LONG RUN GROWTH PROSPECTS FOR THE INDIAN ECONOMY

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INTRODUCTION

After three decades of sluggish growth of about 3.5 percent per annum in the post independence period, the Indian economy attained an impressive growth of about 5.6 percent in the last two decades. Furthermore, during the mid nineties, the economy grew by more than 7 percent per annum. This has given rise to a vision of attaining even higher growth rates and joining the club of "Asian Miracle" economies. Perhaps the strongest manifestation of this vision lies in the Planning Commission's ambitious growth target of 8 percent for the Tenth Five Year Plan.

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The aim of this paper is to examine the feasibility of high long run growth rates for the Indian economy. In this context, it must be noted that although growth rates accelerated in the eighties and nineties, the biggest spurt came from services, rather than agriculture or industry. This is contrary to the development experience of most countries where a predominantly agricultural economy has first changed to a predominantly industrial economy and then to a predominantly services sector based economy. In India however, the services sector overtook not only the agricultural sector but also industry in a rather early stage of development. Now, while certain sections of the services sector like information technology,

biotechnology, telecommunication and financial services may continue to grow very rapidly for some time, they would eventually all be subject to the law of diminishing marginal returns. Thus, in the long run there has to be some sort of balanced growth between the commodity and service producing sectors.

To evaluate the prospects of future growth in the Indian economy, we use a macro econometric model developed by us, that generates forecasts of the growth trajectory at the aggregate as well as the sectoral levels. This model is used to provide forecasts for the next five years, as any forecast beyond this period would be hazardous for various reasons. However, the broad trend for the next two decades can be conjectured from this medium term growth scenario based on our model.

The issue of achieving high growth rates has been of great interest to economists, particularly theoreticians, right from the days when the subject was in its formative years. In recent times however, empiricists and policy analysts have also taken an active interest in the subject. It is easy to understand this interest, since achieving a high rate of growth is an important objective for any country, as it enables them to reach higher levels of per capita income within a shorter time period. For a developing country however, there is an even more pressing reason to increase the growth rates as much as possible. Higher growth rates enable these countries to reduce poverty and unemployment, allowing them to attain greater prosperity in a more equitable manner. It is in this perspective that we need to assess the potential of the Indian economy for attaining high growth rates in the future. Of course, any such assessment would have to be in the context of the past growth performance of the economy. In the Indian case, the last three decades provide an ideal backdrop against which we can contrast the likely policies and performance of the future.

GROWTH IN THE LAST THREE DECADES

In 1970, the real GDP of the Indian Economy (base year 1993-94) was Rs.296278 crores.[1] Over the next three decades, the economy grew at an average rate of 4.8 percent, which led to the real GDP reaching Rs. 1193922 crores by the year 2000. In other words, there has been a four-fold increase in the real GDP in these three decades. This growth has not been uniform of course. In fact the seventies could only achieve a poor 3.15 percent rate of growth, while the eighties and the nineties attained a much more healthy 5.63 percent and 5.6 percent respectively. The aggregate growth rates over the last three decades are presented in Graph I. From this it is clear that in the last two decades, the Indian economy has broken free from the shackles of the infamous "Hindu Rate of growth". The distribution of growth has been uneven not only across decades but also across the various sectors of the economy. The agricultural sector, by far the biggest in 1970, grew at a low average rate of 2.69 percent during the thirty years, while the industrial and services sector (excluding Public Administration) grew at much higher rates of 5.61 and 6.24 percent respectively, over the same period. The growth rates for the agricultural, industrial and services sector over the last three decades are presented in Graph II, III and IV respectively. The aggregate and sectoral GDP growth rates for the three decades and for the whole period are presented in table 1 [2].

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[1] Throughout the paper, calendar year (e.g., 1970) refers to fiscal year (e.g., 1970-71)
[2] Agriculture includes forestry, fishing and other allied activities. Industry includes mining, quarrying, manufacturing, construction, electricity, water and gas. Services include all tertiary activities except public administration and defense, as this is taken separately.
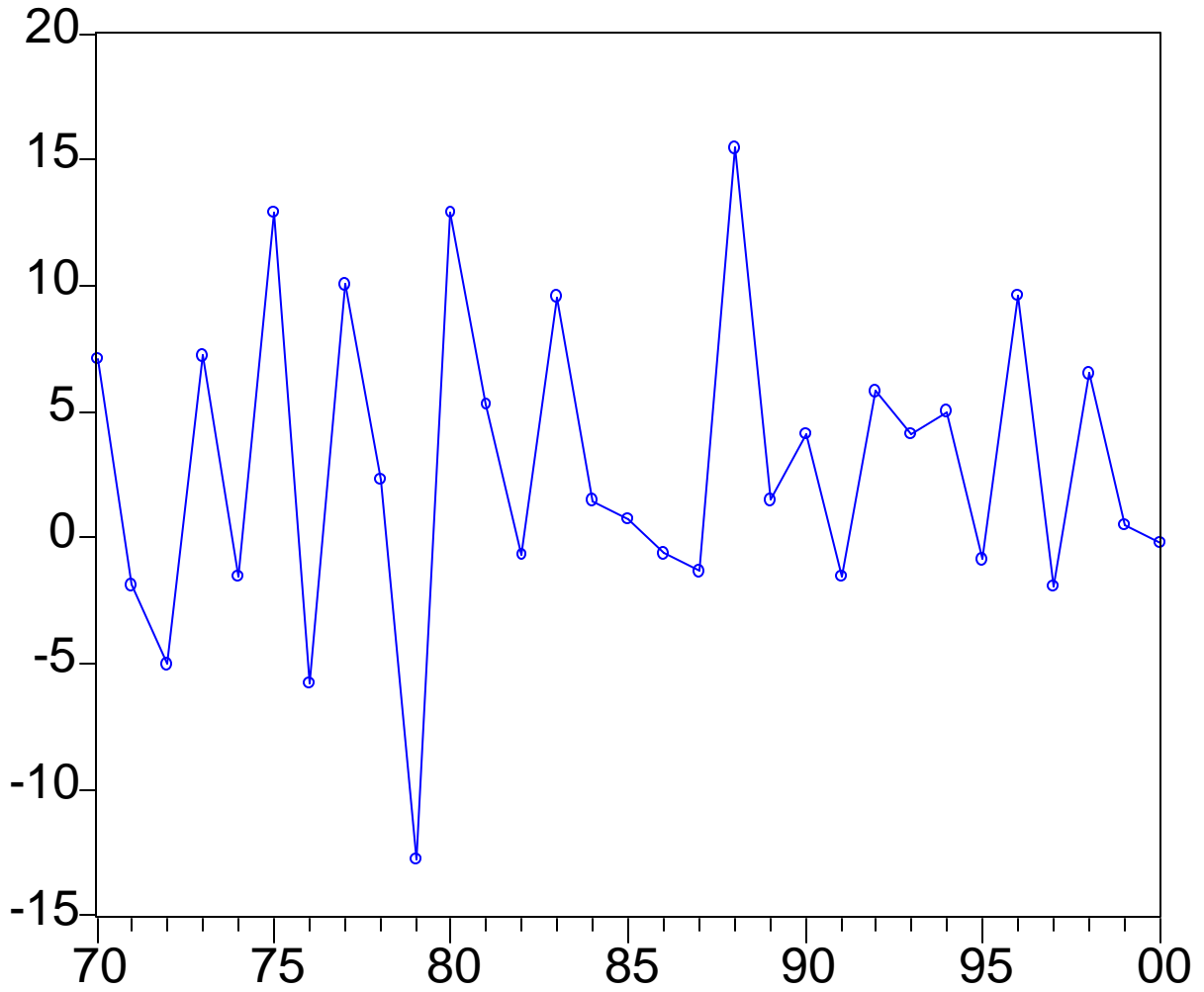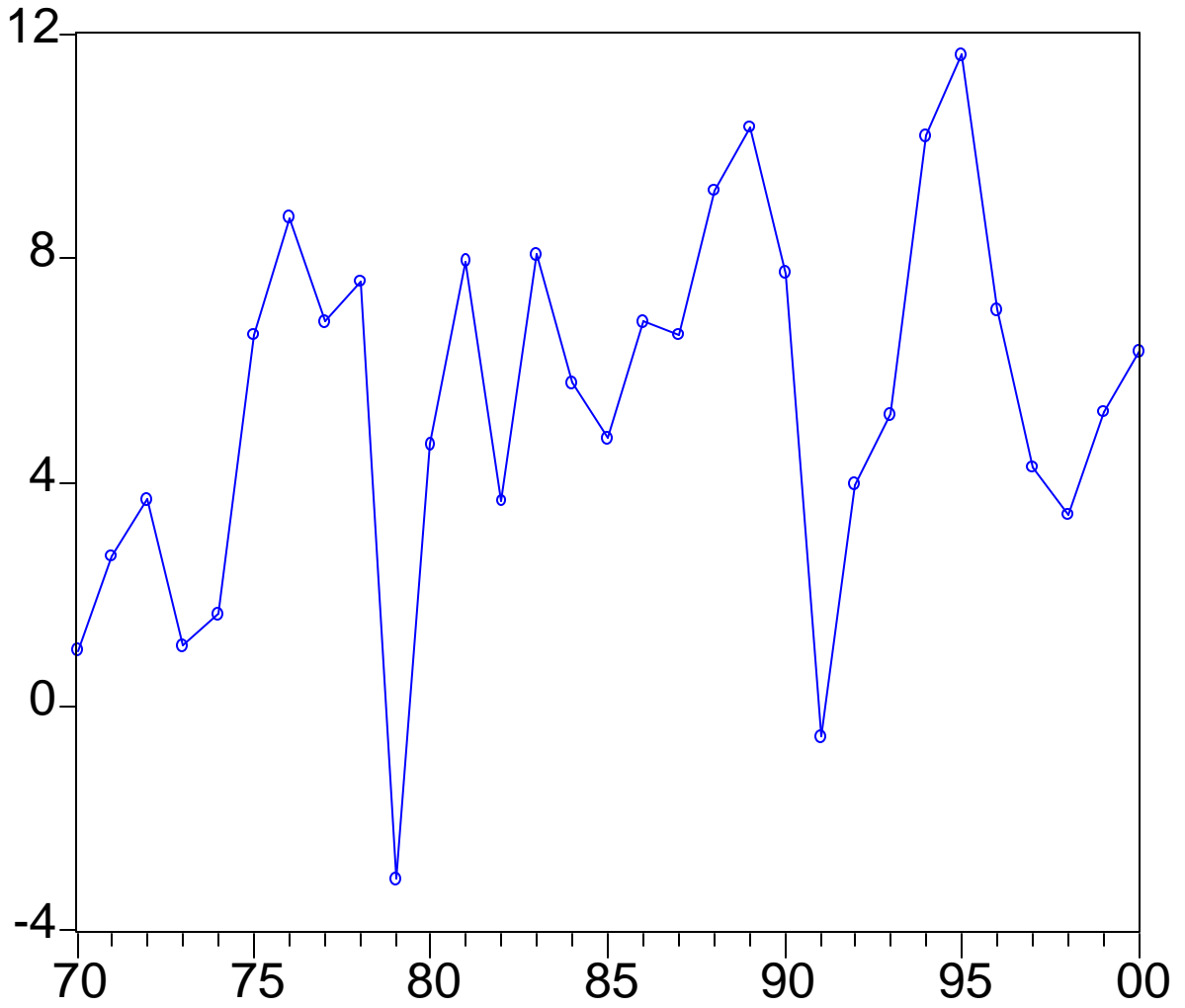
GRAPH I

Aggregate GDP Growth Rate (1970-2000)
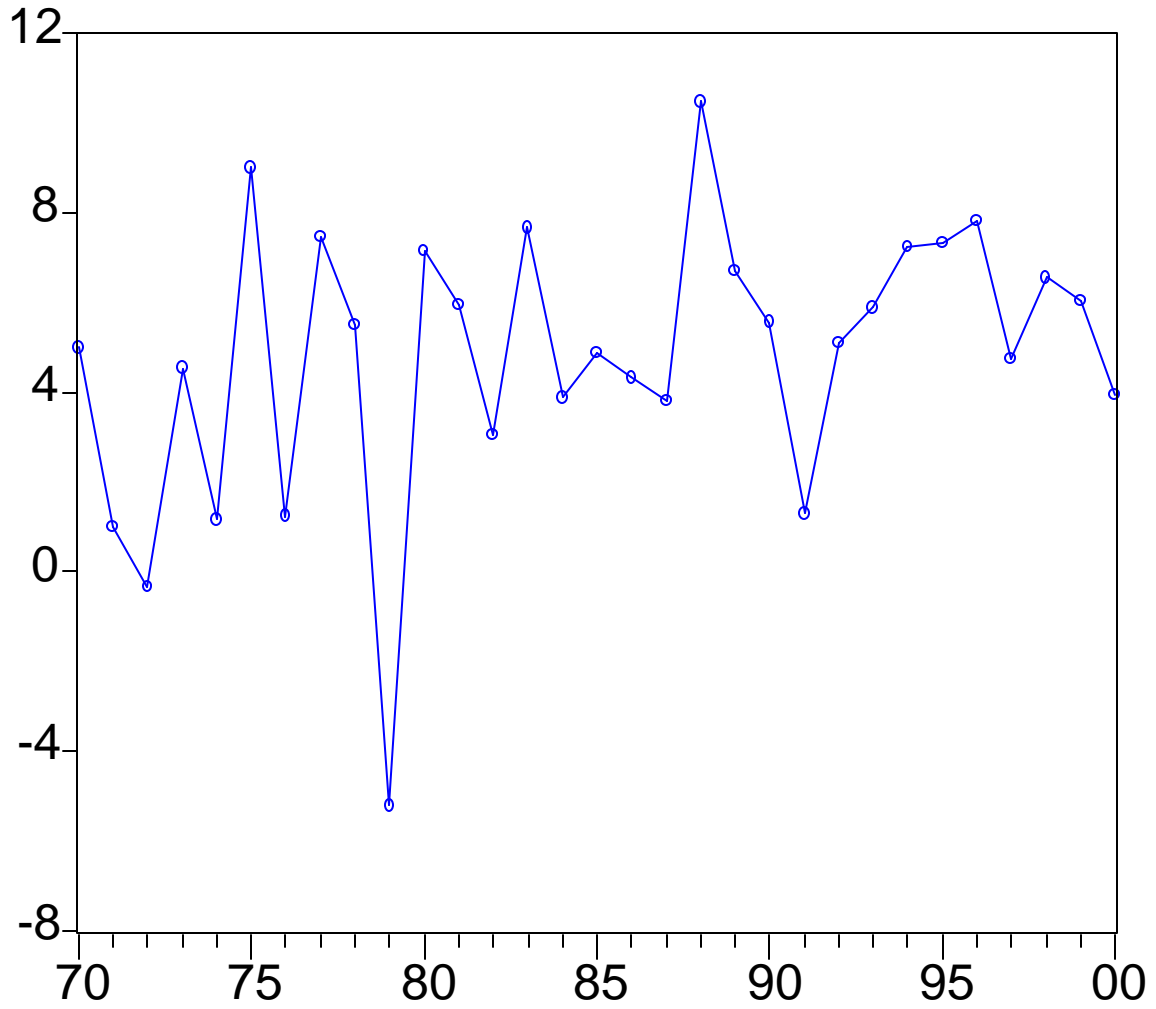
GRAPH II

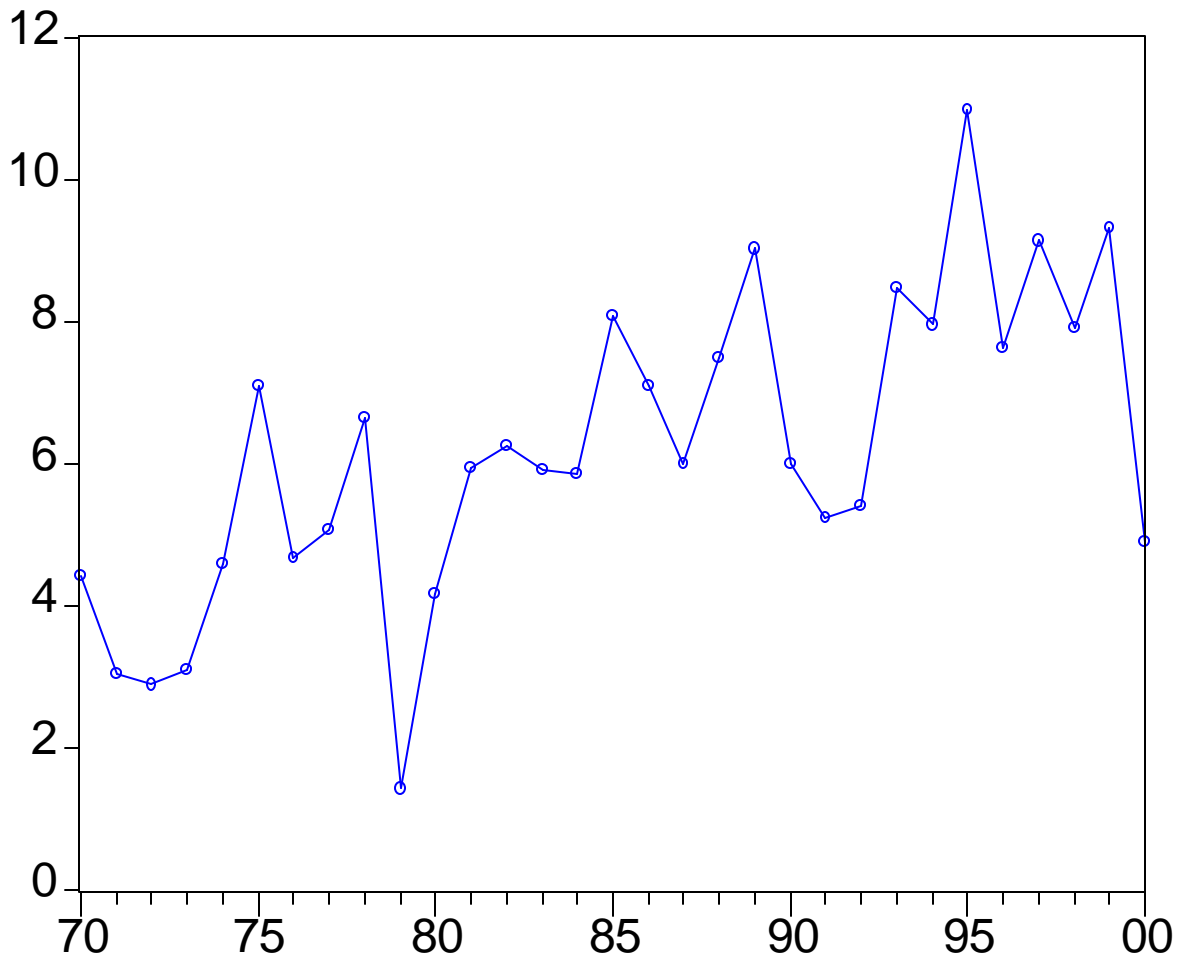## Agricultural Sector Growth Rate (1970-2000)

GRAPH III

Industrial Sector Growth Rate (1970-2000)

GRAPH IV

Services Sector(excluding Public Administration) Growth Rate(1970-2000)

TABLE 1 : LONG RUN GROWTH RATES (PERCENT PER ANNUM)

	Agriculture	Industry	Services	Public Administration and Defense	Aggregate GDP
Seventies (1971-1980)	1.83	4.05	4.26	5.38	3.15
Eighties (1981-1990)	3.54	7.10	6.76	6.49	5.63
Nineties (1991-2000)	2.69	5.68	7.69	6.64	5.60
Total (1971-2000)	2.69	5.61	6.24	6.15	4.80

The differential growth rates across the sectors have resulted in significant changes in the sectoral composition of output. The agricultural sector has lost its preeminent position with its share in GDP coming down from 46 percent in 1970 to 24 percent in 2000. Consequently all the other sectors have gained in terms of their share in the GDP. The share of industry has gone up steadily from about 22 percent in 1970 to 28 percent in 2000, while the share of public administration and defense has increased from 4 percent to 6 percent in the same period. However it is the services sector that has shown the most remarkable results, increasing its share from about 28 percent in 1970 to about 42 percent in 2000. If we add the GDP from Public Administration and Defense to the services sector we get the tertiary sector, whose share in GDP in 2000 has reached around fifty percent. The sectoral composition of output at different points of time during the three decades, are presented in table 2.

TABLE 2 : PERCENTAGE SHARE OF DIFFERENT SECTORS IN AGGREGATE GDP

Year	Agriculture	Industry	Services	Public Administration and Defense
1970	46	22	28	4
1980	40	24	31	5
1990	32	27	35	6
2000	24	28	42	6

Clearly, the Indian growth experience has been quite varied in these past three decades. The average growth rate in the post independence period up to the seventies was a poor 3.6 percent per annum, giving rise to the term, the "Hindu rate of growth". In the last two decades however, the economy broke the shackles of the "Hindu rate" and grew at a healthy rate of 5.7 percent per annum. The growth was particularly high after the post 1991 crisis, averaging about 6.3 percent per annum. In the light of these developments, it is of obvious interest to enquire whether the economy will be able to continue this trend of achieving higher and higher rates of growth. In other words, will the economy be able to grow at even higher rates in the future? In this context, the Planning Commission has come up with very optimistic growth targets for the Tenth Plan period. According to the Commission, in order to double the per capita income over the next decade, the Indian economy needs to grow at a rate in excess of 8 percent per annum. This has been the motivating factor behind the Tenth Five-Year Plan, which has fixed an ambitious target of 8 percent growth rate for the planned period. Is this a feasible rate of growth?

THE TENTH PLAN TARGETS

Of course, the Planning Commission has itself noted in its approach plan document that if current macroeconomic trends continue, then the domestic investment rate would be around 27.8 percent, which, along with the current incremental capital output ratio (ICOR) of about 4.28, will generate a growth rate of about 6.5 percent[3]. Clearly, this is much lower than the targeted rate of growth. How then does the plan hope to achieve its objective? To do this, the plan has also set a bold target for resource mobilization and its efficient use. Thus, the investment rate for the planned period is sought to be 32.6 percent, while the ICOR is to be 4.08. These rates will, of course, not be achievable with a "business as usual" approach. As far as the ICOR is concerned, a number of reforms have to be successfully implemented in order to bring the value down to 4.08. The high investment rate, on the other hand, will necessitate a high savings rate. The tenth Plan targets a domestic saving rate of 29.8 percent, which will be augmented by a foreign savings rate of 2.8 percent. In order to achieve this domestic saving rate, the plan targets 4.6 percent savings in the

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[3] Planning Commission (2001), gives details of the tenth plan targets.

public sector, 5.8 percent in the private corporate sector and 19.4 percent in the household sector. The tenth plan targeted values for major macro variables are presented in a tabular form below.

TABLE 3 : TENTH PLAN TARGETS FOR MAJOR MACRO VARIABLES

VARIABLES		TARGET RATES
GDP Growth Rate		8.0
Gross Investment Rate		32.6
ICOR		4.08
Gross Domestic Saving	Public Sector	4.6
	Private Corporate Sector	5.8
	Household Sector	19.4
	Total	29.8
Current Account Deficit (Foreign Saving)		2.8

Compared to these values, the current investment rate is less than 23 percent and as noted above, the current ICOR is about 4.28. The upshot of all this is that to achieve the targeted rates for these variables, there has to be a quantum jump in terms of achievement in comparison to the past. The question is, what kind of strategies can make these jumps possible? In order to answer this question, we must understand the determinants of growth, especially for a developing economy like India.

DETERMINANTS OF ECONOMIC GROWTH

In the theoretical literature, a large volume of work was produced on the determinants of economic growth, right from the post war years till the closing years of the seventies. It started with the "Harrod-Domer" formulation, which demonstrated that with fixed capital–output ratios, steady state growth was proportional to investment ratios[4]. This framework provided the greatest impetus to policies of "Investment led growth". Soon afterwards however, the "Harrod-Domer" formulation was challenged by the "Solow model"[5]. According to Solow, higher investments can contribute to per capita growth only in the transitional periods (i.e., before the steady state is reached). In the steady state, investments have no impact and only "technical progress" can give rise to per capita growth. Subsequent work on growth during this period was mostly based on variants of the "Solow model". For a long time however, the idea of "technical progress" was a black box and there was no satisfactory theoretical analysis of the factors

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[4] Harrod (1948).

causing it. This situation changed significantly during the late eighties and the nineties, with the emergence of the theories of " Endogenous Growth"[6]. According to these theories, technical progress could depend on a whole range of factors like human capital formation, research & development (R&D) expenditures, government expenditure, especially on infrastructure etc., and these could generate steady state growth of per capita income. In recent years these ideas have strongly influenced policymakers, and strategies of growth have focused more and more on these issues.

It is important to note at this juncture that both the "Solow model" as well as the "Endogenous Growth models" are crucially dependent on the assumption of full employment of labour. This makes the framework of these models wholly unsuitable for the Indian economy, with its huge reserves of unemployed labour. In fact, right from the inception of the planning process in India, it was understood that the "Harrod-Domar" framework, with its focus on capital formation and the capital output ratio, was a more suitable construct for the Indian economy. Within this framework, the growth rate in India can be increased either by increasing investment or bringing down the capital output ratio. Furthermore, the capital output ratio can be decreased by either using up unutilized capacity, or more efficient use of existing capacity or adopting better technology. Here, the first case corresponds to a demand constrained system, while the second and third correspond to supply constrained systems. Interestingly, even within this "Harrod-Domar" framework, the ideas thrown up by the "Endogenous Growth" literature are relevant in the case of the supply-constrained systems. This is due to the fact that factors like human capital, R&D activity, infrastructure etc, can increase labour's productivity as well as capital's efficiency and technological capabilities. Thus, apart from the investment ratio, factors influencing the efficiency of capital are also important determinants of the growth in the Indian economy. Let us now look at some of these factors in the light of their behavior in the Indian economy in the last three decades leading up to the present.

SOURCES OF GROWTH IN THE INDIAN ECONOMY

In a capital constrained economy like India, investments are determined by the aggregate saving behavior. As far as savings are concerned, the economy has performed remarkably well in the last three decades. The gross saving rate, which was 14.56 percent in 1970 jumped to a peak of 25.1 percent in 1995 and slowed down thereafter to reach 22.26 percent in 1999. This aggregate saving behavior however, does not reveal

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[5] Solow (1956).
[6] Lucas (1988) and Romer (1990) are two of the most important contributions to the literature. Barro and Sala-i-Martin (1995) provides a good coverage of the literature.

the significant differences at the sectoral level. The biggest component of aggregate savings is the savings in the household sector. This component has been the pivot of the Indian savings behavior, and the significant increases in the saving rate can be largely attributed to increased savings in this sector. The household saving rate was 10.15 percent in 1970, and has increased steadily throughout the period to reach 19.77 percent in 1999. The second component of aggregate saving is corporate saving. This component remained relatively stagnant during the seventies and the early eighties, but increased significantly in the early phase of economic liberalization in the nineties to reach a peak of 4.93 percent in 1995, after which it has fallen continuously. The final component of aggregate saving is that in the public sector, and it is here that the performance has been very poor. This is especially true during the eighties and the nineties, when it came down from 4.55 percent in 1978 to −1.19 in percent 1999. It should be clear from these trends that the savings in the household sector is quite high and may have already reached its limits in terms of saving, given the low levels of per capita income of the economy. Another problem associated with increasing the household saving is the turmoil in the financial sector[7]. The upshot of all this is that any significant increase in the aggregate savings rate has to come primarily from the corporate and the public sector. The aggregate and sectoral saving rates over the last three decades are presented in Graph V.

The aggregate investment behavior has mirrored the aggregate savings behavior during the last three decades. It increased from 15.42 percent in 1970 to a peak of 26.85 percent in 1995, before coming down to 23.26 in 1999. At the sectoral level, private investment rose steadily throughout this period, going up from 9.43 percent in 1970 to 15.65 percent in 1999. Public investment, which was 6.39 percent in 1970, increased to 11.17 in 1986, after which it has fallen continuously to as low as 7.06 percent in 1999. The aggregate and sectoral investment rates over the last three decades are presented in Graph VI. One way to increase investment rate would be to augment domestic savings with foreign investment. Of course, foreign investment is a double-edged sword as there are problems associated with servicing this investment. The capability to service these

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[7] Bhattacharya, B.B. and N.R.Bhanumurthy (2002) deals with this in some details.

investments would in the long run depend on the performance of the external sector, and exports in particular. We shall now take a look at the performance of this sector.
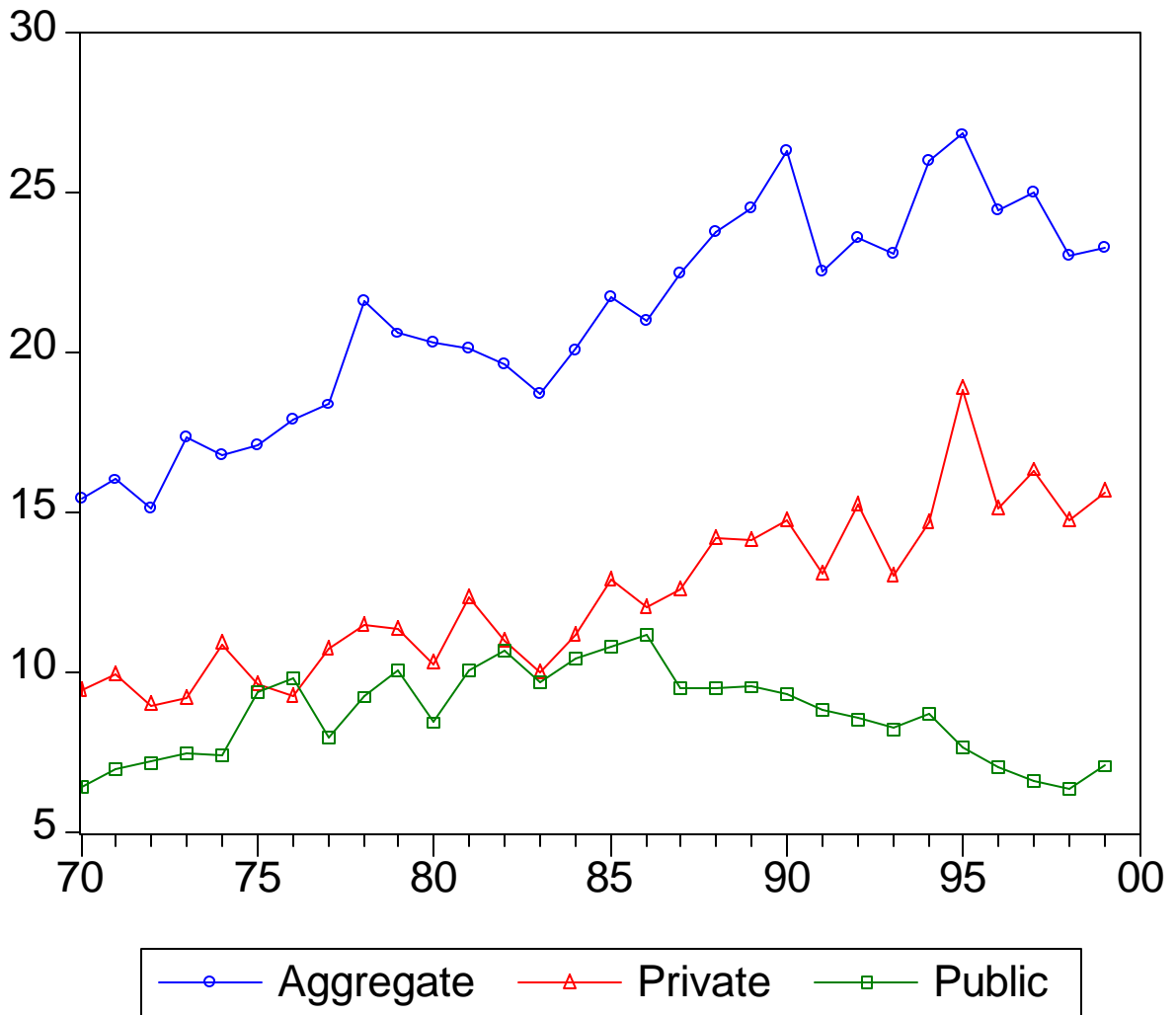
GRAPH V

Aggregate and Sectoral Savings Ratios
as a percentage to GDP (1970-2000)

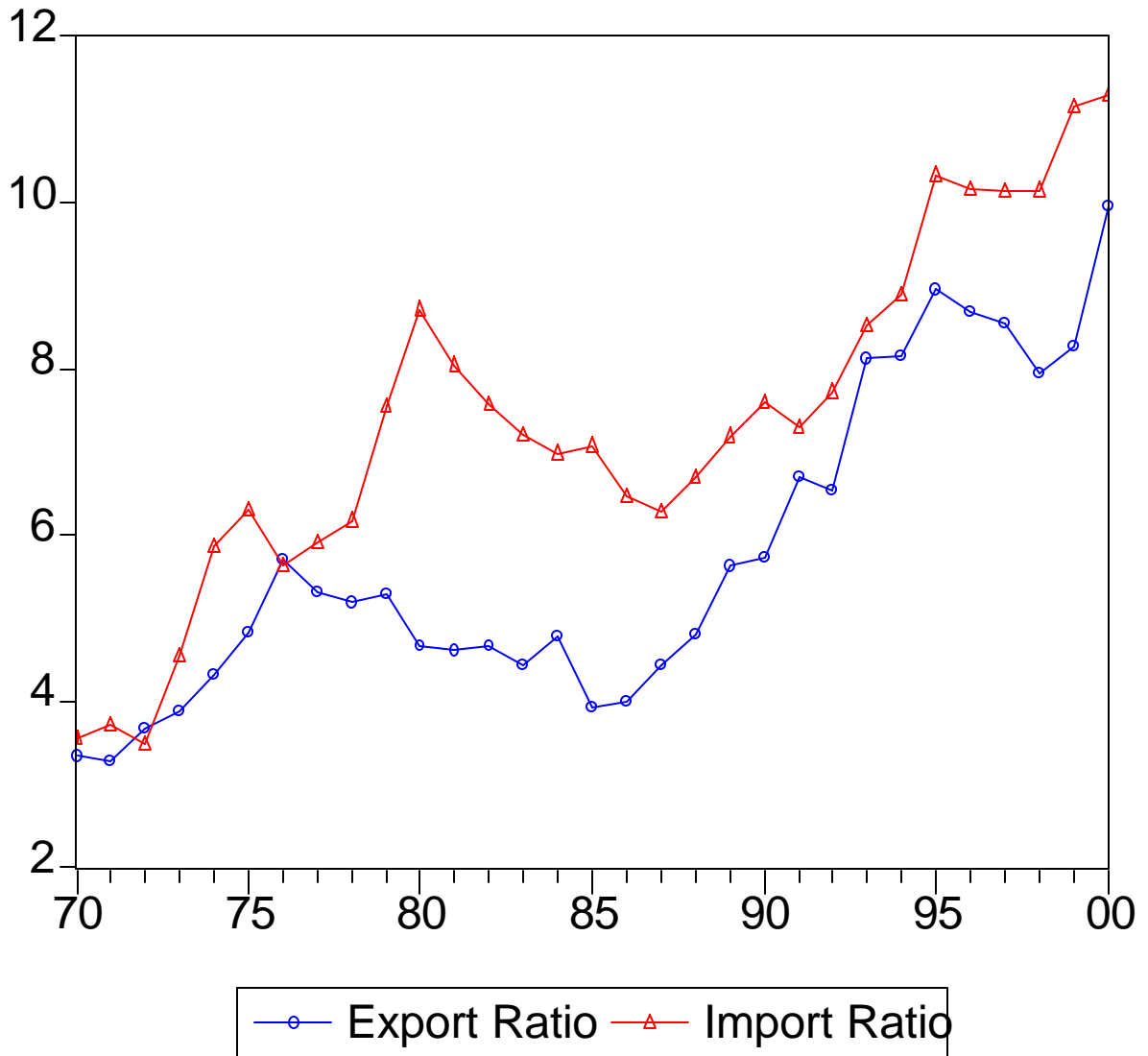|	Aggregate Savings		Corporate Savings
	Household Savings		Public Savings
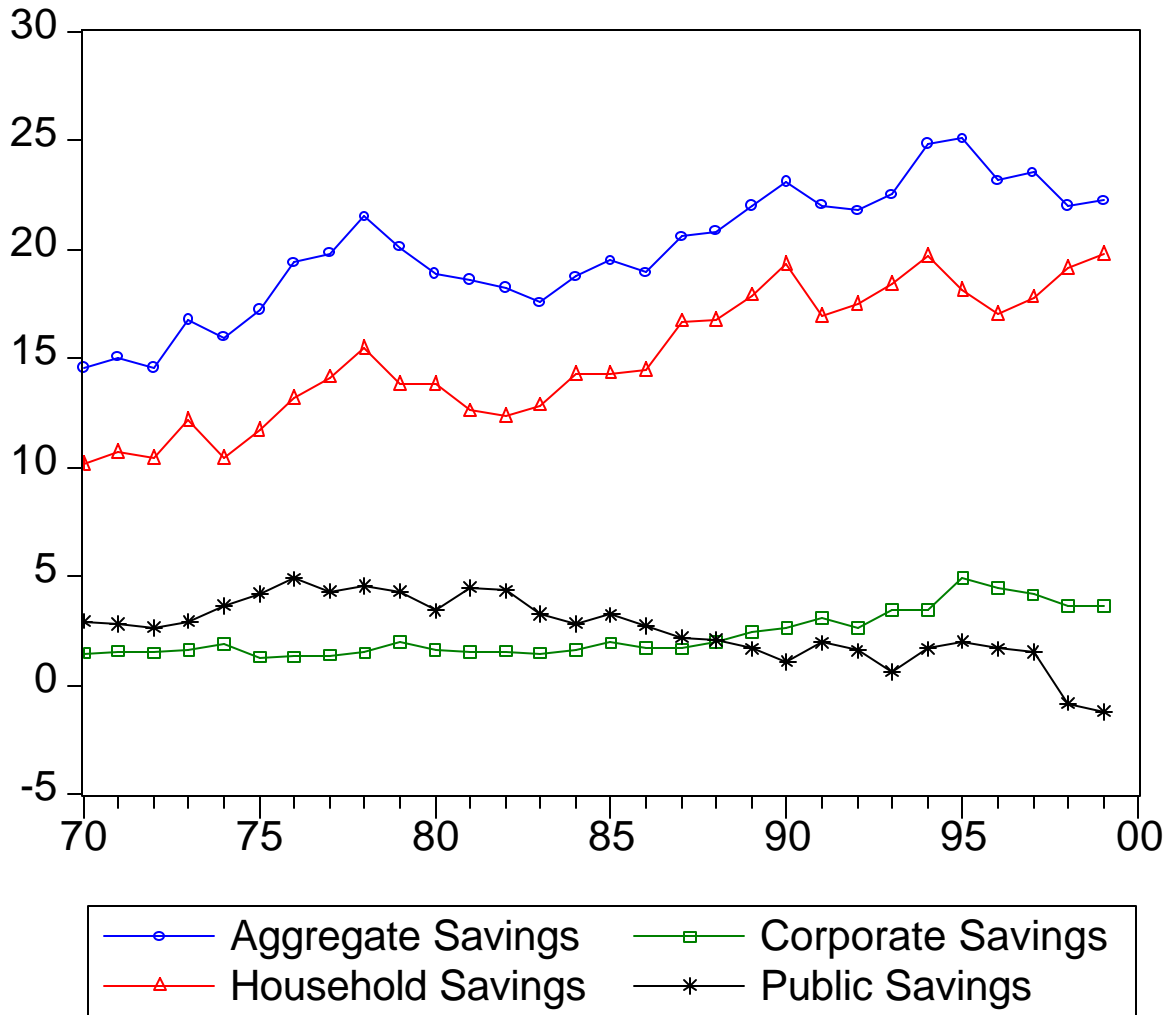
GRAPH VI

Aggregate and Sectoral Investment Ratios
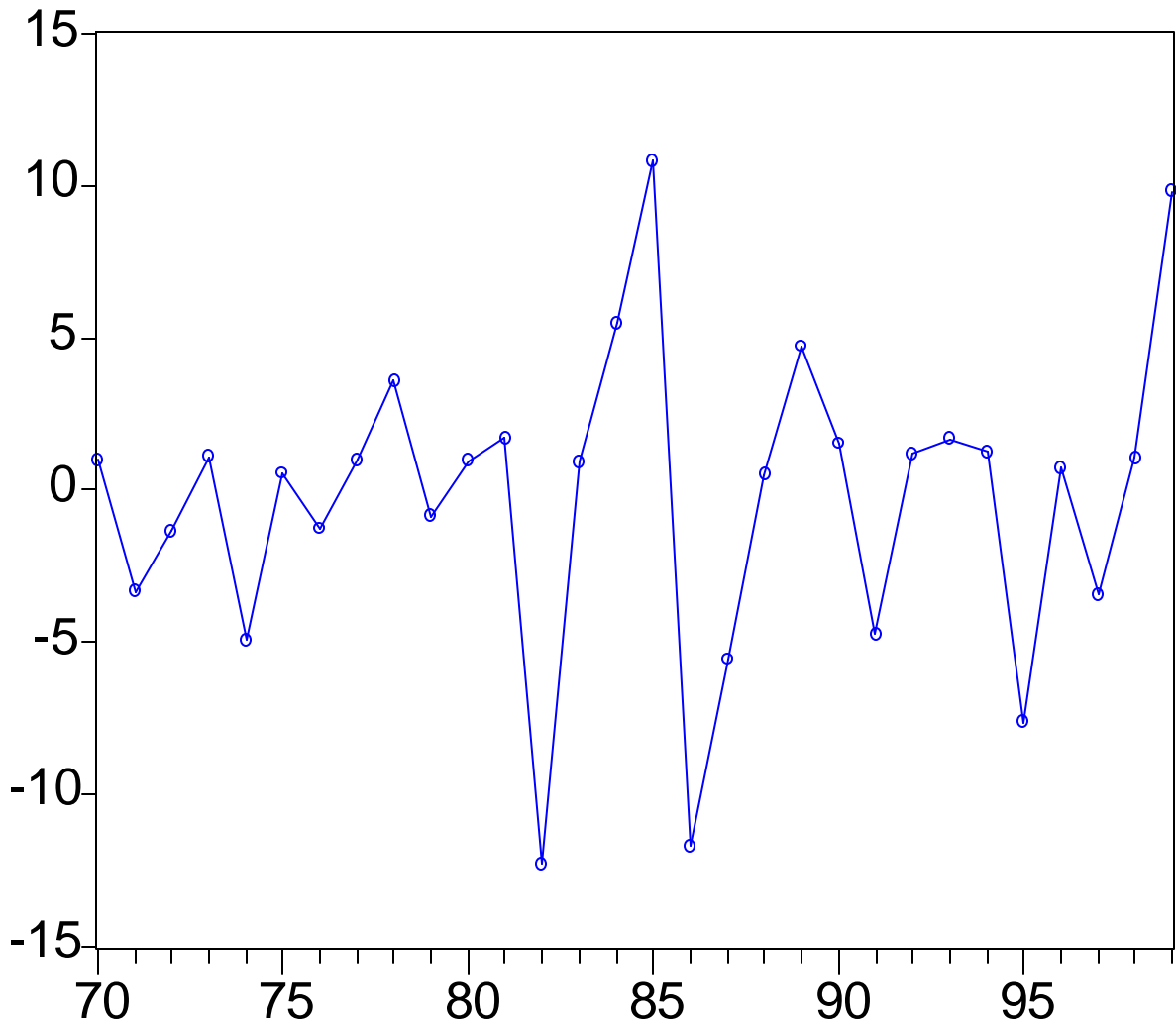## as a percentage to GDP (1970-2000)

GRAPH VII

Export and Import Ratios
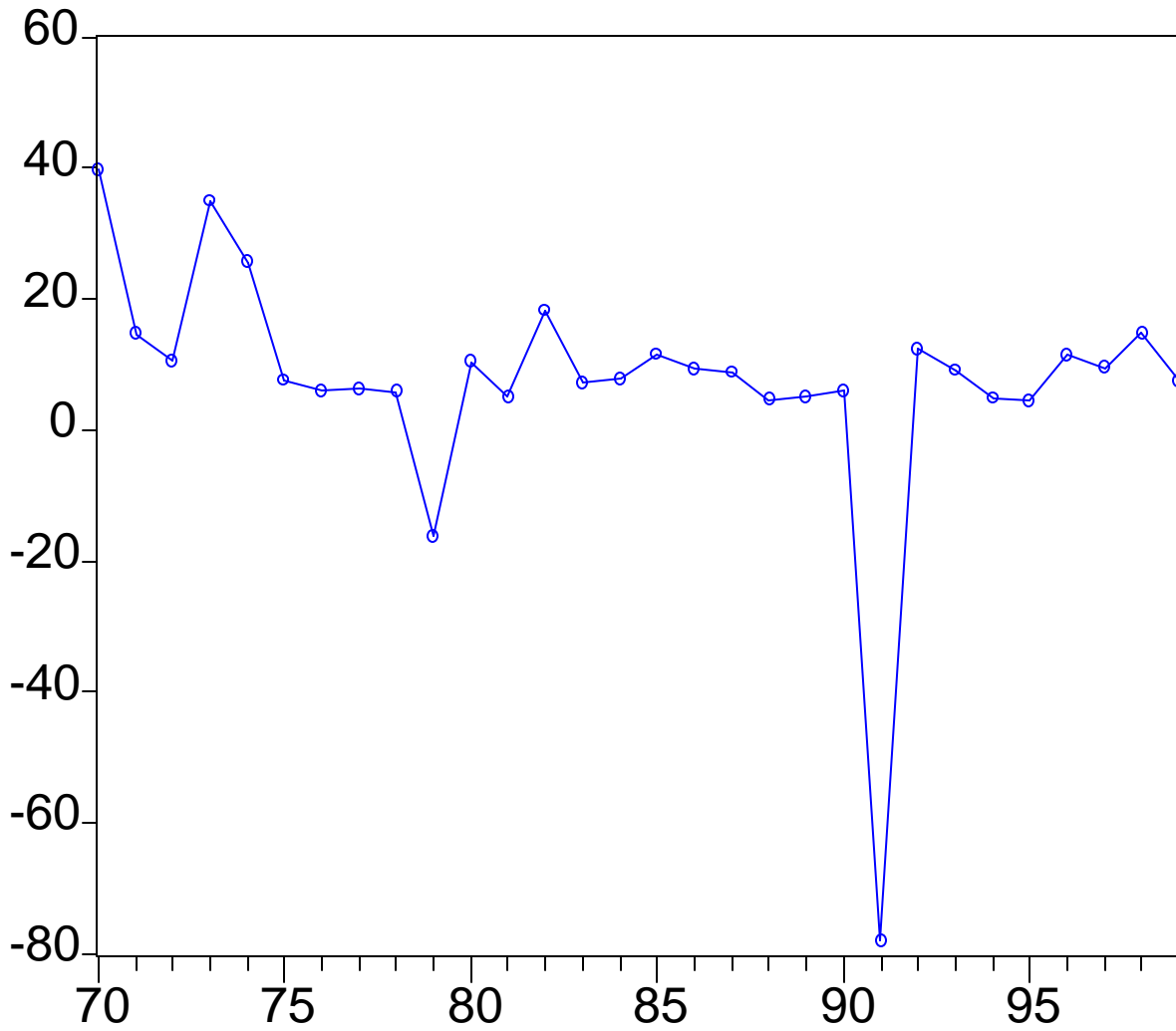## as a percentage to GDP(1970-2000)

GRAPH VIII

Incremental Capital Output Ratio
in Agricultural Sector (1970-1999)

GRAPH IX

Incremental Capital Output Ratio
in Industrial Sector (1970-1999)

GRAPH X

Incremental Capital Output Ratio in Services Sector (excluding Public Administration) (1970-1999)
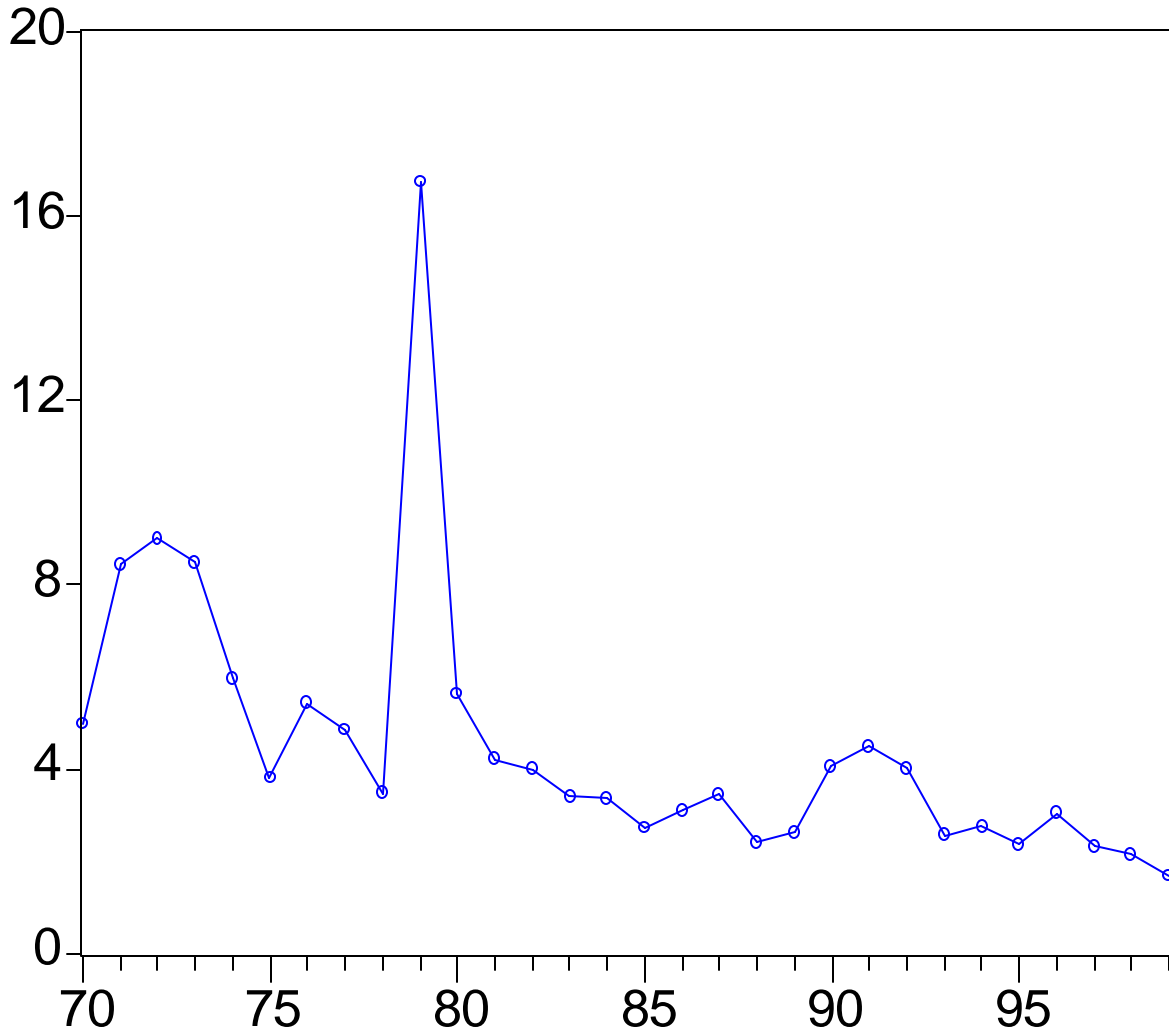
  The three decades have seen important changes in the external sector. The economy has become more globalized, with the export to GDP ratio going up from 3.33 percent in 1970 to 9.95 percent in 2000, while the import to GDP ratio rose from 3.55 per cent to 11.28 per cent over the same period. The exports ratio exhibited an increasing

trend till 1976, fell for the next nine years, showed an increasing trend from 1985 onwards, stagnating a little after 1995 but came up sharply after 1998. The imports ratio rose very sharply throughout the seventies, particularly due to the oil stocks. After 1980, the import ratio has behaved very similarly to the exports ratio, with a downward trend till the mid eighties and an upward trend thereafter (following the policies of imports liberalization) stagnating a little after 1995 but coming up sharply after 1998. The export and import ratios over the last three decades are presented in Graph VII.

Savings and investment lead to growth through the accumulation of capital. The efficiency of capital is of course, the other important factor determining growth. The efficiency of capital is inversely related to the incremental capital output ratio (ICOR). Let us now look at the behavior of the sectoral ICORs in the last three decades. A close look at these shows that in the agricultural and industrial sector, the ICORs have maintained a steady value. Interestingly, in the services sector, the ICOR has exhibited a steady decrease over the period indicating an increase in the efficiency of capital in this sector. The incremental capital output ratios (ICOR) for the agricultural, industrial and services sector over the last three decades are presented in Graph VIII, IX and X respectively. The lack of any decline in the ICOR in the agricultural and the industrial sector, even after the liberalization of private investment in 1991, indicates that there has been no rise in the efficiency levels in these sectors. Any policy prescription for higher growth rates will have to try to rectify this aspect of our development experience.

It may be pointed out at this juncture that in a market economy, the aggregate growth rate as well as most of its determinants - including the saving rate, the investment rate, the export ratio, the ICOR etc. - are determined through a complex process that involves the interaction between the various sectors of the economy. They also depend on exogenous factors like international price of petroleum, rainfall, volume of world trade etc. Thus, any discussion of the potential growth path of the economy has to take all these points into account. More specifically, it is of interest to ask whether the economy can achieve a high growth rate given its interlinked structure and the expected values of the exogenous factors. An answer to this question can be provided only by a macro modeling exercise that explicitly incorporates the interlinkages of the economy. In a macro-modeling exercise carried out at the Institute of Economic Growth, we have incorporated the important interlinkages between the production, fiscal, monetary and the external sector and generated the sectoral and aggregate growth rates of the economy. The interlinkages and the detailed sector wise behavior of the economy have been culled from the evidence of the past three decades that we have described earlier. Here, we describe this model in some detail.

A MACRO MODEL FOR THE INDIAN ECONOMY[8]

The determination of the level of output (or in some cases its growth rate) is at the heart of most macro models. In our model, we have disaggregated total output into four parts. These are Agricultural output, Industrial output, output from the Service Sector and the output from Public Administration. In the first three sectors, the sectoral output is determined by the existing stock of capital and other sector specific factors. In the fourth sector, i.e. Public Administration, the salaries and wages paid by the government determines the sectoral output. This implies that the first three sectors of our models are capital constrained, and so, investment decisions in these sectors become extremely crucial in determining the levels and growth rates of output. Towards this end, we have estimated investment functions for the three sectors separately. These are assumed to be functions of the income levels and interest rates, apart from some sector specific variables like the agricultural terms of trade for investment in the agricultural sector.

The determination of the price level is another very important objective of our macro model.
Here, the different prices are determined by different mechanisms. The aggregate price level is determined by equilibrium between the aggregate nominal demand and the aggregate output produced in the economy. The four sectoral prices are estimated separately. The agricultural price is assumed to be completely market determined and hence, it is a function of demand and supply factors in the agricultural sector. The prices in the three other sectors are determined by mark-up pricing. Apart from the aggregate and sectoral prices, the model also determines the consumption and investment deflators as well as the wholesale and Consume Price Indices.

One of the most important objectives of a macro-model is to analyse alternative policies that can be pursued by the State. Towards this end, the macro-model must involve those sectors of the economy where these policies are implemented. This would automatically include the fiscal, monetary and the external sectors. Our model deals with these three sectors in some details incorporating their effect on output and prices. In the monetary sector, the monetary base and the interest rates affect both the demand and the supply side of the economy by influencing consumption and investment decisions. The fiscal sector has a significant impact on various components of the economy through policy choices that are implemented in different parts of this sector. Some of these are the impact of Public Investments, direct and indirect taxes, and the fiscal deficit. Our model also incorporates the mechanisms through which the external sector affects different components of the domestic sector. These involve various components of the current and the capital accounts as well as the foreign exchange reserves that accumulate from the transaction in the external sector.

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[8] Bhattacharya, B.B. and S. Kar (2002a) and (2002b), give details of the macro model.

'BUSINESS AS USUAL' FORECASTS FOR THE TENTH PLAN PERIOD

We shall now present the 'business as usual' forecasts generated by our macro model for some key macro economic variables for the tenth five-year plan period. This scenario assumes that during the forecast period there will be no new structural changes apart from the ongoing reform process. Normal rainfall is assumed for all the years and the standard depreciation rate is adopted for the whole period. In the fiscal sector, employment in public administration and defense (which excludes employment in public enterprises) increases at 0.3 percent per annum while public investment rate is fixed at 7.4 percent of GDP at market price. This public investment consists of 3 percent investment by government administration (through budgetary sources) and 4.4 percent by public enterprises. It may be pointed out that in our model, government administration consists of both the state and the central government. The sectoral allocation as well as the total volume of public investment is based on the behavior for the last few years. The average tariff rate is brought down from 23 percent in 2001-02 to 20 percent by 2006-06 due to the requirements of the WTO agreement. It is also assumed that tax reforms that have been initiated in 1993 will not be reversed. Budgetary subsidies as a ratio of GDP at market prices will slowly decline from 1.2 percent in 2001-02 to 0.95 percent in 2006-07. The various transfer payments will remain at 2.6 percent of GDP at market prices. We also assume that there will be no pay hike during this period.

In the monetary sector, it is assumed that the bank rate and CRR remain fixed at 6.5 and 5 per cent respectively, as per the monetary policy declared in April, 2002. The government's borrowing from the RBI is pegged at 0.2 percent of GDP at market prices. In the external sector, the world trade growth, which dipped to around 1 per cent in 2001-02, will bounce back to 3.5 percent in 2002-03 and then increase gradually to reach 5 per cent in 2006-07. It is assumed that there is no new oil shock destabilizing the system. Rather, there is a gradual increase in oil and non-oil prices at 5 percent and 3 percent per annum throughout the period. The LIBOR, which dipped to 4.5 percent in 2002-02 will recover to 5 percent in 2002-03 and remain at that level throughout. The rupee debt slides down gradually while it is assumed that there will be no new foreign borrowing schemes like Resurgent India Bonds and India Millennium Deposits, etc., in the future. Private transfers will increase from $ 12 billion in 2001-02 to $ 14.5 billion in the final year of the plan. However, official transfer payments will remain frozen $ 300 million per annum. We also assume net investment income (outflow) will slowly rise from $ 3.7 billion in 2001-02 to $ 4 billion by 2006-07. It may be noted that base-run forecasts for the growth rates are based on the assumption that the elasticity of output with respect to capital remains fixed during the period covered by the forecast.

The 'business as usual' forecasts show that the average investment rate for the tenth plan period will be 27.6. Corresponding to this investment rate, the growth rate of aggregate output will be 6.1 percent.

This will be composed of 2.9 percent growth in the agricultural sector, 5.7 percent growth in the industrial sector, 8.2 percent growth in the services sector and 5.5 percent growth in public administration.

ALTERNATIVE SCENARIO FORECASTS FOR THE TENTH PLAN PERIOD

In this section, we shall present counterfactual policy simulations based on two types of scenarios. The first set of scenarios is more optimistic than the base run. As we have seen in the last section, the assumptions made for the 'business as usual' scenario give forecasted values that are significantly different from the targeted values underlying the tenth plan. In the optimistic scenario, we examine whether higher investment rates and higher output elasticities of capital can ensure that the economy achieves the targeted growth rates. The second set of scenarios is more pessimistic than the 'business as usual' scenario and examines the effects of internal and external shocks on the economy.

(A) OPTIMISTIC SCENARIO

The first four simulations comprise the optimistic scenario. As the Planning Commission has itself noted, current macroeconomic trends are not sufficient to attain 8 percent growth rate, and a much better performance in terms of both investment and productivity is necessary. In the optimistic scenario, we look at the effects of higher levels of investment and productivity. In the first simulation, assuming an increase in public investment to GDP ratio by 2 percent together with current levels of productivity, our model forecasts an investment rate of 31 percent and a growth rate of 6.8 percent. In the second simulation, assuming an increase in public investment to GDP ratio by 4 percent, together with current levels of productivity, our model forecasts an investment rate of 32.9 percent and a growth rate of 7.4 percent. Of course, there is a limit to the increase in public investment and the government should also try to stimulate growth by increasing the productivity of capital. In the next two simulations, we simulate the effects of such an approach. In the third simulation, with the same increase in investment as in the second simulation, we assume a 5 percent increase in the marginal productivity of capital, and get a forecasted investment rate of 32.8 percent and a growth rate of 7.7 percent. Finally in simulation four, with the same increase in investment as in the second simulation and a 10 percent increase in the marginal productivity of capital, we get an investment rate of 32.5 percent and a growth rate of 8.1 percent.

(B) PESSIMISTIC SCENARIO

The next three simulations analyse the effect of shocks that have negative impact on the growth rate. The objective of these simulations is to assess the capacity of the Indian economy to withstand domestic and external shocks. Historically, the Indian economy has been destabilized mainly from rainfall

shocks, international oil price shocks, world trade shocks and capital flow shocks. Here, the first simulation demonstrates the effect of low rainfall on the economy, 28 5.4 and generates a forecasted investment rate of 28 and a growth rate of 5.4 percent. The second simulation looks at the combined effect of rainfall and oil price shocks. Here we get a forecasted investment rate of 27.8 percent and a growth rate of 5.3 percent. In the last simulation, the model demonstrates the combined effect of rainfall, oil price and world trade shocks. This simulation generates a forecasted investment rate of 27.7 percent and a growth rate of 5.3 percent.

IMPLICATIONS FOR GROWTH ORIENTED POLICIES

There are a number of conclusions to be drawn from the 'business as usual' and alternative scenario results. Firstly, the "business as usual" forecasts indicate that under current conditions, growth rates are not likely to be higher than the present rate of about six percent. Thus, any further increase in the growth rate has to come from significant departures from the present set of policies pursued by the government. What kinds of policy changes are necessary for higher growth rates?

It is analytically useful to think of growth-oriented policies in terms of medium term policies and long term policies. One of the obvious steps to take in order to increase the growth rate in the medium term is to increase the rate of investment. Let us start with public investment. It should be clear from scenario one and two described above, that public investment has a significant impact in raising the growth rates of the Indian economy. The public investment rates assumed in these two scenarios are lower than the maximum public investment rates achieved in the past, and hence they are not unreasonably high. However, these rates have dipped sharply during the nineties, and it is this trend that has to be broken. Given that the public debt has already reached high levels, it is not going to be easy to increase public investment by increasing the size of the deficit. Thus, this increase has to be financed by bringing down frivolous revenue expenditures. Apart from public investment, private investment should also be encouraged to go up. In this context the focus should be on increasing household savings, both in the physical and financial form. In order to do this it may be necessary to ensure that financial markets are stabilized and the real rate of interest provides a satisfactory rate of return for the savers. The next step is to ensure that all financial savings are converted to investment and in this context there are some imperfect information problems between banks and corporate borrowers that need to be corrected. This kind of a problem leads to excess supply of funds at the disposal of the banks that they do not lend out due to the stringent banking norms adopted by them. In the medium run, the banks may be given a little more flexibility in applying these norms.

Apart from increasing investment, another important approach to increase the growth rate is to bring down the capital output ratio. This has been demonstrated quite clearly in scenarios three and four described above. In the medium run, this can be achieved by ensuring that the existing capital is better utilized. This would have to involve imaginative policies that take into account the reasons behind the inefficient use of capital in particular sectors of the economy. Along with these supply side policies, the government should also ensure that the economy does not run into a demand-constrained situation that leads to excess capacity and a rise in capital output ratios. In order to do this, the government should regulate its fiscal policies according to the ground situation, rather than stick to a predetermined approach.

In the long run, of course, an economy can increase its growth rate only by accumulating at a faster rate and developing better technological capabilities and human capital. Accumulation of capital at a faster rate will necessitate higher savings ratios. Given the low levels of per capita income, it may be difficult in the long run to increase the household savings by very significant levels. Instead the focus in the long run should be on corporate and public savings. It may be mentioned here that in most of the developed countries, it is the corporate savings that is the most significant part of total savings. In the context of capital accumulation, it should also be kept in mind that there are enormous externalities associated with particular types of capital, the most important of which is infrastructure. Since the private sector is reluctant to enter this sector, the public sector will have to take this up. As far as technological capabilities are concerned, the policies in this sector should try to achieve a judicious mix of developing domestically produced technology and technology imported from MNCs. Finally, the economy will have to try to produce and use its human capital in a more efficient manner. It has been established in the literature that the creation of human capital is a necessary condition for growth and development, but not a sufficient one. This means that simply creating more educated or skillful individuals will not lead to growth unless private entrepreneurs or the public sector can productively use them. Thus it is necessary to create those skills that are in demand, particularly from the growing sectors of the economy, rather than increasing the general educational and skill levels of the population.

Can the Indian economy chart out a higher growth path in the future? In terms of what we have discussed till now, there are at least three factors that indicate the potential to do so. The first factor is that even though we invest a high proportion of our GDP, there is a high level of inefficiency involved in the use of this investment and this gets reflected in a high capital output ratio. This implies that subject to suitable reforms, there is scope for significant increase in the productivity of capital. Thus we need to look into higher productivity not only from foreign capital, but from domestic capital as well. The second factor is that our human capital is grossly underutilised. If this can be chanelised in the right direction, it can also lead to significant increase in productivity of physical capital. The third factor is that even now, the government carries out a significant amount of wasteful public expenditure that can instead be used for public investment, especially in infrastructure. All these three factors tell us that there is a potential for

higher growth, ready to be tapped. It is now up to the policy makers to convert this potential to actually higher rates of growth.

Let us now look at the pessimistic scenario. Here, the good news is that even if there was a combination of a rainfall, oil price and world trade shock, the growth rate would remain above 5 percent, which is quite high by international standards. This is surely an indicator of the resilience of the economy. However, these shocks lead to significant deterioration in the fiscal and the external balances, and there is definite cause for concern regarding this issue.

Another related point that should be kept in mind is the possibility of economic instability associated with high rates of growth. From our model, we find that higher growth rates are also associated with higher fiscal and external deficits, leading to such instability. Thus high rates of growth that are also stable, will need some form of intervention in these sectors. Coming back to the issue of policy and institutional reforms, the current political situation with divergent interest groups makes it that much tougher to attain a consensus for such reforms. In the absence of these measures, it is prudent to expect much lower rates of growth. It may be noted here that even if the growth rate is no higher than 6 percent, it results in an average growth of 5.5 to 6 percent for more than a quarter of a century. Very few countries have achieved such high growth rates for such a long period of time, and it is, by any standard, a great achievement for the country.

CONCLUDING REMARKS

India is currently one of the fastest growing economies of the world with an average growth rate of about 5.5 to 6 percent per annum, over the last two decades. This has ensured that the economy ranks among the top five in the world, in terms of growth performance. Our analysis suggests that maintaining even this growth rate over the next two decades would be an impressive feat. Very few nations have sustained higher

growth rates in the long run and even those who did - like the East Asian Tigers - are now suffering from prolonged recessions like that in Japan.

Given the current saving and investment rate as well as the productivity of capital, India can hope to attain about 6 percent growth per annum in the coming decades. Any substantial increase in this would require a significant step up of either domestic savings or foreign capital. The current economic scenario in India does not give any cause for optimism on this account. The alternative would have to involve a rise in the productivity of capital, for which there is a great deal of scope, not only in the public sector but also in the private sector. Achieving this would however require coherent micro and macro economic policies not only at the national but also at the state levels. Further, it would require a strong political consensus cutting across parties and regions. Certainly, if these barriers can be crossed, then India has the potential to attain a higher growth rate. It is now up to the policy makers to convert this potential to actually higher rates of growth.

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