical episodes observed in the Indian economy, in particular the role of shocks and policies. The considerable fall in economic activity during 1973-75 and again during 1978-80 were the effects of supply shocks, represented by the sharp hikes in oil prices. However, because inflation was already on the upturn well before the first oil price shock of October 1973, it is likely that Indian policymakers at that time were more concerned about this aspect rather than the contractionary effects of the shock on aggregate demand. As such, the policy mix that was adopted dissipated the inflationary pressures rather rapidly although it took a longer time for output to return back to trend. However, the next time around during the second oil price shock, the policy response was more accommodative which is why output bounced back to (above) trend rapidly. However, the accommodation implied that inflation refused to decay thereby explaining the uncharacteristic phenomena as to why it was pro-cyclical during the next phase.

Another major shock hit the Indian economy about 12 years later in the wake of the BOP crisis of July 1991which culminated in a massive 36 percent nominal devaluation. The combined effects of this and the other (real and financial) liberalization measures' initiated that year brought about a considerable and sustained expansion in output, although by 1993-94 the inflation rate (as measured by its 5-year moving average) had exceeded 10 percent for three consecutive years. This led to the perception that the behaviour of the Indian economy was now being described by a new paradigm, characterized by increasing rates of growth as well as an increasing tendency for inflation. Consequently, monetary conditions were tightened considerably in 1995-96 in an attempt to unwind inflationary expectations that had become built into the system. However, such a preemptive monetary tightening choked off the expansionary phase of the seventh Juglar cycle rather prematurely because the economy experienced a rather steep contraction of economic activity in 1997-98, which was further exacerbated by a weakening of consumption demand. Ever since then, inflation and growth have both been declining simultaneously and, under the circumstances, the eighth Juglar cycle has witnessed these two variables moving in a pro-cyclical manner, contrary to their established long-term trend. However, it is still too early to ascertain whether this switch represents a fundamental change in the growth-inflation relationship, or whether it just implies an unusual configuration of forces whose effects will eventually dissipate.

Finally, empirical evidence seems to suggest that, although business cycles in the industrial countries have been relatively synchronized, there has been a desynchronization of business cycles between the developing and industrial countries as a group since the late 1980s. For example, while the industrial countries experienced a considerable slowdown between 1990-93, most developing countries (including India) experienced an abrupt turnaround during 1991-93. A number of possible explanations have been forwarded to explain this decoupling of economic fluctuations, and the most likely one is that with greater financial openness, the low interest rates in the industrial countries during periods of (their) sluggish growth could have boosted economic activity in developing countries by increasing capital flows. In such a context, apart from the fact that desynchronized movements in economic activity between mature and emerging markets provide safety valves for inflationary pressures, variations in fiscal deficits also possess the potential for playing a useful stabilizing role.

In general, because tax receipts (government expenditures) are pro-(counter-) cyclical, the fiscal deficit ratio tends to be counter-cyclical. This behaviour is a reflection of the working of the 'automatic stabilizer' wherein the expansion (contraction) of the fiscal deficit during a recession (boom) serves to limit the amplitude and duration of the cycle during, both, the downturn as well as the upswing. Attempting to preempt such movements by increasing (reducing) taxes (expenditures) during a recession, or the reverse during an expansion, would only increase the amplitude of the cycles experienced in the economy. In such a context, it would be interesting to discern for ourselves the nature of the association between cyclically adjusted deficits and growth rates in the Indian context which can serve as a sort of backdrop to the ensuing analysis. In Figure 2, we have also provided smoothed estimates of the fiscal deficit ratio[9] over the period 1953-2000 and the resulting pattern does seem to support the above hypothesis. We now look at the quantitative estimates of the impact of the business cycle on the fiscal deficit. The estimated relationship between the fiscal deficit ratio (f) and its three proximate determinants, i.e., the real growth rate (g), the inflation rate (71), and the interest rate (i), over the period of the VTI and VIII Cycles (1988-2002) is reported below (where the figures in parentheses indicate t-statistics):

$$f = 13.3400 - 1.0104\,g + 0.3811\,\pi + 0.1294\,i$$
$$(-5.3) \quad (5.1) \quad (2.9)$$

$$R^2 = 0.8801; \quad SEE = 0.3134$$

The above equation explores the effects of alternative macroeconomic shocks to deficit predictions and helps to serve as a rough rule-of-thumb. These rules are:

- A one-percentage-point increase in the real growth rate would reduce the fiscal deficit by an almost equivalent amount primarily because of the widening tax base.

- A one-percentage-point increase in the inflation rate would increase the fiscal deficit by about 0.4 percent of GDP. This is primarily due to fiscal erosion because of collection lags; as well as the differential impacts of inflation on government expenditures and revenues - with the former increasing much faster with rising prices as compared to the latter.

- A one-percentage-point increase in the rate of interest would widen the fiscal deficit by about 0.] 3 percent of GDP primarily because of its impact on the interest cost of public debt.

These rules help in understanding some of the deficit problems of the 1990s which are seen to be primarily due to either high *real* interest rates or low growth rates that have prevailed, in one form or the other, over this decade. Based upon the latest trends, the above equation predicts that the gross fiscal deficit (centre plus states combined) would be about 10.3 percent of GDP in 2002-03.[10] The above rules also have a bearing on the question as to whether it is possible for the Indian economy to "grow out of deficits," that is, whether sustained growth will be able to eliminate the fiscal deficit altogether. The estimated relationship - using lagged values of the fiscal deficit ratio to proxy the possibility of deficit bias - indicates that two percentage points of extra growth per year for the next 4-5 years would solve the problem, but two *extra* points of growth, given the current economic scenario, seems impossible. Hence, the deficit will not disappear as a result of growth. An alternative solution might be a decline in interest rates. However, interest rates have already been sufficiently lowered and unless there is a *structural* shift in the financing pattern of the deficit, any further reduction seems unlikely. With neither higher growth nor lower interest rates being able to reduce the deficit, fiscal policy rules - which can govern the evolution of the structural fiscal balance - attain paramount importance.

3. Fiscal Policy Rules and the Fiscal Responsibility Act

The growing interest in fiscal policy **rules** is largely attributable to the deterioration in fiscal performance, the so-called deficit bias, experienced over the last two decades by a large number of countries, both developed and developing. Although in many developed countries this deterioration has been arrested, if not actually reversed, as part of the convergence towards meeting fiscal rules, many developing countries, including India, face an uphill task in' managing a sustainable fiscal policy over the medium to long term, given the existing uncertainties in the macroeconomic outlook and structural rigidities. Equally worrisome for the developing and transition economies is their continuing vulnerability to macroeconomic imbalances which prevent realization of their full growth potential in the absence of sound and predictable fiscal policies. As a matter of fact, it is precisely in the light of these considerations that the Government of India constituted a *Committee on Fiscal Responsibility Legislation* in January 2000 to examine various aspects of the fiscal system and recommend a draft legislation on fiscal responsibility in order to "provide for the responsibility of the Central Government to ensure intergenerational equity in fiscal management and macroeconomic stability by progressive elimination of the revenue deficit, removal of fiscal impediments in the effective conduct- of monetary policy and prudential debt management consistent with fiscal sustainability through limits on Central Government borrowings, debt and deficits" (Gol 2000, p. 16). Subsequently, in July 2000, a draft legislation on fiscal responsibility titled "Fiscal Responsibility and Budget Management Act" (FRA) was submitted by the Committee which, despite attempting to adhere to well-established norms and practices, has attracted its fair share of flak from several quarters.

The rationale for the FRA in the current Indian context needs to be examined particularly against the widespread deterioration of public finances, despite several attempts by the government (such as the Long-Term Fiscal Policy of 1985-86 and the reform measures of 1991-92) to reverse this trend through discretionary policy. The resulting lack of fiscal consolidation has not only caused serious concern about the sustainability of the fiscal stance itself but has also complicated exchange and interest rate management due to problems of creditworthiness. Government finances continue to be a matter of serious concern arid, significantly, revenue deficits, which surfaced for the first time in 1979-80, have currently become an endemic feature in the Indian fiscal system. More importantly, such a persistence of revenue deficits emanating from increasing interest payments has resulted in a vicious circle of deficits and debt. Apart from the growing and persistent imbalances which have raised the issue of fiscal sustainability and macroeconomic stability, the very integrity of the budget has been questioned on account of the ever-increasing discrepancies between the revised and original Budget estimates.

In such a context, a number of major questions have repeatedly been posed: What are fiscal policy rules? What are the principal drawbacks, as compared to alternative approaches to fiscal adjustment, associated with the rules suggested for the Indian economy by the above committee on fiscal responsibility? Can fiscal rules contribute to long-run sustainability without sacrificing short-run **stabilization?** If so, what characteristics of fiscal rules make this contribution most effective[9] And in what manner and context should the Indian government modify the proposed fiscal rales in order to initiate a virtuous cycle of sustained macroeconomic stability, investment and growth? While there have been several attempts to answer these and related questions, the basic objective of this paper is to identify and measure certain important fiscal concepts based upon which it would be possible **to** suggest alternative fiscal policy rules.

3.1 Fiscal Policy **Rules Defined**[1]

For the purpose of this paper, a fiscal policy rule is defined, in a macro economic context, as a permanent constraint on fiscal policy, typically measured in terms of an indicator of overall fiscal performance (see Box 1). A critical feature of a fiscal rule is that it is intended for application on a permanent basis by successive governments over a reasonably long time period.[11] Much like other rule-based policies,[12] fiscal rules can be defined in terms of their stringency, precision and enforcement of the statutory instrument. A narrow definition would require both ex ante (budget approval) and ex post (budget execution) compliance. The focus of this section is on fiscal policy rules, as distinct from procedural rules that include automatic contingency measures. These, or other measures, specified in advance, are triggered if actual budget implementation deviates from budget forecasts pursuant to a fiscal policy rule. Any fiscal policy rule that incorporates such contingency measures is called a contingent policy rule.

3.2 Political Economy of Fiscal Rules

> **Box 1. Major Types of Fiscal Policy Rules**
>
> *Balanced-budget or deficit rules*
> - Balance between overall revenue and expenditure (that is, prohibition on government borrowing); or limit on government deficit as a proportion of GDP. «
> - Balance between structural (or cyclically adjusted) revenue and expenditure; or limit on structural deficit as a proportion of GDP.
> - Balance between current revenue and current expenditure (that is, borrowing permitted only to finance capital expenditure).
>
> *Borrowing rules*
> - Prohibition on government borrowing from domestic sources.
> - Prohibition on government borrowing from central bank; or limit on such borrowing as a proportion of past government revenue or expenditure.
>
> *Debt or reserve rules*
> - Limit on stock of gross (or net) government liabilities as a proportion of GDP.
> - Target stock of reserves of extra-budgetary contingency funds (such as social security funds) as a proportion of annual benefit payments.

Probably the most powerful argument for adopting such fiscal rules centres on their political economy aspects. According to this argument, democratically elected (especially coalition) governments have an in-built bias towards deficits, and therefore tend to redistribute income away from future generations and towards the present generation of voters. Because of their sensitivity to electoral pressures, most of these governments are incapable of correcting the bias without a higher order - possibly constitutional - constraint on fiscal policy (see Persson and Tabellini 1990). This difficulty in taking strong corrective measures is further exacerbated in countries with a large proportion of aging population (which contribute towards pension payments) and rigid social entitlements (which contribute towards subsidies).

Similarly, it can be argued that the potential benefits of fiscal rules over discretionary policies ensue from the credibility of lasting commitment to fiscal discipline or, in other words, from the time consistency of rules in the view of rational private decision makers (see Cukierman and Metzler 1986). Such an enhanced credibility of the government: (1) facilitates access to financial markets at a much lesser cost for the government, as well as for all economic agents, and (2) ensures the support and confidence of the electorate, despite temporary setbacks due to cyclical variations in the fiscal deficits. The result is very likely to be a self-sustaining virtuous cycle of macroeconomic stability, investment and growth.

3.3 The "Fiscal Responsibility and Budget Management Act"

In keeping with well-established norms and practices adopted by many developed and developing countries (see Table 2), the proposed FRA has incorporated *all* of the three types of fiscal policy rules: (a) deficit related, (b) borrowing related, and (c) debt related; although many analysts feel that it does leave some, if not ample, scope for discretion (see Box 2). Probably the best known fiscal policy rules are those involving balance between government revenue and expenditures. This can be specified as the overall balance, the current balance, or the operating balance to be met each year. Alternatively, it can be defined over a longer period, in terms of a structural balance or a cyclically adjusted balance, very much like the Maastricht Treaty, under which members of the European Union wishing to participate in Stage 3 of EMU are required to adhere to the Stability and Growth Pact which calls for "a medium-term budgetary position close to balance or surplus" subject to a 3 percentage point reference value for the fiscal deficit in any year, so as to "allow for automatic stabilizers to work, where appropriate, over the whole business cycle." However, in the Indian context, this rule has been re-defined in terms of the balance between revenue and fiscal deficits with the Committee recommending the progressive elimination (reduction) of the revenue (fiscal) deficit within a five-year period. In effect: "The meeting of these targets regarding the revenue and fiscal deficits would ensure the observance of the *golden rule* whereby all borrowings by the government are for financing public investment" (GoI, p. 10).[13]

Some of the oldest functioning fiscal rules consist of prohibition of or limits on government borrowing. The borrowing constraint usually specifies the source of financing (central bank or all domestic sources) and the level of government (national or state) to which it applies. In this context, the Committee has prohibited the central government from borrowing from the central bank [under Clause 5(1) of the FRA], although, in line with the practice adopted by most of the advanced economies, this rule [under Clauses 5(2)-(4) of the FRA] leaves: (a) the extension of short-term advances to the government, (b) the subscription to the primary issues of the government, and (c) the buying and selling of government securities to the discretion of the RBI, as evidence of central bank autonomy. Thus, the proposed bill does not impose any direct restrictions on the monetized deficit of the government which is important because it allows flexibility to the RBI to carry out its monetary operations effectively. This feature has been examined in great detail by Rao (2000a) who has studied the implications of an optimal accommodation of the deficit.

Finally, a fiscal policy rule may consist of a limit on, or a target for, the stock of public debt as a proportion of GDP. At present, under a broad definition, the following two cases can be considered as rules: (a) a ceiling on the debt-income ratio in the general vicinity of its *current* level; and (b) a medium-term plan for *reducing* the public debt ratio to a more *prudent* level vis-a-vis its current one. In the Indian context, the'Committee has exercised the soft option by avoiding the stringency involved in the second type of rule and has preferred to set a reference value of 50 percent of GDP for total liabilities (including external debt at the current exchange rate) which does not differ markedly from its existing level. However, notwithstanding the technical fact that this target level is compatible with a high degree of fiscal latitude[14], the proposed ceiling permits ample scope for interpretation because it is not very clear as to whether: (a) privatization revenue will be used for gross debt reduction - even though such an operation would leave net worth, with properly valued assets, unchanged, and (b) publicly guaranteed liabilities contracted by the rest of the public sector and accrued liabilities under government pension schemes and other contingent liabilities will count towards the debt ceiling.

Table 2
Selected Countries: Fiscal Policy Rules

Country	Target or Ceiling	Effective Period	Statutory Instrument	Government Level	Penalty for non-compliance
Canada	Overall balance or deficit limit	Since 1993	Legal provision	Subnational governments	Judicial
CFA franc zone members	Borrowing from central bank limited to 20 percent of last year's revenue	Since 1973	International treaty	General government	Financial
Costa Rica	Yearly deficit limit (1 percent of GDP)	Proposal	Constitutional amendment	Public sector	Judicial
European Union members	No borrowing from central bank	Since 1994	International treaty (Stage 2 of EMU)	General government	Judicial
	Medium-term overall balance; Yearly deficit limit (3 percent of GDP); Gross debt limit (60 percent of GDP).	Since 1997	International treaty (Stage 3 of EMU)	General government	Financial
Germany	Yearly current balance	Since 1949	Constitutional amendment	Federal and subnational governments	Judicial
India	Yearly current balance; Yearly deficit limit (3 percent of GDP); Gross debt limit (50 percent of **GDP).**	Proposal	Legal provision .	General government	
Indonesia	No domestic borrowing	Since 1967	Government policy	General government	Reputational
Japan	Yearly current balance	1946-75; and from 2003 onwards	Legal provision	Central government	Judicial
Netherlands	Structural deficit limit	1961-74	Government policy	Central government	Reputational
New Zealand	Medium-term operating balance	Since 1994	Legal provision	Public sector	Reputational
Southern cone and other Members*	No borrowing from central bank or borrowing limited to a fixed proportion of last year's revenue	Various	Various	General government	Judicial
Switzerland	Cyclically adjusted balance	Proposal	Constitutional amendment	Federal government	Reputational
United States	Yearly overall balance	Proposal	Constitutional amendment	Federal government	Judicial

Notes: Includes South Cone Member Such As Argentina ,Brazil ,Chile,Ecuador And Peru As Well As Other Including Hungary,Egypt,Morocco,Philipiness And The Slovak Repulic

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Box 2

THE FISCAL RESPONSIBILITY AND BUDGET MANAGEMENT BILL, 2000.
</div>

Fiscal Management Principles

4 (1) The Central Government shall take suitable measures to reduce the revenue deficit and fiscal deficit and build up adequate revenue surplus.   .   "

(2) In particular and without prejudice to the generality of the foregoing provision, the Central Government shall:

(a) reduce the revenue deficit by an amount equivalent to half percent or more of the estimated GDP at the end of each financial year commencing on the 1st day of April 2001;

(b) reduce the revenue deficit to nil within a period of five financial years commencing on the 1st day of April 2001 and ending on the 31st day of March 2006;

(c) build up surplus amount of revenue and utilise such amount for discharging liabilities in excess of assets;

(d) reduce fiscal deficit by an amount equivalent to one-third of one percent or more of the estimated GDP at the end of each financial year commencing on the I^{st} day of April 2001;

(e) reduce the fiscal deficit for a year to not more than three percent of the estimated GDP for that year within a period of five financial years commencing on the 1st day of April 2001 and ending on the 31st day of March 2006;   -

(f) not give guarantee for any amount exceeding half percent of the estimated GDP in any financial year;   :   :

Provided that the revenue deficit and fiscal deficit may exceed the limits specified under this sub-section on the ground of unforeseen demands on the finances of the Central Government due to national security or national calamity;

Provided further "that the grounds or the reasons specified in the first proviso shall be placed before both the Houses of Parliament immediately after such deficit exceeds the aforesaid limits;

(g) ensure that the total liabilities (including external debt, at the current exchange rate) at the end of a financial year are not more than fifty percent of the estimated GDP for that year within a period of not more than ten financial years commencing on the I^{st} day of April 2001.

4.   The Structural Fiscal Balance and Discretionary Fiscal Policy Changes

4.1 *The Structural Fiscal Balance in India: Some Empirical Evidence*

The government budget balance is largely influenced by both temporary and permanent factors, implying that changes in the fiscal deficit could arise either in response to cyclical changes (temporary factors) in output or as a result of discretionary fiscal' policy actions (permanent or structural factors). The cyclical changes in output have a transitory effect on the fiscal deficit, whereas the structural factors have a more lasting impact. The traditional deficit indicators - as discussed above - do not distinguish between these two effects, and hence fail to correctly analyze and portray the impact of fiscal operations on the rest of the economy. Any analysis of fiscal actions without properly gauging the influence of such temporary and permanent factors on the deficit would, therefore, be self-defeating in nature. The separation of temporary factors from the permanent or structural influence is, therefore, of paramount importance from the viewpoint of evolving an appropriate medium-term fiscal policy strategy, particularly when an economy has embarked on an exercise towards fiscal correction and consolidation. While many developed countries do allow for such short-term cyclical deviations - albeit without specifying whether due to automatic stabilizers or discretionary policies - from the balanced-budget position, the proponents of the FRA have not incorporated the essentials of this argument into the proposed bill.

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For estimating the decomposition of the budget balance into its structural and cyclical components, two important methodologies have been adopted. The IMF methodology consists of estimating a structural budget balance (SBB) as the residual balance after isolating the business cycle influence from the actual budget balance (see Hagemann 1999). This involves estimation of potential output and the related output gap, as well as quantification of cyclical components of expenditure and resources to derive the SBB. On the other hand, the OECD methodology initially distinguishes between discretionary budget changes and built-in stabilizers as a prelude to defining the SBB (see Muller and Price 1984). As the built-in stabilizer component of the budget balance is self-cancelling in nature (as the revenue and expenditure components are influenced by the cyclical upturns and downswings), it would represent the cyclical component, while the residual component of the budget balance - which essentially captures the effects of discretionary policy action as well as the fiscal drag - would represent the SBB.

While the RBI prefers the OECD over the IMF methodology (see RBI 1999), we have used a third approach for purposes of estimating these two components of the budget balance in view of its far greater computational simplicity. Broadly speaking, the structural deficit (SD) is the fiscal deficit that would have prevailed in any given year if the output in that year was on its trend, while the cyclical deficit (CD) reflects the deficit that arises due to the deviation in output from its trend. In simple terms, the gross fiscal deficit (FD) can be expressed as follows:

$$FD = G - tY \qquad (4.1)$$

where G is total government expenditure, Y is GDP at current market prices, and t is the ratio of total government receipts (R) to GDP, i.e., $t = R/Y$. If Y^* denotes the trend value (or potential level) of GDP, then adding and subtracting tY^* from the right-hand-side of eq. (4.1) yields:

$$FD = [G - tY^*] - [t(Y - Y^*)] \qquad \textbf{(4.2)}$$

where the first term in parentheses captures the structural component of the fiscal deficit, and the second term provides us with the cyclical component. Dividing all the terms of eq. (4.2) above by Y yields the actual fiscal deficit ratio $[f = FD/Y]$ as the difference between the structural deficit ratio $[SD = (G - tY^*)/Y]$ and the cyclical deficit ratio $[CD = t(Y - Y^*)/Y]$.

The results of such an exercise over the period 1980-2001 are provided in Table 3 (also see Figure 3) and indicate the dominance of the structural component in the budgetary balance of the government. The SD reveals a continuously rising trend throughout the eighties, hovering at about 8 percent of GDP over the second half of this decade. The fiscal consolidation exercise undertaken in 1991-92 following the BOP crisis led to a significant compression in the SD that year. Thereafter, wide ranging measures were initiated in the form of liberalization of the economy and a strategic retreat from the core sectors of the economy, which further contributed to the declining trend in the SD till 1996-97. After regaining dominance briefly over the period 1997-99, there was once again a sharp decline in the SD over the next two years primarily due to discretionary policy changes. However, this decline turned out to be a purely temporary one because the SD has increased to 5.85 percent of GDP in 2001-02, with the corresponding CD being -0.05 percent of GDP. This implies that the Indian economy for the second consecutive year is operating below its potential level of output. If this trend persists, as all leading indicators seem to suggest, then compression of the fiscal deficit to 3 percent of GDP by 2006, as envisaged by the FRA, will be impossible.

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<div align="center">Table 3</div>

<div align="center">Structural and Cyclical Components of the GFD in India: Some Empirical Evidence</div>

<div align="right">(as percentage of GDP)</div>

Year	SD	CD	GFD	Year	SD	CD	GFD
1980-81	5.65	-0.10	5.75	1991-92	5.52	-0.04	. 5.56
1981-82	5.21	+0.10	5.11	1992-93 •	5.29	-0.09	5.38
1982-83	5.56	-0.07	5.63	1993-94	6.87	-0.14	7.01
1983-84	6.02	+0.09	5.93	1994-95	5.62	-0.09	5.71
1984-85	7.12	+0.07	7.05	1995-96	5.10	+0.00	5.10
1985-86	7.93	+0.13	7.80	1996-97	4.93	+0.03	4.90
1986-87	8.47	+0.07	8.40	1997-98	5.73	-0.14	5.87
1987-88	7.49	-0.12	7.61	1998-99	6.35	-0.08	6.43
1988-89	7.54	+0.24	7.30	1999-00	5.61	+0.02	5.59
1989-90	7.62	+0.31	7.31	2000-01	5.03	-0.07	5.10
1990-91	8.17	+0.32	7.85	2001-02	5.85	-0.05	5.90

4.2   Discretionary Fiscal Policy Changes in India: Some Empirical Evidence

Throughout the preceding analysis, we have discussed about the effects of discretionary fiscal policy changes and their separation from automatic stabilizers. In interpreting Indian fiscal history, it would be extremely useful to have some simple summary measure of the direction and magnitude of fiscal stimulus or restraint. It turns out however that this is not such a simple issue because of the difficulties involved in summing up into a single number the differential impacts of changes in government spending and tax rates on output. However, adopting the methodology suggested by Cohen (1988), we can construct a *heuristic* index of discretionary fiscal policy changes which measures, as shown in eq. (4.3) below, the net effect of the change in *real* government spending (AG) - excluding interest payments on the public debt which is not a discretionary component - and real tax receipts (AT). The index is expressed as a fraction *of real* income (Y), so that we can interpret it as the impact on aggregate demand, in percentage terms, of the change in the fiscal stance. The resulting fiscal policy index (FPI) is given by:

$$FPI = (AG-AT)/Y \qquad\qquad (4.3)$$

The estimates of the FPI, based upon the above formula, are provided below in Table 4.

<div align="center">Table 4</div>

<div align="center">Discretionary Fiscal Policy Changes in India: Some Empirical Evidence</div>

<div align="right">(as percentage of GDP)</div>

Year	FPI	Year	FPI	Year	FPI	Year	FPI
1981-82	-0.13	1986-87	+0.88	1991-92	-2.05	1996-97	-0.22
1982-83	+0.64	1987-88	-0.37	1992-93	-0.08	1997-98	+1.06
1983-84	+0.70	1988-89	+0.20	1993-94	+1.68	1998-99	+0.69
1984-85	+1.30	1989-90	+0.25	1994-95	-0.98	1999-00	-0.86
1985-86	+1.04	1990-91	+0.92	1995-96	-0.29	2000-01	-0.37

NOTE(+)INDICATES DISCRETIONARY FISCAL STIMULUS ;(-) INDICATES DISCRETIONARY FISCAL RETRAINT

Figure 3
## Structural Fiscal Balance in India (1980-2001)
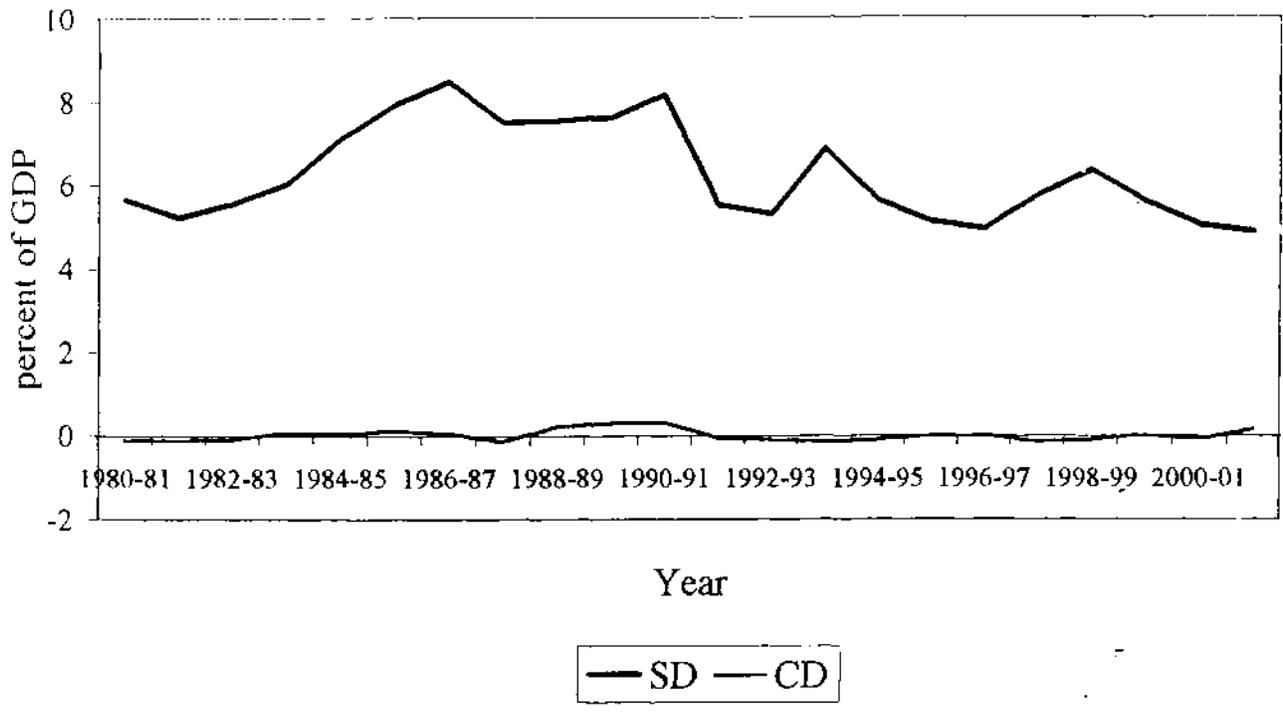
Figure 4
Discretionary Fiscal Policy Changes in India (1981-2001)
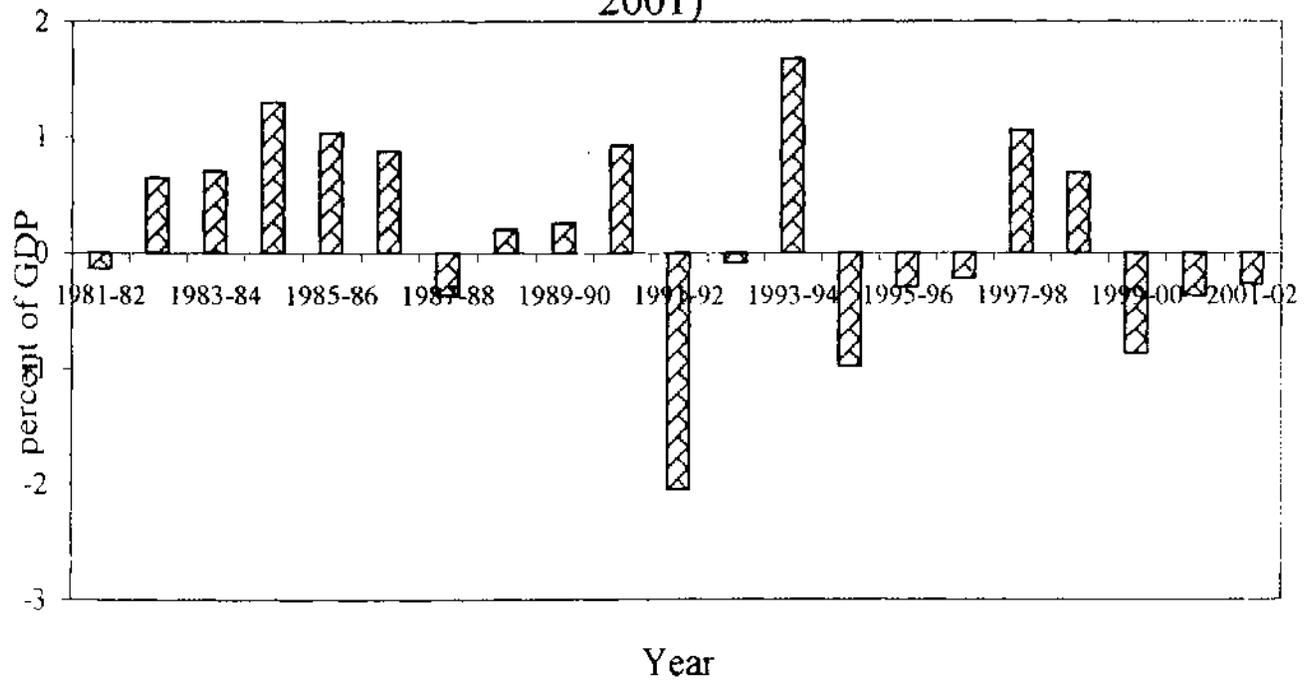
The results of the empirical exercise (also see Figure 4) are interesting because they make it apparent that the 1980s were a period of very substantial discretionary fiscal *stimulus* peaking at 0.92 percent of GDP in 1990-91. As a result of the financial liberalization measures introduced in the aftermath of the BOP crisis, there was a dramatic switch in the fiscal policy stance what with 1991-92 recording a fiscal *constraint* of 2.05 percent of GDP; amounting to, in effect, a *fiscal compression of almost 3 percent of GDP within the span of one year* Thereafter, over the decade of the 1990s, although fiscal constraint has, by and large, been the dominant theme, there have been significant fiscal lapses notably in 1993-94 and again over the period 1997-99 which witnessed total fiscal stimuli in excess of 1.5 percent of GDP. Over the next two years, however, there was a sustained attempt at fiscal consolidation. However this fiscal restraint (averaging about 0.6 percent of GDP over the period 1999-2001) has turned out to be a "deficit delusion" (see Kotlikoff 1989) because the FPI for 2001-02 is estimated at about +0.27 percent of GDP. If this switch is not reversed, it could well be the prelude to yet another era of fiscal stimuli after which it could be very difficult to attain the deficit targets recommended under the proposed bill.

In such a context, we must understand that any blanket implementation of the FRA would imply that we would be targeting the actual, rather than the structural, deficit-income ratio. However, as noted earlier, targeting the fiscal deficit by increasing (reducing) taxes (expenditures) during a recession, or the reverse during an expansion, only serves to increase the amplitude of the cycles in the economy. It is thus imperative that the fiscal authorities distinguish carefully between the structural and cyclical components of the fiscal deficit and limit responses *only* to adverse movements in the former. This issue is particularly critical in our present context because any excessive fiscal restraint at this juncture could well deepen the recession. Given this caveat, we now change the target variable (although *not* its level) and attempt to determine the direction and magnitude of the fiscal policy stance - in terms of the required discretionary fiscal stimulus or restraint - that is compatible with a targeted *structural,* rather than actual, deficit of 3 percent. The estimated relationship between the structural deficit (SD) and the fiscal policy index (FPI) over the period 1981-2001 is given below (where the figures in parentheses indicates t-statistics):

$$SD = 0.4020 + 0.9021 SD_{t-1} + 1.0025\ FPI$$
$$(29.0) \qquad\qquad (24.5)$$

$$R^2 = 0.9847; \quad SEE = 0.1554$$

The above results are very illuminating because they suggest a very robust relationship between the structural deficit and discretionary fiscal policy. It is seen that a one percentage point increase in the FPI would, in the short run, translate itself into an equal increase in the structural deficit. Such an instrument-target relationship can be exploited in order to derive fiscal policy guidelines in this revised context. Simulations indicated that in order to reduce the current structural deficit from 5.85 percent in 2001-02 to a level of 3 percent by 2005-06 *would require a* fiscal restraint of the order of almost 0.45 percent of GDP over the next four years. Thereafter, long-run steady state analysis indicated that FPI should be set at -0.1 (implying a fiscal restraint of 0.1 percent of GDP) continuously in order to ensure that the structural deficit remains at 3 percent of GDP permanently. Thus target acquisition would leave *no* scope for fiscal stimuli whatsoever and such permanent fiscal restraint would imply that *primary deficits would need to* he converted into ever-increasing primary surpluses to offset the rising interest burden on the public debt so that the structural deficit remains constant.

5. Conclusions

The logic of discretionary fiscal policy changes, spelt out in Section 3.5, tacitly assumes that a positive and increasing primary deficit (surplus) implies a fiscal stimulus (restraint). While this is intuitively true, technically speaking, the actual growth inducing or retarding effects of a primary deficit (PD) will depend essentially upon how it is bifurcated into its two basic components: primary deficit consumption (PDC) and primary deficit investment (PDI). In order to illustrate this possibility, we provide below in Table 5, the data on the real growth rate (g), as well as on PDC and PDI, over the period 1990-91 to 2001-02.

Table 5

The Growth-Inducing and Growth-Retarding Effects of Primary Deficits

Year	g	PDC	PDI	Year	g	PDC	PDI
1990-91	5.6	1.1	1.7	1996-97	7.8	-0.2	-0.1
1991-92	1.3	0.2	1.4	1997-98	4.8	0.6	-0.1
1992-93	5.1	0.1	1.2	1998-99	6.6	1.3	-0.6
1993-94	5.9	1.5	1.4	1999-00	6.0	0.8	-0.1
1994-95	7.3	0.4	1.0	2000-01	4.0	1.0	-0.2
1995-96	7.3	0.0	0.0	2001-02	5.4	1.5	-0.4

Source: Economic Survey (2000-01)

Notes: (1) Primary deficit consumption (PDC) = Revenue deficit - interest payments + interest receipts + dividends & profits; (2) Primary deficit investment (PDI) = Capital expenditure - interest receipts - dividends & profits - recovery of loans - other receipts; (3) Both PDC and PDI are expressed as a percentage of GDP at market prices.

It can be seen that, by and large, there seems to be a pattern whereby large and persistent PDCs in conjunction with decreasing (and especially negative) PDIs are growth retarding; while falling (and especially negative) PDCs along with non-zero and rising PDIs are growth inducing. Based upon this observation, the decade of the nineties can be split up into two almost distinct phases; the first from 1991-96 which witnessed high and ever increasing growth fuelled by fairly low PDCs, and substantially high, albeit sharply declining, PDIs; and the second from 1996-2002 which was an era of declining growth triggered by sharply increasing PDCs and *continuously negative* PDIs. In such a context, it is extremely disheartening to realize that, based upon the estimates of the *Union Budget 2002-03,* it is seen that, although the primary deficit has been reduced *ex ante* to about 0.7 percent of GDP. the decomposition results indicate that the PDC will be 1.6 percent of GDP while the PDI will be -0.9 percent of GDP; in effect, the growth retarding effects will be even more dominant than before. It is thus extremely unlikely that there would be any positive externalities as a result of this fiscal compression.

While it would be too simplistic to attribute the fall in growth over the second half of the 1990s entirely because of this pattern reversal, it is an interesting conjecture which needs to be examined by researchers in order to specify a fiscalist model of growth. By doing so, we could obtain important policy guidelines regarding the specification of a plausible fiscal rule which sets limits on the PDC and PDI - unlike the conventional fiscal rules currently existing in the literature which generally target only the deficit-income or debt-income ratios - in an effort to balance out their growth retarding and inducing effects and damp down potential cyclical fluctuations in the economy.

REFERENCES

Aghevli, B.B and M.S. Khan (1978), "Government Deficits and the Inflationary Process in Developing Countries"-, *IMF Staff Papers,* 25.

Bernanke, B. and M. Gertler (1989), "Agency Costs, Net Worth and Economic Fluctuations", *American'Economic Review,* 79.

Cohen, D. (1988), "Models and Measures of Fiscal Policy", FRS Working Paper No. 70, Federal Reserve System, Washington D.C.

Cukierman, A. and A.H. Metzler (1986), "A Positive Theory of Discretionary Policy, the Cost of Democratic Government and the Benefits of a Constitution", *Economic Inquiry,* 24.

Edwards, S. and M.S. Khan (1985), "Interest Rate Determination in Developing Countries", *IMF Staff Papers,* 32.

Government of India (2000), *Report of the Committee on Fiscal Responsibility Legislation (Chairman: E.A.S. Sarma),* Ministry of Finance, Government of India, New Delhi.

Hagemann, M. (1999), "The Structural Budget Balance - The IMF's Methodology", IMF Working Paper No. 95, International Monetary Fund, Washington D.C.

Heller, P., R. Haas and A Mansur (1988), "A Review of the Fiscal Impulse Measure", IMF Occasional Paper No. 44, International Monetary Fund, Washington D.C.

Kopits, G. and J. Craig (1998), *Transparency in Government Operations,* IMF Occasional Paper No. 158, International Monetary Fund, Washington, D.C.

Kopits, G. and S. Symansky (1998), "Fiscal Policy Rules", IMF Occasional Paper No. 162, International Monetary Fund, Washington, D.C.

Kotlikoff, L. (1989), "From Deficit Delusion to the Fiscal Balance Rule: Looking for an Economically Meaningful Way to Assess Economic Policy", NBER Working Paper No. 2841, National Bureau of Economic Research, Washington D.C.

Kydland, F.E. and E.C. Prescott (1990), "Business Cycles: Real Facts and a Monetary Myth", *Federal Reserve Bank of Minnesota Quarterly Review,* 14.

Lucas, RE. (1972), "Expectations and the Neutrality of Money", *Journal of Economic Theory,* 4.

Masson, P.R. and M. Mussa (1995), "Long-Term Tendencies in Budget Deficits and Debt", IMF Working Paper No. 95/128, International Monetary Fund, Washington, D.C.

Muller, P. and R.W.R. Price (1984), "Strucoiral Budget Deficits and the Fiscal Stance", OECD Working Paper No. 15, Organization for Economic Cooperation and Development, Paris.

Musgrave, R.A. and P.B. Musgrave (1989), *Public Finance in Theory and Practice,* 5e, McGraw-Hill, New York.

Olivera, J.H. (1967), "Money, Prices and Fiscal Lags: A Note on the Dynamics of Inflation", *Banca Nazionale delhavoro Quarterly Review,* 20.

Persson, T. and G. E. Tabellini (1990), *Macroeconomic Policy, Credibility and Politics,* Harwood Academic Publishers, Switzerland.

Phelps, E.S. (1961), "The Golden Rule of Accumulation: A Fable for Growthmen", *American Economic Review,* 51.

Prasad, E.S. and M. Kumar (1997), "International Trade and the Business Cycle", Unpublished, International Monetary Fund, Washington, D.C.

Razin, O. and S.M. Collins (1997), "Real Exchange Rate Misalignments and Growth", NBER Working Paper No. 6714, National Bureau of Economic Research, Cambridge, Mass.

Rao, M.J.M., A.P. Samant and N.L. Asher (1999), "Indian Macroeconomic Data Base in a Consistency Accounting Framework - Parts I & II" *Economic and Political Weekly,* XXXIV(32 & 33), August.

Rao, M.J.M. (2000a), "Fiscal Deficits, Interest Rates and Inflation: An Assessment of the Monetization Strategy", *Economic and Political Weekly,* XXXV (30), August.

Rao, M.J.M. (2000b), "On Some Unpleasant Monetarist Arithmetic", *Indian Economic Journal,* 48.

Reserve Bank of India (1999), *Report on Currency and Finance 1998-99,* Reserve Bank of India, Mumbai.

Schleiffer, A. (1986), "Implementation Cycles", *Journal of Political Economy,* 94.

Schumpeter, J. A. (1939), *Business Cycles,* McGraw Hill, New York.

Tanzi, V. (1988), "Lags in Tax Collection and the Case for Inflationary Finance: Theory With Simulations", in M.I. Blejer and K. Chu (Eds.) Fiscal Policy, Stabilization and Growth in Developing Countries, International Monetary Fund, Washington, D.C.

Taylor, J.B. (1993), "Discretionary Versus Policy Rules in Practice", *Carnegie-Rochester Conference Series on Public Policy,* 38/39 (C.4).

Tinbergen, J. and JJ. Polak (1950), *The Dynamics of Business Cycles,* University of Chicago Press, Chicago.

1)   This, in effect, was a departure from the policy prescription based on either a Keynesian or a neoclassical ("tax-smoothing") approach.

2)   The recent theories of the business cycle and their emphasis on random economic shocks bear a close resemblance to the theories of the business cycle initially put forward by Tinbergen and Polak (1950).

3)   To do so, we initially smoothed out the annual time-series data on GDP at factor cost at constant (1980-81) prices by using 5-year moving averages. The estimates of g were then computed using these smoothed data.

4)   These trend lines were given by:

Linear: $g = 2.6424 + 0.06661$
Nonlinear (quartic): $g - 3.3088 + 0.19301 - 0.02161^2 + 0.000761^3 - 0.00000761^4$

where g is the smoothed growth rate, and t is the time index which ranges from 1953-54=1 to 1999-2000=47.

5)   These are: (i) the 5-year cycle between 1953-58; (ii) the 4-year cycle between 1958-62; (iii) the 6-year cycle between 1962-68; (iv) the 8-year cycle between 1968-76; (v) the 6-year cycle between 1976-82; (vi) the 6-year cycle between 1982-88; (vii) the 7-year cycle between 1988-95, and (viii) the 6-year cycle between 1995-2001.

6)   In his classic study of business cycles, Schumpter (1939) used Kondratieff cycles (named after N.D. Kondratieff) which are a series of long waves in economic fluctuations lasting from fifty to sixty years; Juglar cycles (named after Clement Juglar) which are business cycles of intermediate duration spread over a period of nine to ten years; and Kitchin cycles (named after Joseph Kitchin) which are short, rhythmic fluctuations in business activity lasting approximately-forty months. Thus, in his three-cycle analysis, the Kitchin cycles are superimposed on the longer Juglar and Kondratieff cycles, so that there are approximately three Kitchin cycles to every Juglar cycle, and six Juglar cycles (or eighteen Kitchin cycles) in every Kondratieff cycle.

7)   To do so, we initially smoothed out the annual time-series data on GDP at factor cost (current prices) and GDP at factor cost (at 1980-81 prices) by using 5-year moving averages. We then divided the smoothed estimates of the former by the corresponding smoothed estimates of the latter to obtain smoothed estimates of the GDP deflator. These estimates were subsequently used to generate smoothed estimates of the annual inflation rate *(n)*.

8)   GDP, consumption and investment are measured at constant (198C-81) prices; exports and imports are measured in terms of U.S. dollars; the trade balance and the fiscal deficit are computed as percentages of GDP at current market prices; and the inflation rate is measured by the GDP deflator.

9)   To do so, we initially computed the actual fiscal deficit ratio (f) - defined as $f = (I_g - S_g)/Y$, where I_g is public sector investment, S_g is public sector savings, and Y is GDP at market prices - and then used 5-year moving averages to obtain the corresponding smoothed estimates of the fiscal deficit ratio.

10)   Assuming that, in 2002-03, the growth rate (g) is 5 percent, the inflation rate (TC) is 3 percent and the 1-year term deposit rate (i) remains at its current level of 7.5 percent.

11)   According to Taylor (1993), several (Kitchin type) business cycles would be sufficient.

12)   Inflation targeting, for instance, is to be observed both ex ante and ex post in some countries, but only ex ante in others. Exchange rate rules, whether in fixed or in pre-announced crawling forms, are often specified within a wide band around a central rate. Also, the targeting of monetary aggregates or inflation in a number of countries is specified within a margin. The purpose of these margins and of exchange rate bands is comparable to the latitude provided for balanced-budget rules, namely, the accommodating of unanticipated exogenous developments.

13)   The term "golden rule", originated by Phelps (1961), derives from neoclassical growth theory where it is used to describe the optimal growth path that provides the maximum level of sustainable per capita consumption. As Musgrave and Musgrave (1989, p. 678) argue, under this concept, "efficient division of output between capital and labour is determined by market forces, such that the rate of return on investment is equated to the time preference of consumers. Budget policy in this case should provide for balance in the current budget so as not to affect the overall division between consumption and capital formation. The capital budget in turn should be loan financed so as to allocate part of savings to investment in the public sector". Following a simpler line of reasoning, borrowing for public investment can be justified under the assumption that the yield from such investment is sufficient to meet the resulting debt-service obligation. The actual application of this rule, however, is plagued with the difficulties of defining and measuring public sector investment (see Kopits and Craig 1998).

14)   Based upon Rao (2000b), the following equation determines the long-run deficit-debt dynamics:

$$(7t + g)d = (l-9)f$$

where d is the debt-income ratio and 9 is the proportion of the fiscal deficit that is monetized. In this context, the FRA envisages a nominal GDP growth of 12 percent per annum, i.e., $7t + g = 0.12$ (see Gol 2000, annexure III, p. 22); and has recommended under Clause 5 (1) of the guidelines for Borrowings that, "The Central Government shall not borrow from the Reserve Bank" (see Gol 2000, p. 18), i.e., $9 = 0$. It is thus clearly seen that targeting a long-run debt-income ratio of 50 percent is equivalent to targeting a steady-state fiscal deficit ratio of 6 percent which, being in the neighbourhood of its current levels, cannot be considered as the embodiment of fiscal discipline.