INDIAN INSTITUTE OF MANAGEMENT CALCUTTA

WORKING PAPER SERIES

WPS No. 645/ August 2009

Some Explorations into India's Post-Independence Growth Process, 1950/51-2002/3

by

Mritiunjoy Mohanty
Professor, IIM Calcutta, Diamond Harbour Road, Joka P.O., Kolkata 700 104 India

&

V N Reddy
Professor, ICFAI Institute of Management Teachers (IIMT), ICFAI Hyderabad

Some Explorations into India's Post-Independence Growth Process, 1950/51-2002/3

Mritiunjoy Mohanty
V N Reddy

Abstract

This paper is an attempt to understand better the characteristics of growth of the Indian economy over the period 1950/51 to 2002/3 from the standpoint of aggregate demand and aggregate supply. In so doing, it also seeks to compare the period 1980/81-2002/3 with the period1950/51-1980/81, given that it has been widely argued that 1980/81 marked a break in the trend rate of growth of the economy, with the economy settling at a higher trend rate of around 5-6% p.a. It is hoped that this paper will provide a more nuanced understanding of this so-called higher-growth phase and what might be necessary to do to increase and sustain the rate of growth of per capita incomes.

The demand growth analysis in the paper is located within two related though distinct strands in the growth literature: the argument that the composition of aggregate demand, particularly in developing countries attempting to catch-up, is as important as its growth for sustained increases in per capita income, or what is called the inducement to invest question; and the other being the literature on investment-constrained growth models. To analyse aggregate demand and supply responses, growth equations with respect to time are estimated for GDP, consumption, investment as well as sectoral outputs and ratios of sectoral outputs to GDP.

The paper reaches two broad sets of conclusions. First, between 1950/51 to 2002/03, both in the low and higher growth phase of the India's economy, aggregate demand, is at the margin, consumption driven and only weakly investment driven over some of that period. Moreover, at the margin, aggregate demand is more consumption driven in the higher growth phase than in an earlier high investment phase. Particularly, in the post- reform period, unlike any other period (including the 1980s), not only is aggregate demand consumption driven but is not even weakly investment driven. This is because, in the higher growth phase, consumption exhibits significant acceleration in trend rate of growth. This acceleration in consumption growth and its impact on the growth process has not been discussed in the literature and is a particular contribution of this paper. Demand growth is consumption driven because of the changing composition of government expenditure as a source of autonomous demand. But this very shift towards increased government consumption expenditure also adversely affects the inducement to invest and therefore output growth.

Second, at the margin, the aggregate supply response, over the entire period 1950/51 to 2002/03, except for a couple of years in the early 1950s, is dominated by the relative contribution of the Services sector. In the low growth phase, for the most part, the relative contribution of Industry lags behind that of the Services and Agriculture. In the higher growth phase the relative contribution of industry improves but still lags behind that of the Service sector. The relative contribution of the Agriculture lags behind that of Services and Industry in the higher growth phase.

Keywords: India, growth, demand growth, demand, supply-side, consumption, investment, investment-led, consumption-led, agriculture, industry, services

Some Explorations into India's Post-Independence Growth Process, 1950/51-2002/3

Mritiunjoy Mohanty
V N Reddy

This paper is an attempt to understand better the characteristics of the growth of the Indian economy over the period 1980/81 to 2002/3, in comparison with 1950/51 to 1980/81, from the standpoint of aggregate demand and aggregate supply. It has been widely argued that 1980/81 marked a break in the trend rate of growth of the economy, with the economy settling at a higher trend rate of around 5.5% p.a. It is hoped that this paper will provide a more nuanced understanding of this so-called higher-growth phase and what might be necessary to do to increase and sustain the rate of growth of per capita income.

The paper reaches two broad sets of conclusions. First, both in the low and higher growth phase of the India's economy, aggregate demand, is at the margin, consumption driven and only weakly investment driven over some of that period. Moreover, at the margin, aggregate demand is more consumption driven in the higher growth phase than in an earlier high investment phase. Particularly, in the post- reform period, unlike any other period (including the 1980s), not only is aggregate demand consumption driven but is not even weakly investment driven. This is because, in the higher growth phase, consumption exhibits significant acceleration in trend rate of growth. This acceleration in consumption growth and its impact on the growth process has not been discussed in the literature and is a particular contribution of this paper. Demand growth is consumption driven because of the changing composition of government expenditure as a source of autonomous demand. But this very shift towards increased government consumption expenditure also adversely affects the inducement to invest and therefore output growth.

Second, and somewhat unusually, at the margin, the aggregate supply response, across both low and higher growth phases of the Indian economy, except for a couple of years in the early 1950s, is dominated by the relative contribution of the Services sector. In the low growth phase, for the most part, the relative contribution of Industry lags behind that of the Services and Agriculture. In the higher growth phase the relative contribution of industry improves but still lags behind that of the Service sector. The relative contribution of the Agriculture lags behind that of Services and Industry in the higher growth phase.

The paper is divided into six sections. Section I discusses why composition of aggregate demand is an important issue and its relationship with the market question. Section II has a brief discussion of some growth empirics about India in the comparative context of some developing economies that have successfully achieved per-capita income catch-up. Section III details the methodology adopted in analysing data and sets out the growth model that has been used. Section IV looks at the behaviour of aggregate demand and its components over both the higher and the low growth phases of the economy and the evolution of government expenditure as a source of autonomous demand. Section V looks at the aggregate supply response. Section VI concludes with a brief agenda for future research.

Section I: Composition of Aggregate Demand and the Market Question

Why should we worry about the composition of demand as between consumption and investment if aggregate demand growth is robust enough as it has been since 1980/81? Because the composition of demand and specifically the nature of investment demand lies at the heart of income distribution and what is called 'the market question'. That developing countries are investment constrained (as opposed to savings constrained) in terms of achieving full employment of available resources, was first articulated by Kalecki (1965). As Kalecki argues "The crucial problem facing under-developed countries is thus to increase investment considerably, not for the sake of generating effective demand, as was the case in an under-employed developed country, but for the sake of accelerating expansion of productive capacity indispensable for the rapid growth of national income."

In the Indian context the relationship between the composition of aggregate demand and the market question was first broached by Sukhamoy Chakravarty in his 1979 paper 'On the Question of Home Market and Prospects for Indian Growth' and then taken forward and formalised by Prabhat Patnaik in his 1984 paper 'Market Question and Capitalist Development in India'. And it is our understanding that the market question, specifically its manifestation in the form of 'the inducement to invest'[1], is at the heart of the reason why India's growth remains inequitable and, until very recently, relatively slow, both to others and her own requirements.

The required rate of growth is defined in terms of that which allows full employment of available resources. If the long term employment elasticity of output is declining, in part because of diffusion of labour saving technical change and in part due to increased levels of intra-capitalist competition, then it would necessitate an increase in the required rate of growth for full employment of resources, unless of course alongside the above tendency, the rate of growth of labour force also declines (say due prior periods of low population growth and/or declining worker participation ratios[2]). If however, the decline in employment elasticity happens alongside an increase in the rate of growth of labour force (either due to high rates of population growth in prior periods and/or increasing worker

[1] Patnaik (1984) points out that the market question comprises three distinct, though inter-related, questions: the realization question; the inducement to invest question; and the increasing surplus question. Equally importantly, the inducement to invest question arises quite independently of the issue of both the issue of realization and that of increasing surplus value, though the manifestation of each would affect the other.

[2] Declining worker participation ratios are linked not only to prior periods of low population growth. Low levels of employment generation and high levels of under-employment and unemployment (therefore low probability of getting a job) might also lead to declining worker participation ratios.

participation ratios) then the required increase in rates of growth of output are even greater. The tendency of the required rate to rise would get counteracted to the extent that technical change is capital augmenting. Therefore whether the current rate of growth of an economy is high or low cannot be judged in terms of some absolute level, but only in relation to that which allows for a full employment of available capital and labour[3] resources.

In the context of Indian growth literature, the first person to suggest the market size constraint to growth was Bagchi (1970), arguing that increasing inequality constrained the growth of the market through the under-consumption channel. Among others, this was taken forward and developed by Raj (1976) and Nayyar (1978). However, taking Kalecki's (1965) analysis in this matter forward, Chakravarty (1979) argued that'[O]ur analysis of the market problem has indicated that … the market question is not usually an independent problem to be tackled by methods which operate only on the demand side" (p1235). Therefore, as he argued elsewhere (1984), "It may be more appropriate to stress the reverse causal link running from investment to saving, in which case the problem of demand appears, although not in the form of a simple tale of underconsumption." (p846).

As Bhaduri and Marglin (1990) demonstrate, if the world is 'stagnationist', raising consumption levels by changing income distribution in favour of workers may lead to an investment response. But as they also argue, the stagnationist response however does assume a very particular investment function. Where Chakravarty was correct however, as we will see below, simply raising the level of demand without an investment response does not work. Therefore, in our understanding, it is much better to pose the problem as one of an inducement to invest.

Once we drop the assumptions that there is no distinction between savers and investors and that Say's law holds (in this instance that all savings are automatically invested)[4], as Chakravarty (1979) says, the market problem manifests itself as an 'inducement to invest' problem or in modern jargon, the stimulus to growth problem. Rosa Luxemburg (1963) had pointed out long ago that the inducement to invest is difficult to sustain in capitalism and therefore capitalist growth has always necessitated access to external markets. As Patnaik (1984) explains, investment is the result of both endogenous and exogenous stimuli and the former on their own, for example, the multiplier-accelerator, are insufficient to sustain the inducement to invest and therefore capitalist growth.

---

[3] Full employment may be defined after incorporating either some notion of an acceptable size of reserve army of labour due largely to frictional unemployment or even that of NAIRU.

[4] Growth models that use these assumptions have very different outcomes depending on how wages are modeled. In classical growth models if the wage rate is held constant, an increase in savings ratio results in an increase in growth rates. In neo-classical Solow-type models, where the rate of growth of the labour force is exogenously given and wages are the adjusting variable, an increase in savings ratio has no impact on steady state growth rates, and the economy is constrained to grow at the rate of growth of labour force. The analysis that India suffered from a savings constraint, alleviating which would unleash India's growth potential, is rooted in classical models of growth (Chakravarty (1979)).

The inherent cyclicality[5] of capitalist growth is well recognised. But it is normally assumed that relative prices adjust not only to choke off booms but also to grow out of slumps. But once we make a distinction between savers and investors, there is very little to tether the inducement to invest (which essentially is expected profitability) at the bottom of a slump because the process of correction itself reduces effective demand. And if individual investors adopt a 'wait-and-see' attitude (i.e., there is some degree of complementarity in their expectation functions), then the issue becomes even more complicated because of a lack of a coordinating mechanism for individual investment decisions even after relative prices have adjusted (Chamley and Gale (1994)). Undoubtedly once relative prices have adjusted, in time somebody will be the first one to take the plunge and if it is profitable, it will lead to a revival of investment. But in the real world, where time is not simply a variable on the X-axis, the process may simply take too long or the associated quantity adjustment may be too sharp (as for example during the Great Depression) to be politically and socially sustainable.

Hence the need for exogenous stimuli such as government expenditure, exports and demand arising because of innovations or what in Keynesian language would be called elements of autonomous demand. Needless to say, the manner in which elements of autonomous demand are used to sustain investment demand will play a crucial role in determining both growth strategies and trajectories. It is worth noting that in globalised economies the inducement to invest is supposed to be underpinned by access to export markets and the use of the small country assumption.

Patnaik (1984) observes that the lack of an inducement to invest is not a function of assuming that economies are necessarily demand constrained in every period. Indeed in Goodwin (1951), insufficient investment in equipment in earlier periods means that booms get choked off because of a supply constraint – the lack of capital goods. Or as Chakravarty has noted earlier, the causality for a savings constraint may run from investment to savings. Notice that globalised economies are supposed to have sorted out this problem too – the demand constraint is sorted out by access to exports markets and the supply constraint is alleviated by importing capital goods.

In Patnaik (1984) workers earn wages, capitalists earn profits, government investment expenditure is the main source of autonomous demand. Private sector investment is a function of the strength of aggregate demand (measured by capacity utilisation) and government investment expenditure. The government partially finances its expenditures by taxing profits and partially by running a deficit and the level of the deficit is constrained by an inflation barrier. In a situation such as this if the government shifts income distribution in favour of capitalists by reducing the tax on profits and finances this by a cut in government investment expenditure (because it is already at the upper bound of deficit expenditure), then notice that the increase in capitalist consumption would offset the decline in government investment and therefore aggregate demand is left unchanged. Private investment expenditure however, which in the model has a complementary relationship with government investment expenditure, is adversely

[5] See for example Goodwin (1951) on how the interaction of the multiplier and accelerator would result in business cycles.

impacted and as a result the economy's trend rate of growth is lowered. In the Patnaik (1984) world therefore income distribution changes lead to over-consumption and the resulting decline in autonomous government investment expenditure pushes the economy onto a lower growth path.

But what if there is no complementarity between public and private investment and the government has only consumption expenditure? Indeed the Keynesian paradox of thrift would tell us that in the short period an increase in autonomous consumption expenditure working through the multiplier is expansionary (and analogously an increase in savings is deflationary). And working through the accelerator the expansion could induce an investment response and therefore spark off a virtuous cycle of growth. That is to say what if the world is what Bhaduri and Marglin (1990) call 'stagnationist' (i.e., the profit rate, not the profit share, is an important determinant of the investment function)? Indeed, notice that the market question has been solved, as far as the inducement to invest is concerned, because autonomous government consumption expenditure sustains and underpins private investment expenditure. And if the government deficit is bond-financed then the stock of capitalist financial wealth holdings also increases.

But as Marglin and Bhaduri (1990) also suggest the stagnationist co-operative (both capitalists and workers gain) outcome is only one of many possible outcomes. What if the economy is 'exhilarationist' (i.e., the profit share, as opposed to the profit rate, is an important determinant of the investment function)? What if the economy is not only 'exhilarationist' but also 'conflictual'[6]? What if private sector investment is not induced (when the government increases consumption expenditure) because the profit share is an important determinant of the investment function and capitalists believe that the government will finance the budget deficit through a tax on profits? And if there is no private sector investment response then expansionary fiscal policy of the government will raise the level of output but not alter its rate of growth (Michl 2002).

Indeed, if expansionary fiscal policy is financed through a deficit and there is no investment response, given that the savings ratio is lowered, then working through the Harrod effect, the trend rate of growth is also lowered even though the level of output has increased due to expansionary fiscal policy (Shaikh (2006)). As Shaikh (2006) demonstrates, the only way the trend rate of growth would not be lowered is if the investment ratio rises faster than the ratio of autonomous demand injection to GDP, i.e., in our example, only if autonomous demand injection by the government results in a sufficiently large private sector investment response that both the level and the rate of growth of output are raised. Otherwise an increase in the consumption ratio will have a negative consequence on the rate of growth even though in the short period the level of output has been raised.

In the Shaikh (2006) world however the government has no investment expenditure and therefore the nature of private sector investment response becomes critical. If autonomous demand injection by the government has an important investment

---

[6] See Chapter 10 in Foley and Michl (1999) for a good discussion on what the literature calls investment constrained models of growth.

component then it is feasible that both the autonomous demand injection to GDP ratio and the investment ratio (including both public and private) will rise, allowing for an increase in both the level and rate of growth of GDP. Unless one assumes a complete lack of complementarity between public and private investment, which we feel, particularly in the Indian case, is an unreasonable assumption, this would happen because public investment will raise the profitability profile of private investment, inducing the private sector to invest even if the government finances some part of its expenditure through a tax on profits.

Of course autonomous demand is comprised not just of government expenditure - there is demand arising from export growth and innovations as well. Whereas the inducement to invest may be underpinned by export growth, what matters for economic growth is growth in net exports. There is evidence from comparative growth experience that in some instances net exports have been a significant component of autonomous demand growth and perhaps equally importantly, export growth has underpinned the inducement to invest[7]. It should be underlined that in these instances what was critical was the mutually reinforcing rise in export and investment ratios (to GDP).

Therefore, without accompanying investment growth, export growth on its own would not have solved the market question and as a result, output levels would have increased without an increase in the rate of growth. Critical to the ability of export growth to induce private investment is the ability of the exporting country to tilt terms of trade in its favour using both economic and non-economic means, as has been done by advanced capitalism[8] or where that is not possible, the ability of the state to ensure profitability of private investment by using its price setting capability and/or non-price mechanisms and at the same time forcing individual capitalists to compete either for the local or the export market, as has happened in the East Asian experience[9].

Kalecki's (1962) work was one of the earliest to model innovations as the exogenous stimulus that drives growth. Kalecki assumed a steady stream of innovations from outside

[7] See UNCTAD's Trade and Development Report 1996 on the role of a 'dynamic export-investment nexus' in explaining East Asian growth. Growth was driven by mutually reinforcing increases in investment, exports and manufacturing value added to GDP ratios in a process that has sometimes also been called 'cumulative causation'. Over time, both the foreign exchange and savings gaps closed and finally, savings began to grow faster than investment.

[8] Even though Rosa Luxemburg (1963) does not use the language of terms-of-trade, in her model the importance of trade with pre-capitalist sectors could be re-interpreted in that light. Prebisch (1950) of course specifically uses terms-of-trade to argue why there are structural reasons the periphery would not gain from trade with the centre. It should be noted that even if all traded goods were manufactured but the value added in manufactures from the periphery is simply unskilled (or low skilled) labour, alongside a money wage rate that is constant and with no entry barriers, the Prebisch result would hold. As UNCTAD (1996) would imply, East Asia is able to escape the Prebisch trap because of the nexus between rising investment, manufacturing value added and export to GDP ratios. See Patnaik (1997) for a model of the nexus between the ability of to influence terms of trade and stability and accumulation in advanced capitalism.

[9] It is surprising how little the role of the state in East Asian development is acknowledged in mainstream economics literature despite how well it has been documented. There is now a voluminous and nuanced literature on this subject but to name just a few see Amsden (1989), Wade (2003(1990)), Chang (1994) and Aoki, Okuno-Fujiwara and Kim (1998).

the model that solved the issue of profitability and therefore the inducement to invest. And as the literature on technical change recognizes, the state plays an important role in underwriting, either directly or indirectly, the cost of R&D that has to underpin any stream of innovations.

Patnaik (1995) revisits the issue of composition of aggregate demand but does not pose it as an inducement to invest issue and concludes that "[A]ny tendency of the composition of aggregate demand to shift in favour of consumption would have a growth reducing effect;" (p8). There are a couple of points worth noting as far as the 1995 position is concerned. First, as we have noted earlier if the world is 'stagnationist', then a shift in favour of consumption will yield an investment response and hence will not have adverse effect on the growth rate. However as we have also seen, if the world is not 'stagnationist', then the Patnaik (1995) conclusion goes through. Therefore in our view it is best to pose the issue of composition of aggregate demand as one of an inducement to invest.

Second, in the 1995 position quoted above, we interpret "shift in favour" to mean an increase in C/Y and a decline in I/Y. We however would like to make a somewhat stronger claim. Even if C/Y is declining and both I/Y and I/C are increasing (i.e., rate of growth of investment is greater than the rate of growth of consumption), given certain parameters, it is still possible that demand growth is consumption-led (we will define consumption-led more clearly and rigourously below). <u>And if, so defined, a growth process is consumption-led then the over-consumption hypothesis goes through even though I/Y and I/C are rising.</u>

In sum then, as Kalecki has said, investment is the key to accumulation and growth, and the nub of the issue is that in a capitalist economy the inducement to invest is an important variable explaining rates of growth of investment. And in turn the inducement to invest is strongly influenced by the evolution of autonomous demand and its impact on private profitability, i.e., on how the market question is solved, the nature of the investment function and the role of the state (either directly or indirectly) in underpinning expectations of private profitability. <u>Therefore there can be no presumption that an increase in autonomous demand will necessarily improve expectations of private profitability and if it does not then the market question has not been solved.</u>

To the extent that consumption and investment demand have important autonomous components (as in the Indian case), the solution of the market question through a deficit financed increase in government expenditure may be critically dependent upon mix between consumption and investment. And solving the market problem through a deficit financed increase in government consumption expenditure (and hence, if there is some upper bound on the deficit, lower levels of government investment expenditure), while raising levels of output in the short run may constrain growth rates in the long run. In the Indian case, as we will see below, government expenditure in the 1990s switched decisively towards consumption expenditure and, as we will seek to establish, demand growth was consumption led. And this might explain why, despite the fact that in the last two and a half decades India has seen some improvement in her trend rates of growth, it is still unable to raise investment levels to grow fast enough to absorb available labour supply, i.e., the market question remains alive and well.

As Chakravarty (1979) so presciently noted "Besides viewed in the long run sense such a system cannot possess the dynamism that marks processes of capital accumulation which are based on the rapid absorption of labour into relatively more productive work and/or permit real wages to increase in terms of those goods whose costs decline as a result of capital accumulation. In the absence of these trends, the process of growth is not only likely to be inequitable but also a slow one as well. It is the combination of these two features that the main departures of the classical model lie, and the source of the market problem has to be located." (p1241).

But what if demand growth has no autonomous demand element in it? That is, it is entirely endogenous. Bhaduri (2006) has a very elegant model of endogenous growth where savers and investors are distinct, the profit share is an important determinant of the investment function and the model yields steady state equilibrium at less than full employment. In the Bhaduri world inter-class competition (conflict?) drives labour saving technological change and drives down the real wage; intra-capitalist competition for market share diffuses technical change leading to decline in prices which in turn pushes up the real wage (and allows for a variable mark-up). As a result of both of these, whereas the real wage adjusts to the size of the reserve army of labour, the wage share itself remains constant.

This is not the appropriate place to critique Bhaduri's model, but from our standpoint, which is the importance of the state in shaping trajectories of capital accumulation, what is missing is a discussion of the role of the state. Keeping with the spirit of Bhaduri's model and retaining the endogeniety of growth, it might be worth exploring how to extend the model by incorporating the role of the state from the standpoint of assuring expected private profitability. One straightforward way is to partially underwrite the cost of R&D. The other is through managing exit. Given that intra-capitalist competition is an important underpinning of the model, obviously entry has to be free. But the state could manage exit as in Japanese state during its catch-up phase (Dore (1986)). In coordinating exit decisions, not only does it make it less wasteful but by ensuring that the capacity shake-out is equitably borne across size classes, it also ensures that the competitive space is kept intact. This, i.e., managing exit, then in later rounds encourages entry. All that to say that whether growth is endogenously or exogenously driven, the state may play an important role in underpinning expected private profitability or in other words the inducement to invest, and evidence from comparative growth experience suggests that it has.

Section II: Evidence from Growth Empirics

There is now reasonable evidence to suggest that post 1980s growth experience in India in terms of rates of growth is significantly different than the thirty or so odd years preceding it since independence[10]. Perhaps equally significantly, contrary to those, among others, expressed by Srinivasan and Tendulkar (2003), there is also reasonable evidence to suggest that the reforms introduced in the early 1990s did not lead to a statistically significant break in the trend rate of growth, i.e., the growth performance of the 1990s was largely a continuation of the trend of the 1980s [see e.g., Williamson and Zagha (2002); Delong (2003); Wallack (2003); Rodrik and Subramaniam (2004), Virmani (2004)]. Econometric exercises including some of the ones quoted above would also suggest that the break in the trend rate of growth takes place around the early 1980s [see for example Wallack (2003); Hausman, Pritchett and Rodrik (2004); Rodrik and Subramaniam (2004); Virmani (2004)]. In addition, Wallack (2003) finds that the highest value of the F-statistic associated with a break occurs in1980. Our own analysis of structural breaks also corroborates Wallack's findings that, statistically speaking, the most significant break took place in 1980.

It is worth noting that the structural break is also confirmed by cross-country comparisons. Therefore India moves from being an average performer in the period 1960-80 to top of the class in 1980-99 period, being outperformed only by East Asia. Perhaps equally worthy of note is that India outperformed all developing country regions including East Asia in terms of stability of its growth performance. Even here however, unlike what has been argued by Panagariya (2004), the 1980s performance was better than that of the 1990s in terms of stability [see Rodrik and Subramaniam (2004)].

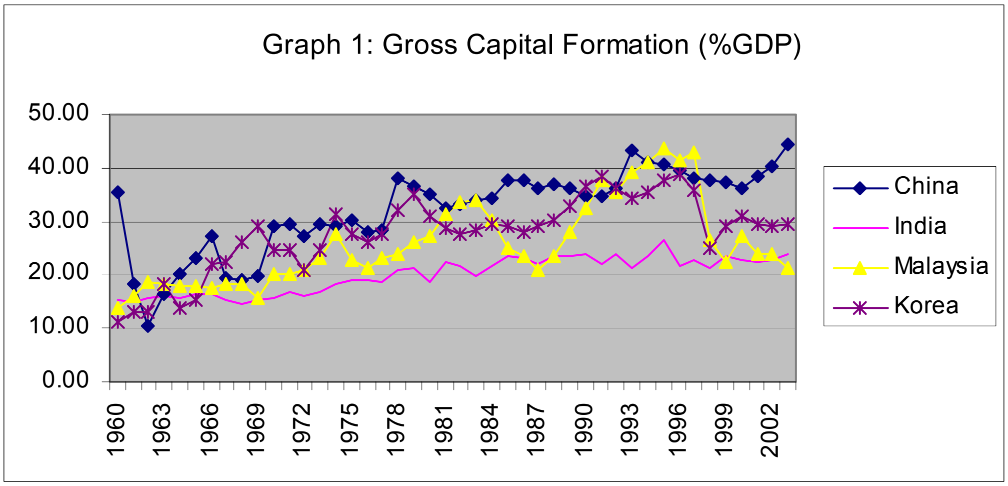
As we have noted in Section I, analysis of aggregate demand helps focus attention on the behaviour of investment. An implication of the Rodrik and Subramaniam (2004) is that sustained growth can be productivity-led rather than dependent on factor accumulation. If that is indeed the case, then rapid increases in growth can happen and be sustained at relatively low levels of investment. For countries facing a resource mobilisation constraint that is very good news indeed. Whereas both theory and development experience tells us that productivity-led growth surges cannot be ruled out, it is also worth noting that in the latter half of the 20th century whenever catch-up has occurred, it has been accompanied by historically unprecedented levels of investment and domestic savings.

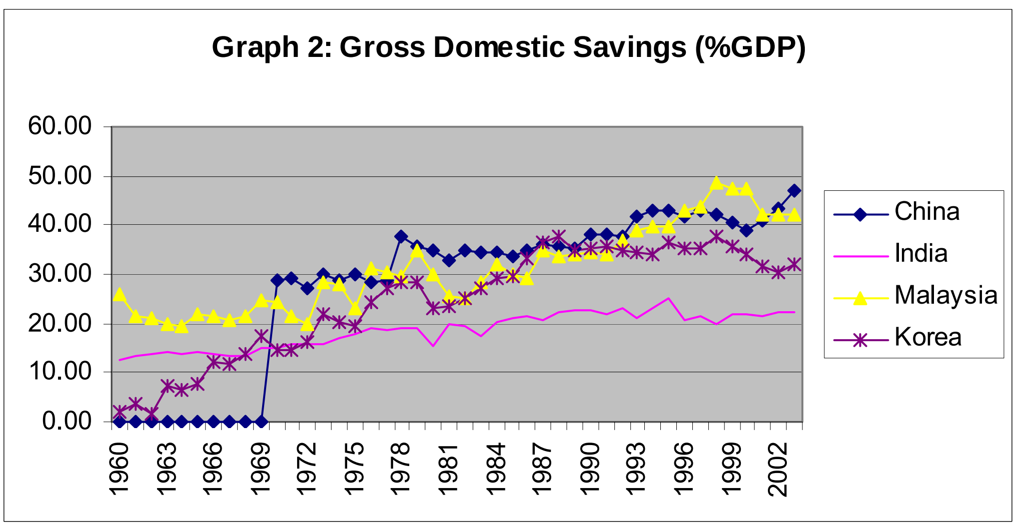
As Rodrik (2003) points out, per capita income in developing countries grew at a historically unprecedented rate of 2.3% over the period 1960-2000. Despite this unprecedented growth performance, developing countries as a whole were not able to narrow the gap between their income levels and those of developed countries because,

---

[10] However, characterising the entire period prior to the early 1980s as being 'low growth' clearly mis-specifies the Indian growth experience. As Bagchi (1970) notes (p.145), the period 1954-64 saw significant acceleration in industrial growth. Indeed one of the most important debates on the Indian economy, called 'the industrial stagnation debate' tries to explain the inability to sustain these high rates of growth and the subsequent slowdown in industrial growth. Indeed the market question referred to in Section I was first addressed as a part of that debate. There is a vast literature on this subject which made important contributions to both development theory and policy. This is not the place to review that literature, but not to recognise that decade long period of robust industrial growth is to miss one of the salient features of India's economic growth. For a retrospective look at this debate see the 'Introduction' to Nayyar (1994) and Chaudhuri (1998).

because the latter grew at an average of 2.7%. [the ratio] The only regions that were able to play catch-up were those of East Asia and South East Asia. For other regions there have been periods of higher than average growth which unfortunately has not been sustained and hence they have fallen back in the catch-up race [see Pritchett (2000)].





As the graphs 1 and 2 above attest, East and South East Asia's investment and saving effort has been of a different order as compared with that of India.

In 1975, China's investment and saving ratio stood at 30% and her per capita income at 2000 Constant PPP was $595. In 1997, her investment ratio stood at 38%, savings ratio at 43%, with per capita income at $3141. In 2003, her investment ratio stood at 44%, savings at 47% and a per capita income of $4726.

For South Korea, in 1975 these ratios were 28%, 20% with a per capita income of $3498. In 1997 they were at 36%, 35% respectively with a per capita income of $14071. And in 2003, these ratios were 44%, 47% respectively and a per capita income of $16977.

For Malaysia, in 1975 the same ratios were 23%, 23% respectively with a per capita income of $1377. In 1997, the ratios stood at 43%, 44% respectively with a per capita income of $3894. In 2003, the same ratios were 21% and 42% respectively with a per capita income of $4011.

For India, in 1975 these ratios stood at 19%, 18% with a per capita income of $1139. In 1997 these were 23%, 21% respectively with a per capita income of $2154. In 2003 the same ratios stood at 24% and 22% respectively with a per capita income of $2731.

Clearly then catch-up for economies of East and South East Asia has happened with investment and savings ratios in the mid- to high 30s[11]. For India things have been rather different as have her per capita income levels. We are not necessarily suggesting causality but the correlation between catch-up and high rates of investment and savings cannot be dismissed either.

Finally to give a sense of the speed of catch-up, starting from 1975 when China's per capita income stood at $595, she more than doubled her income in 11 years and in 1986 China's per capita income stood at $1270. Nine years later, i.e., by 1995, per capita income had more than doubled and stood at $2702. By the end of our period, 2003, that is eight years later, per capita income had nearly doubled again and stood at $4726.

Similarly, when we look at South Korea, in 1975 her per capita income stood at $3498. By 1987, i.e., 12 years later, they had more than doubled their income to $7454. By 1997, i.e., 11 years later, they almost doubled their income again and it stood at $14071. In 2003, her per capita income level stood at $16977[12].

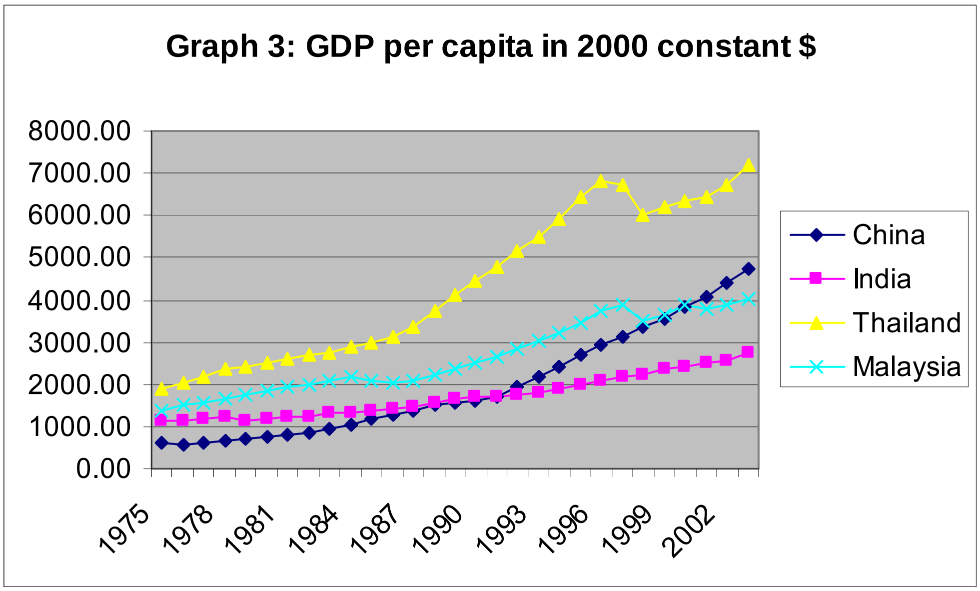
For India on the other hand, in 1975, her per capita income stood at $1139. It took India 23 years to double her income, i.e., in 1998, to $2244. In 2003 her per capita income stood at $2731.

Graph 3 below gives a visual sense of how India has fared with respect to some economies in East and South East Asia in terms of per capita income growth. It is worth noting that in 1975, Thailand, Malaysia and India are not very far apart in terms of per capita income and that China's per capita income was substantially lower than that of India's. Also that in 2003 China's per capita income is significantly higher than that of both India's and Malaysia's.

---

[11] It is worth noting in this context that Rostow in his 1965 tract 'Stages of Economic Growth: A Non-Communist Manifesto' had suggested that take-off (i.e. sustained growth in per capita incomes) would happen at an investment ratio of around 20%!

[12] To put this speed up catch up in context, between 1820-70 when Britain was the world's leading superpower, per capita income grew at an average rate of 1.3% and during the period of USA's ascendancy to superpower status, i.e. the half century before World War I, she had an average annual per capita income growth of merely 1.8% [see Maddison (2001)].



To conclude this section then, there is reasonable consensus about a break in the trend rate of growth of the Indian economy taking place in the early 1980s and that the reforms introduced in the early 1990s did not lead to a break in the trend rate. India's post 1980s growth experience needs to be contextualised with the fact that over the long period of 1960-2000, East and South-East Asia are the only regions of the world economy that have successfully played catch up with developed country income levels. In addition, the time taken for these economies to double their incomes has shortened dramatically, i.e. the speed of catch up has increased. This process of catch up has been associated with historically unprecedented levels of investment and mobilisation of domestic savings.

Section III: The Model

With this as the backdrop, our paper seeks to disaggregate the growth process of the Indian economy in terms of demand and supply factors and to see if there are discernible differences between the higher growth and the low growth phases. We feel that if one can isolate demand drivers and supply sector responses to growth it might help us in framing the 'why' question a little better. Or at least in which direction to look for answers.

At the heart of our paper, is essentially an analysis of relative shares of demand and supply read in conjunction with their growth rates, e.g., share of increase in consumption to increase in total aggregate demand ($\Delta C/\Delta Y$), given the growth rates of consumption and aggregate demand or the contribution of agriculture to output growth (ΔA/ΔY), given the rates of growth of agriculture and output. That is to say, to understand the aggregate impact, we look not only at the rates of growth of variables but also the base on which these operate.

Sustained increases in per capita income from very low levels are normally accompanied by an increase in investment ratios, (I/Y) as well as (I/C), i.e., rates of growth of investment have to be greater than the rates of growth of consumption. Indeed, as was discussed in the earlier section, particularly in the post World War II phase, economies that have achieved catch up in per capita incomes (Japan, South Korea, Taiwan, China to name a few) have also seen sharp increase in investment ratios over relatively short periods of time.

However even if investment rates of growth are greater than consumption rates of growth, the closer the latter are to the former, the longer it would take to raise I/Y and I/C ratios. This is so because the closer consumption rates of growth are to investment rates of growth the lower the ratio (ΔI/ΔY) and the lower this ratio, the slower the increase I/Y and consequently of output rates of growth, unless accompanied by declining ICORs. But beyond a point it would be difficult to drive down ICORs, at which point slowly rising I/Y would constrain the rate of growth of output. Conversely the further apart investment and consumption rates of growth are, the higher the ratio (ΔI/ΔY), the faster the increase in I/Y and consequently of output rates of growth, unless accompanied by rising ICORs. Therefore, if ICORs are held constant, the higher the ratio (ΔI/ΔY), faster will be the increase in I/Y and the greater the rate of growth of output. Of course if rising (ΔI/ΔY) ratios are accompanied by declining ICORs the output growth will happen even faster.

A simple numerical example might help establish the importance of the distance between investment rates of growth and consumption rates of growth to the overall growth process. Assume aggregate demand comprises only consumption and investment and in period 0, C = 90 and I =10 with Y at 100 and therefore, an investment ratio (I/Y) = 10%. Now if consumption growth (g_C) is 3% per period and investment growth (g_I) is 10%, then by period 20, I/Y = 29% and ΔI>ΔC by period 17. If g_C rises to 4% and g_I remains at10%, then by period 20, I/Y = 25% and ΔI>ΔC by period 24. On the other hand, if g_C drops to 2% and whereas g_I =10%, then by period 20, I/Y = 34 and ΔI>ΔC by period 9. And finally if g_C drops to 2% and g_I increases to11%, then by period 20, I/Y = 38 and ΔI>ΔC by period 7. We find that (ΔC–ΔI) decreases from period 1 onwards. In other words, just a 1% increase or decrease in the gap between investment and consumption growth rates, has significant implications for growth outcomes.

Therefore, if investment ratios are increasing very rapidly over a relatively short period , then not only will the rate of investment be greater than the rate of consumption, but one might also expect (ΔI/ΔY) to dominate other elements of aggregate demand over that period. If this is too stringent a condition to require of aggregate demand growth, then certainly over this period when the relative contribution of investment to growth is increasing, (ΔI – ΔC) and [ΔI–Δ(X-M)] should narrow. Therefore we characterise a process of demand growth as being investment driven if (ΔI/ΔY) dominates other elements of aggregate demand or as being weakly investment driven if at least (ΔI–ΔC) is narrowing and [ΔI–Δ(X-M)] is growing.

Analogously, it is possible to characterize demand growth as being consumption driven if (ΔC/ΔY) dominates other elements of aggregate demand or as being weakly consumption driven if (ΔC–ΔI) and [ΔC–Δ(X-M)] are both growing.

Similarly, we can characterise demand growth as being net exports driven if [Δ(X-M)/ΔY] dominates other elements of aggregate demand or as being weakly net exports driven if [Δ(X-M)-ΔC] and [Δ(X-M)-ΔI] to be growing (or narrowing).

Given that we are looking at the composition of the increment in aggregate demand we take into account rates of growth as well as the base on which the rates are being calculated. We have also defined accelerations and decelerations in component growth depending upon movements in these second order ratios. Typically when analysing growth experiences, the standard assumption is of linear relationships with respect to time, i.e., while dx/dt is non-zero, d^2x/dt^2 is equal to zero. For example Hausman et al in their 2004 paper on growth accelerations are essentially looking to explain points at which there has been a break in the trend rate, i.e., a change in dx/dt. We on the other hand are exploring if there are phases during which both dx/dt and d^2x/dt^2 are non-zero. To the extent that aggregate demand growth can be characterized as being dominated by a component, say consumption, we then explore whether there has been acceleration (change in second-order) or deceleration in consumption growth.

For our purposes therefore we need to explore whether growth rates are accelerating or decelerating over time. To understand the nature of this demand growth or supply sector response we have explored the behaviour of the ratios over time. We have defined acceleration in ratios as happening when a ratio is positive and increasing with respect to time. Similarly deceleration has been defined as when a ratio is positive but decreasing with respect to time.

We have arrived at the above analysis of movements in relative shares by estimating a set of growth equations for each of our periods and using the estimated growth rates to arrive at a sufficient condition to establish dominance and acceleration or deceleration (see Appendix for derivation)

In keeping with the rest of the literature we find that there is a clear break in the trend rate of growth around 1980/81 and that there is no statistically significant break in the post-reform period. Therefore we have treated the entire higher-growth phase as a single period - Period III. Following Wallack (2003), we find that 1967/68 might constitute a break in, what some in the literature have called (see e.g. Wallack (2003) and Rodrik and Subramaniam (2004)), the low growth phase. Given that this also coincides with roughly the end of third five year plan, we felt that it might be useful to break the ‘low growth’ phase into two periods – Period I going from 1950/51-1966/67 and Period II from 1967/68-1979/80[13].

Our three periods therefore are as follows: Period I: 1950/51-1966/67; Period II: 1967/68-1979/80; Period III: 1980/81-2002/3

To explore the behaviour of a growth rate or a ratio we can either estimate separate equations for each period or estimate a single equation for all three periods. We begin by estimating the following equations for each period:

$\text{Ln } Y_t = a_1 + b_1(t - \bar{t}) + c_1(t - \bar{t})^2 + U_t$ where t belongs to time period I
$\text{Ln } Y_t = a_2 + b_2(t - \bar{t}) + c_2(t - \bar{t})^2 + U_t$ where t belongs to time period II
$\text{Ln } Y_t = a_3 + b_3(t - \bar{t}) + c_3(t - \bar{t})^2 + U_t$ where t belongs to time period III

Noting that the error terms (U_t) have constant variance across time periods, the above equations have been combined using suitable dummy variables and the model below has been estimated to capture the differences, if any, in growth rates or movements in ratios across the time periods I, II and III.

The Growth model

$$\text{Ln } y_t = a_3 + (a_1 - a_3) D_1 + (a_2 - a_3) D_2 + [b_3 + (b_1 - b_3) D_1 + (b_2 - b_3) D_2] (t - \bar{t}) + [c_3 + (c_1 - c_3) D_1 + (c_2 - c_3) D_2] (t - \bar{t}) 2 + U_t$$

Where $D_1 = 1$ when t belongs to period I (1950/51 to 1966/67) and = 0 otherwise
Where $D_2 = 1$ when t belongs to period II (1967/68 to 1979/80) and = 0 otherwise

Model results have been reported separately in Appendix II. All estimations results that have been reported, unless otherwise specified, are significant at the 5% level. **It should also be noted that from hereon K denotes constant growth of the variable in question, A an acceleration in growth and B a deceleration**.

Section IV: Aggregate Demand Decomposition

The results for our estimated GDP growth equations for the three periods are summarised in Table 1 (see Appendix II for estimated equations):

Table1: Estimated Growth Rates of Gross Domestic Product (GDP)

	Period I		Period II		Period III	
GDP at market prices						
	Nature of	Growth rate	Nature of	Growth rate	Nature of Growth	Growth rate

[13] Nayyar (2006) points out that if one incorporates the colonial period into the analysis, there are two statistically significant breaks in the trend rate of growth of the Indian economy – one around 1950 and the other around 1980 with the post-independence rates of growth being significantly faster than in the colonial period. Our analysis is of course confined to the period starting from 1950/51.

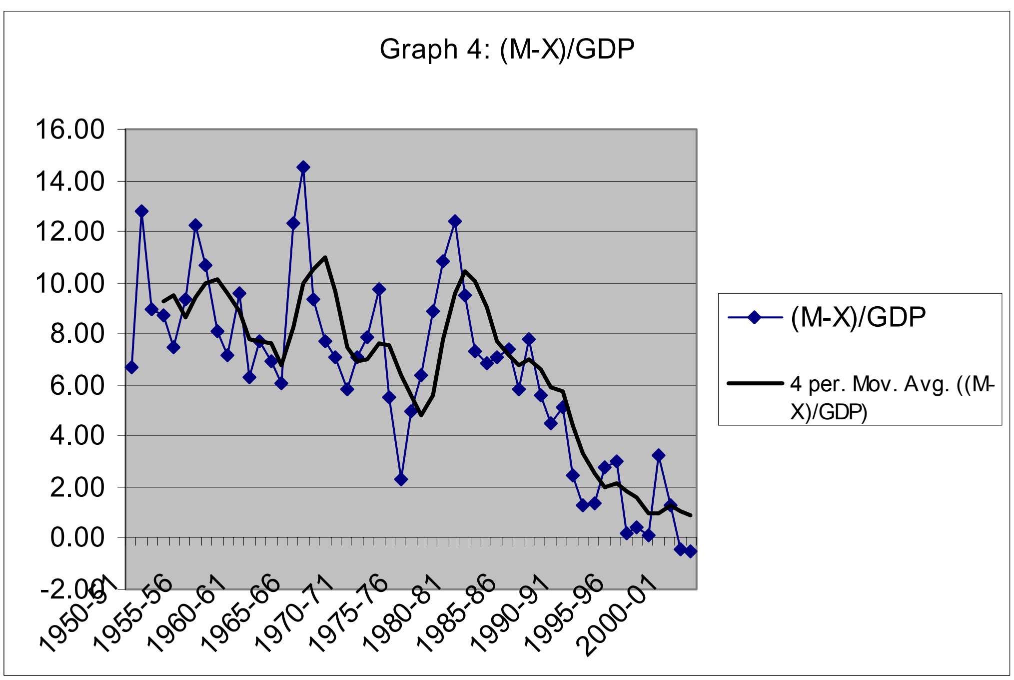
	Growth		Growth			
	K	3.90%	K	3.41%	K	5.51%
GDP at factor cost	K	3.60%	K	3.32%	K	5.54%

Our estimated growth rates clearly bring out the break that occurs in the trend rate of growth in Period III as compared to the earlier two periods. Growth in Period II was marginally lower than in Period I. It is worth noting that there is no acceleration in growth rates in any of our three periods.

Before turning to analyse aggregate demand in a more detailed fashion, we would like to point out that we have chosen to focus on consumption and investment because net exports have not been a source of demand for the economy over any of our three periods, given that, barring a couple of years at towards the very end, the economy has run a trade and current account deficit for most of the period.

It however needs pointing out that (M-X)/Y has declined right through the three periods, with the rate of decline increasing sharply in Period III (see Graph 4 below). Whether or not this will be sustained and will lead to a situation where (X-M) turns positive and (X-M)/Y begins to rise is another matter. If recent behaviour of the current account is any indicator, the economy is back to running a small deficit (as the trend line of the four year moving average would suggest in the graph below).

But what the decline in (M-X)/Y does suggest is two things: first the leakage of demand in Period III is much lower than in Periods I and II when the leakage was quite substantial. That is to say that growth in domestic absorption has fuelled aggregate demand growth much more in Period III than in Periods I and II; second, the declining current account deficit would suggest that in Period III, particularly in the 1990s growth has been financed much more through domestic resource mobilisation than by foreign savings despite the economies increasing integration into the global economy.



We can now turn our attention to the behaviour of consumption and investment over our three periods.

Table 2: Estimated Growth Rates of Consumption and Investment

	Period I		Period II		Period III	
	Nature of Growth	Growth rate	Nature of Growth	Growth rate	Nature of Growth	Growth rate
C	K	3.46%	K	3.06%	**A**	**3.89 - 5.23%**
I	K	6.69%	K	4.69%	K	6.69%
Note: C refers to Consumption and I to Gross Domestic Capital Formation (GDCF). Consumption refers to [Private Final Consumer Expenditure (PFCE) + Government Final Consumer Expenditure (GFCE)].						

Table 2 suggests that there have been two periods of relatively high investment growth, Periods I and III. We did not find significant difference in the rate of growth of investment between these two periods. Table 2 also brings out that there is a clear decline in investment growth in Period II. It is worth noting that there is no underlying acceleration or deceleration in investment growth in any of our three periods, i.e. growth has taken place at a constant level (see Table 1)

Consumption however is quite another story. First, the estimated rate of growth of consumption in Period III is higher than in Periods I and II. Second, and equally importantly, consumption growth accelerates in Period III from a low of 3.89% to a high of 5.23%. It is noteworthy that the lowest rate of growth of consumption in Period III is higher than the average rate of growth of consumption in Periods I and II. Consumption grew at a constant level in Periods I and II, with Period I growth being higher than Period II growth.

To sum up then, Periods I and III are phases of relatively high investment growth. However in both these periods, even though investment grew somewhat faster than consumption, investment growth was at a constant level. Consumption growth on the other hand, was highest in Period III and even though somewhat lower than investment, grew with a marked acceleration during that period.

Table 3: Period Averages of Actual Aggregate Demand Ratios

	C/Y	**I/Y**	**I/C**	**(M-X)/Y**
Period1	**91.8**	**17.4**	**0.19**	**9.2**
Maximum	96.5	23.0	0.25	
Minimum	87.2	12.5	0.15	

Period2	**88.2**	**20.7**	**0.24**	**9.0**
Maximum	89.4	24.2	0.29	
Minimum	83.3	18.8	0.21	
Period3	**80.4**	**23.7**	**0.30**	**4.1**
Maximum	89.7	27.8	0.37	
Minimum	73.7	20.0	0.23	

Table 4: Growth Pattern of Consumption and Investment Ratios

	Period I	Period II	Period III
	Nature of Growth	Nature of Growth	Nature of growth
C/Y	Decreasing with Acceleration	Decreasing with Acceleration	Decreasing with Acceleration
I/Y	Increases at Constant level*	Increases at Constant level	Increases at Constant level
*Denotes significant at 7.5% level of significance			

Given that Investment has grown faster than Consumption in all our three periods, C/Y has declined over time and I/Y has increased over time (see Table 3), as one would expect. However as we will see in a moment, this is not enough to characterise demand growth as being investment driven.

Turning our attention to the relative contribution of consumption and investment to demand growth, we know that
$\Delta C = [\Delta C/C]C$ and $\Delta I = [\Delta I/I]I$
Therefore $(\Delta C - \Delta I) = [(\Delta C/C)C - (\Delta I/I)I] = [g_C C - g_I I] = [g_C - g_I(I/C)]C$, where g_C and g_I denote growth rates in consumption and investment respectively.
The expression $[g_C - g_I(I/C)]C$ will therefore be greater than zero if $g_C > g_I(I/C)$
The above implies that $\Delta C > \Delta I$ if $(I/C) < g_C/g_I$
Obviously, the above also implies that lower the rate of growth of consumption and higher the rate of growth of investment, the lower the value of the required I/C. Or put it differently, the lower g_c is and the higher g_i is the greater the probability that $(I/C) > g_c/g_i$, or $\Delta I > \Delta C$.

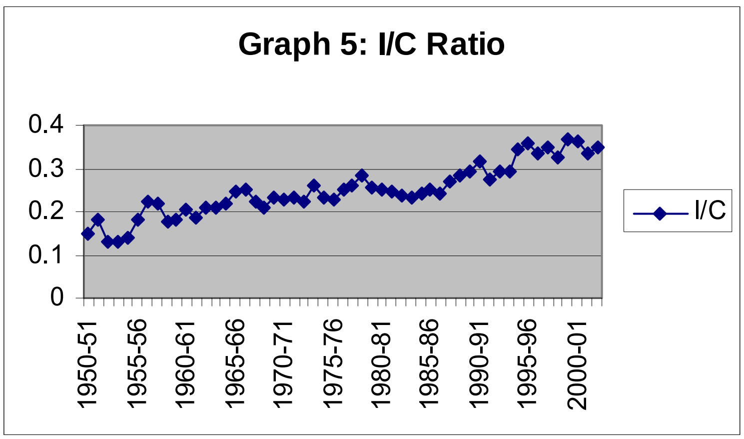
We have used our estimated Consumption and Investment growth rates to calculate g_C/g_I and therefore the I/C ratio that would need to be attained if $\Delta I > \Delta C$. We then have examined if the maximum ratio attained by I/C in that period is less than the I/C implied by consumption and investment growth rates. If it is, then it follows that ΔC must be greater than ΔI for the entire period.

We find that in Period III, for $\Delta C < \Delta I$, (I/C) has to be greater than 0.581. However actual (I/C) varies between a minimum of 0.23 to a maximum of 0.37, being substantially lower than the necessary value. In Period I the required (I/C) ratio is 0.517 and the actual ratio varies between a minimum of 0.15 to a maximum of 0.25. In Period II the required rate is 0.652 and the actual varies between 0.21 and 0.29.

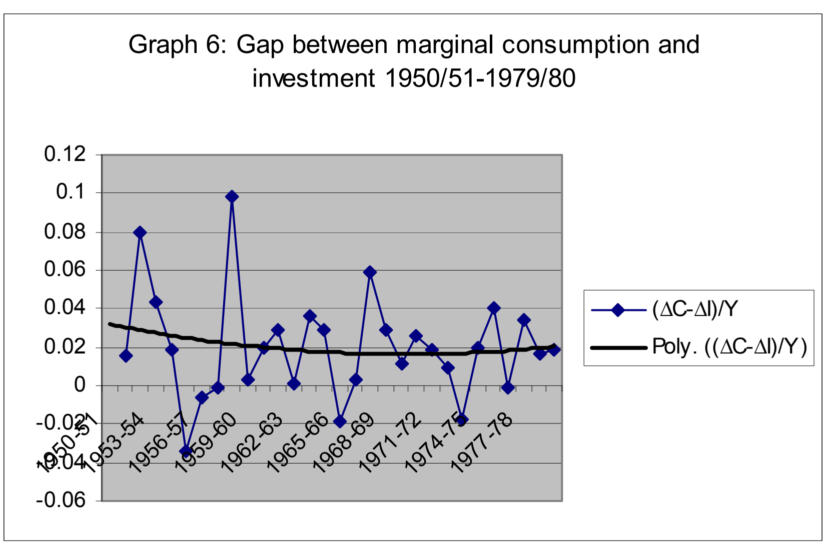
Using the above we find that ΔC > ΔI for each year in all three the time periods. Therefore if we use our strict definition of investment led demand growth, i.e. ΔI > ΔC, there is no period for which this is true.

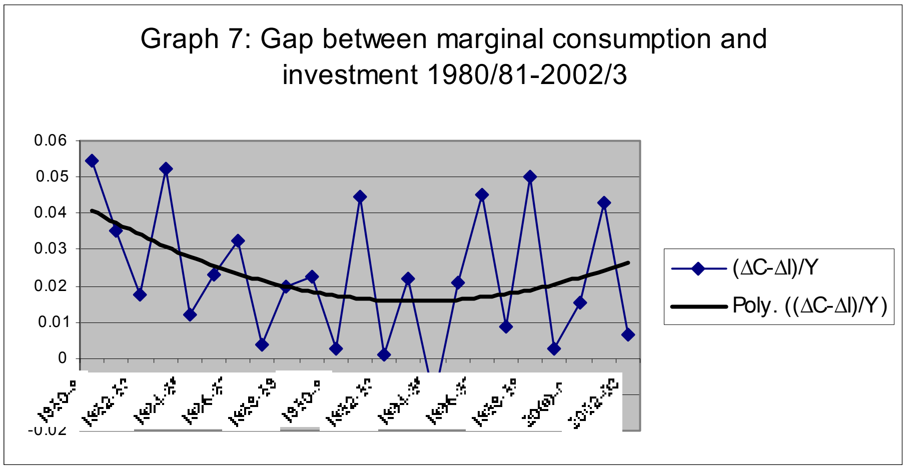
It is worth noting that the required (I/C) ratio in Period III (0.581), whereas lower than in Period II (0.652) is higher than in Period I (0.517). The Period II results are explained by the fact that there was a significant decline in the rate of growth of investment relative to Period I and the decline in the rate of growth of consumption is not as much.

As we have noted earlier, both Periods I and III are phases of relatively high investment growth, but at the margin, consumption growth has been more dominant in Period III than in Period I. Therefore even though consumption has been the dominant marginal driver of demand growth in all three periods, aggregate demand was much more consumption driven in Period III than in Period I.



Even though we can characterize aggregate demand growth in India as being consumption driven at the margin, it might be worthwhile adding some nuance to this story by looking at the behaviour of (ΔC-ΔI) over the low growth and high growth phase. Graphs 6 and 7 below depict the movement of (ΔC-ΔI) normalised by Y and we think, add something to our understanding of aggregate demand behaviour. Graph 6 depicts (ΔC-ΔI)/Y for the low growth phase, i.e. 1950/51-1979/80 and graph 7 depicts (ΔC-ΔI)/Y for the higher growth phase, i.e. 1980/81-2002/3.





Graph 7: Gap between marginal consumption and investment 1980/81-2002/3

What both these graphs suggest is that even though aggregate demand growth has been consumption driven at the margin right through all three periods, in Period I, the first relatively high investment phase, (ΔC-ΔI) tended to narrow. In Period III, the second relatively high investment phase, the behaviour of (ΔC-ΔI) differs as between the 1980s and the 1990s. In the 1980s (ΔC-ΔI) narrows whereas in the post reform period it tends to widen[14].

Therefore whereas we can characterise Period I and the pre-reform growth in Period III as being weakly investment driven where, i.e., even though ΔC>ΔI, (ΔC-ΔI) is narrowing, the post-reform Period III growth is not even weakly investment driven, in that ΔC>ΔI and (ΔC-ΔI) is growing.

As far as Period III is concerned, the devil really is in the acceleration in consumption growth in that period. If consumption growth had continued to grow at a constant level as it did in the low growth phase and aggregate demand at the margin was consumption driven (i.e., ΔC>ΔI), the process would also have been weakly investment driven at the margin, in that (ΔC-ΔI) would continue to narrow through the process, as it was in the early part of Period III. If the current account is in balance or the current account balance is sustainable then this process is in the macroeconomic sense sustainable. Of course this says nothing about saving levels, but presumably increasing I/Y ratios would lead to an increase in saving ratios over time, otherwise without access to foreign savings the process would not be macro-economically sustainable.

---

[14] It is possible to mathematically establish the behaviour of (ΔC-ΔI) over our three periods. Only, given the acceleration in consumption growth in Period III, the calculations get somewhat a messy and long, adding the length of an already long paper. We therefore decided to adopt the visual route. We thank Ashok Dhareshwar for helping mathematically establish the behaviour of (ΔC-ΔI) over our three periods.

However, acceleration in consumption growth in Period III queers the pitch. As a result, in the latter part of period III, consumption and investment growth rates are much closer to each other and (ΔC-ΔI) is no longer narrowing and aggregate demand growth is not even weakly investment driven! This slows down the rise in I/Y ratios and constrains output rates of growth.

It is worth dwelling a little on the composition of consumption expenditure and the behaviour of its component parts. Underpinning the decline in (C/Y) is the decline in the (PFCE/Y) which has secularly declined right through all the three periods. As Table 5 below makes clear, (PFCE/Y) declines from an average of 85.3 in Period I to 76.9 in Period II and to 69 in Period III. Exhibiting the exact opposite trend is (GFCE/Y). It has grown secularly across all the three periods. It has increased from 6.5 in Period I to 9.6 in Period II and further to 11.4 in Period III. Government consumption expenditure has therefore played an important role in underpinning consumption demand growth in India and therefore slowing down in the decline in (C/Y).

Table 5: Private and Government Consumption Expenditure

	PFCE/Y	GFCE/Y	C/Y
Period I average	**85.27**	**6.51**	**91.77**
Maximum	90.54	9.07	96.51
Minimum	79.16	5.32	87.15
Period II average	**76.90**	**9.55**	**88.24**
Maximum	80.85	10.81	89.42
Minimum	73.94	8.58	83.28
Period III average	**68.95**	**11.43**	**80.38**
Maximum	79.11	12.62	89.71
Minimum	61.98	10.42	73.66

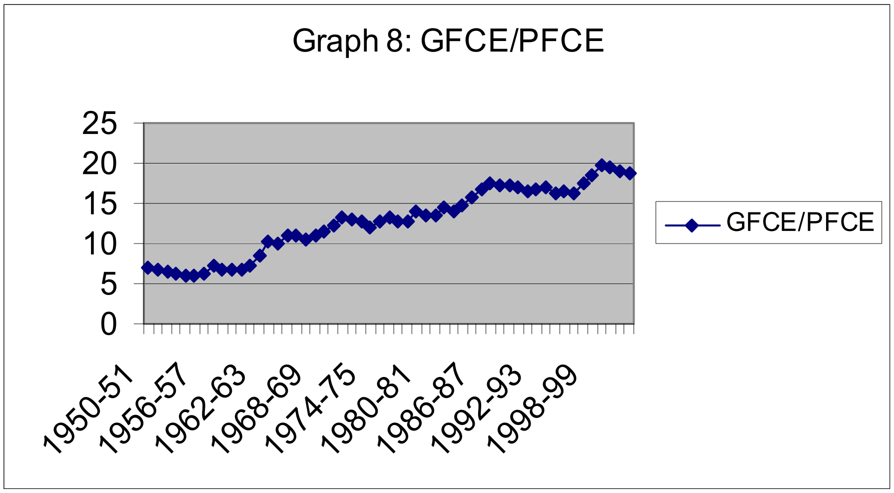
Unfortunately, our growth equations for PFCE and GFCE did not yield results that were statistically interpretable. Even in terms of the behaviour of the ratios (GFCE/Y) are not useful because the relevant growth equation has exhibited very low values of DW statistics. Thankfully the growth equation for the ratio (PFCE/Y) was robust enough to be interpreted and it substantiates our observation about the behaviour of PFCE. As Table 6 below reports, what is noteworthy is that in both Periods II and III, there is an acceleration in the decline of the ratio (PFCE/Y), which probably explains why there is an acceleration in the decline of the (C/Y) ratio (see Table 4) even though the decline in the latter ratio (~ 11%) is much less than in the former (~ 16%).

All this to say that the PFCE ratio has behaved in the manner one would expect with the gap between GDP growth and PFCE growth increasing over time. Given that we do not have estimated values, we will use period averages of actual growth rates to get a sense of this – the average rate of PFCE growth in Period I was 91% of average GDP growth over that period. This ratio fell to 87% in Period II and declined again to 83% in Period III. However it also worth bearing in mind that in Period III average PFCE growth was 4.4% p.a. which, compared with other economies, would be relatively high.

Table 6: Growth Pattern of the ratio (PFCE/Y)

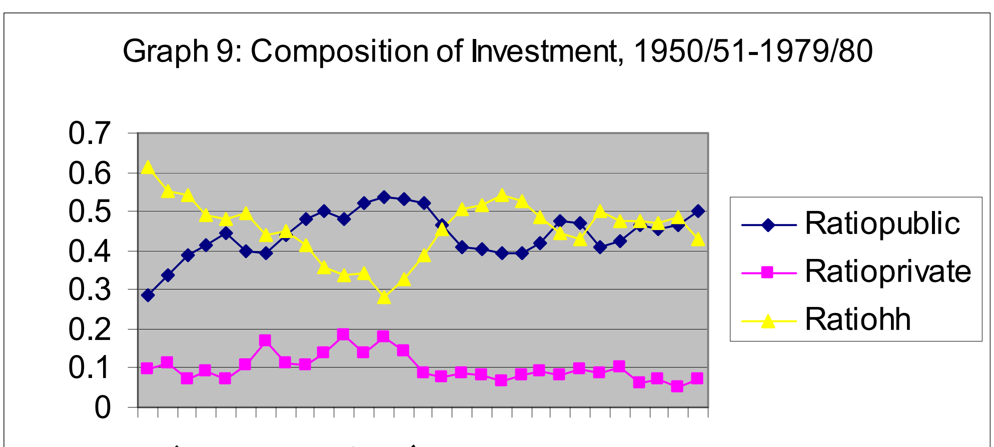
	Period I	Period II	Period III
	Nature of Growth	Nature of Growth	Nature of Growth
(PFCE/GDP)	Decreasing with Deceleration	Decreasing with Acceleration*	Decreasing with Acceleration
*Significant at 5.4%			

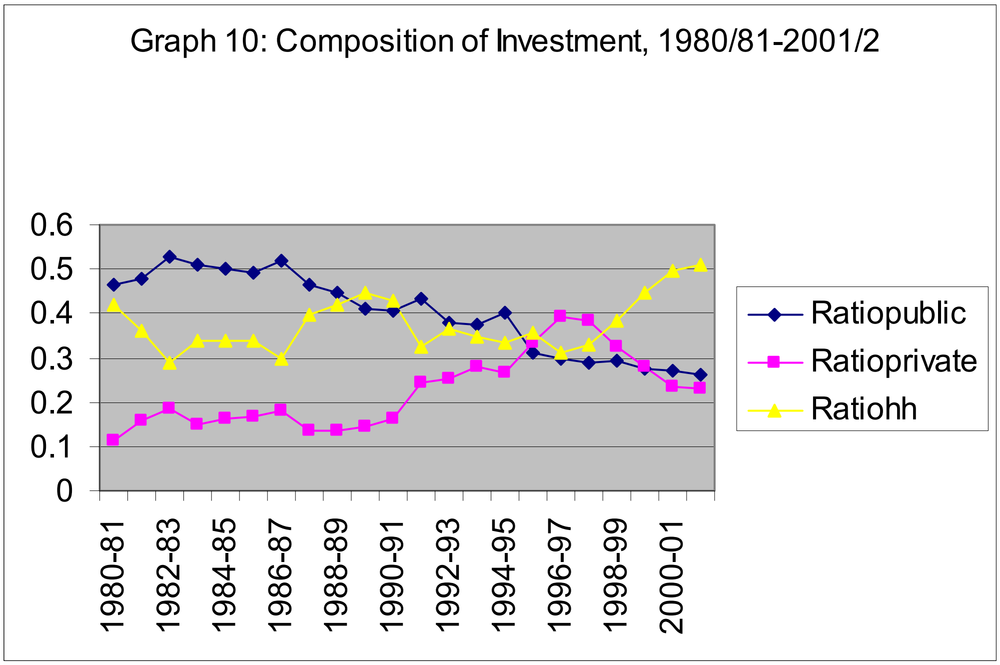
To get a sense of the relative importance of the growth of PFCE and GFCE during our three periods we plot the variable (GFCE/PFCE)*100.



Therefore even though as Table 5 suggests on average there has been a secular increase in GFCE/Y right through Periods I, II and III, it is not as if the rate of growth of GFCE has outstripped that of PFCE right through these three periods. By looking at periods over which the ratio GFCE/PFCE has risen, we can identify three broad periods when GFCE grows faster than PFCE – 1958/59-1972/72; 1977/78-1987/88; and finally 1994/95-1999/2000. This does not allow us any neat generalisations in terms of our three periods, <u>but nonetheless it would not be incorrect to say that Government Consumption has played a much more important role in underpinning the growth of Consumption demand in Periods II and III than in Period I.</u>

To round off the aggregate demand story we now turn to the composition of investment as between public, private and household investment. Graphs 9 and 10 below depict the movement of public, private and household investment as a proportion of total investment between the periods 1950/51-1979/80 and 1980/81-2001/2.

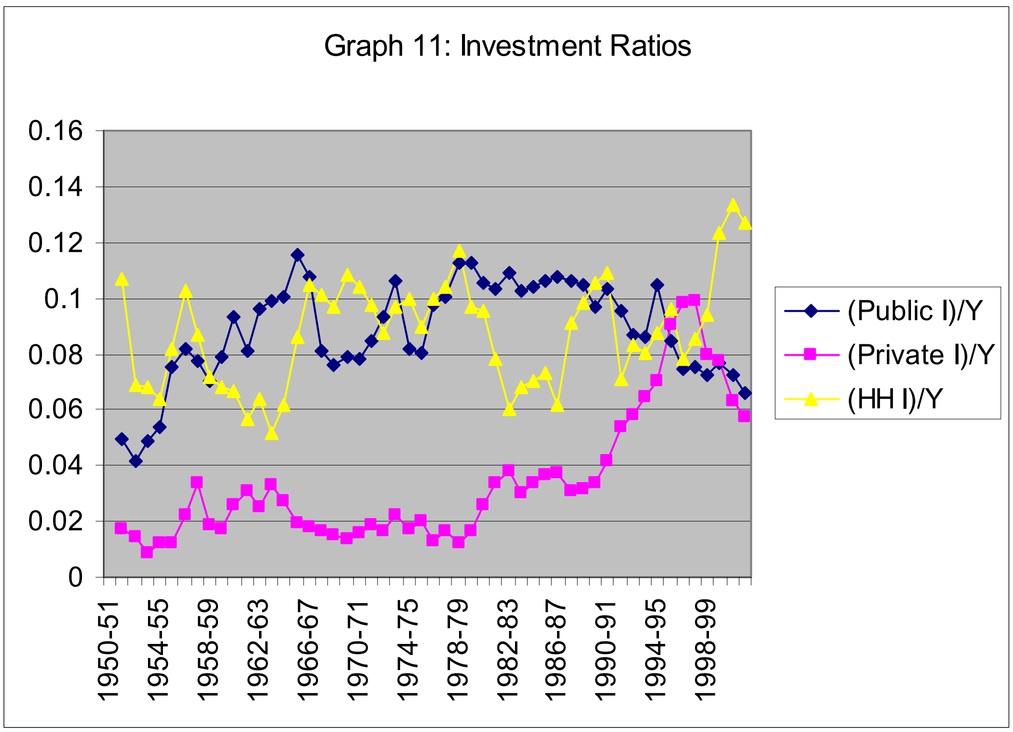




As graphs 9 and 10 above make clear, the drivers of investment in Period I and Period III, our two high investment phases, are very different. In Period I (see graph 9), investment is driven by Public investment, which increases its share from approximately 30% to more than 50% of total investment. Private Corporate investment which begins the period with a share of less than 10% of total investment sees almost a doubling in its share and is particularly robust between and is particularly robust between 1954/55-63/64. The share of Household investment declines by more than half, from more than 60% at the beginning of the period to less than 30% in 1963/64. It recovers (at the expense of Private Corporate investment) to end period with a share of more than 40%.

As graph 10 makes clear, at the beginning of Period III, both Public and Household investment have shares of greater than 40%. That of the former however is somewhat greater than that of latter. The share of Private Corporate investment is a little over 10%. Up to 1986/87, Public investment is relatively robust and sees some increase in its share of total investment. Alongside again is an increase in the share of Private Corporate investment, with its share increasing from 11 to 18% over that same period. Household investment obviously sees a decline in its share. From 1986/87 onwards however there is an almost secular decline in the share of Public investment, from more than 50% to less than 30% of total investment towards the end of Period III. During this period (i.e., from 1986/87 onwards), investment is driven by Private Corporate and Household investment, though with somewhat different trend behaviour. The share of Household investment sees a secular increase going from 30 to more than 50%. That of Private Corporate investment declines until 1988/89 and then begins rising again to reach a peak of almost 40% in 1996/97, after which it declines to 23% by the end of 2001/2. By 2001/2 therefore Household investment is the dominant component of investment with a share of 50%, with Public and Private Corporate investment with roughly equal shares, 26 and 23% respectively.

<u>It is worth noting that in both our periods where aggregate demand growth has been weakly investment driven, i.e., in Period I and the early part of Period III, Public investment has been the dominant driver of investment growth.</u> The importance of Public investment in Period I and its declining importance in Period III is corroborated when we look at its share as a percentage of GDP, as depicted in graph 11 below. The Public investment ratio declines from around 11% in 1987/88 to 7% in 2001/2 whereas it rises from 5 to 11% in Period I.



What can be said about government expenditure as a driver of autonomous demand? First that government expenditure has been an important component of aggregate demand right through all our three periods, indeed if anything its importance has risen in periods II and III. Second, Period I begins with Government consumption expenditure accounting for about 6% of GDP and Public investment around 5%. With accelerated growth in Public investment, Period I closes with Government consumption at 9% of GDP and Public investment at 11%. Period averages are 7 and 8% respectively. <u>Therefore, the composition of government expenditure decisively moves in favour of investment in Period I.</u>

Even as growth slows down in Period II, the weight of government expenditure in aggregate demand increases and cutbacks in Public investment (particularly in the early part of the period) mean that the share of Government consumption expenditure as a proportion of total government expenditure rises. Averages for Period II for Government consumption expenditure and Public investment are 10 and 9% respectively.

Period III opens (1980/81) with Government consumption expenditure and Public investment balanced at approximately 11% of GDP each. However by the end of the period (2001/2), Government consumption expenditure had risen to 12% and Public investment had declined to 7%. Period averages stood at 11 and 9% respectively. Therefore, in Period III again government expenditure is dominated by consumption expenditure.

But as we know Period III can be divided into two parts – an early part where aggregate demand growth is weakly investment driven and a later part where it is strongly consumption driven. Averages of Government consumption expenditure and Public investment during the phase when aggregate demand was weakly investment driven are approximately 11% each. In the latter part of the period (which for the most part is the post-reform period), when aggregate demand growth was not even weakly investment driven, averages are 12 and 9% respectively for Government consumption expenditure and Public investment. Or in other words, in the post-reform period Government expenditure is dominated by consumption expenditure. And it is worth bearing in mind that through most of the period government expenditure is significantly deficit-financed.

It is useful to remind ourselves at this point that in both the episodes (in Period I and the early part of Period III) where aggregate demand growth has been weakly investment driven, robust Public investment and Private Corporate investment have gone hand in hand. In the latter part of Period III (essentially the post-reform phase) however there is a secular decline in Public investment and investment is driven by Private Corporate investment and Household investment. From 1996/97 onwards however there is a sharp deceleration in Private Corporate investment as well, declining from around 10 to less than 6% by the 2001/2. And as we know the economy found it difficult to sustain the initial burst of growth and decelerates quite sharply after 1995/96.

As our analytical discussion in Section I suggests, one plausible reason for the slowdown is that in the latter part of Period III, with a shift in favour of Government Consumption expenditure at the expense of Public investment, Government expenditure as a source of autonomous demand is unable to sustain the inducement to invest and, given that it is significantly deficit financed, also pulls down the economy onto a lower growth path. It is worthwhile noting that a similar kind of analysis might explain the slowdown in Period II despite the increasing weight of Government expenditure as a proportion of GDP in that period as well. In Patnaik (1984) declining Public investment and increased capitalist consumption causes economic stagnation. What we are suggesting is that 'over-consumption' is due to the increasing weight of Government consumption expenditure in total consumption expenditure and in total Government expenditure alongside a decline in Public investment to GDP ratios, even as Government expenditure to GDP ratio secularly increases.

Of course as we know, despite similarities between Period I and early Period III we have noted above, what distinguishes the latter from the earlier two periods is the trend break in growth that takes place around 1980. Growth in Period III is significantly (both statistically and in an absolute sense) higher as compared with the earlier two periods (see Table 1). However alongside this increase in the trend rate of growth is a trend decline in the employment elasticity of output. Not only is the employment elasticity lower in Period III as compared with Periods I and II but even within the former there is a sharp decline in the 1990s as compared with the 1980s – from 0.5 to 0.2[15]. In other words despite the fact that in Period III the economy is on a higher growth trajectory, that growth has happened, particularly in the 1990s, with an increase in both open unemployment and underemployment of labour resources. Put differently, the required rate of growth for full employment of all available resources has increased[16].

What then is the upshot of the above? Put simply, aggregate demand growth in India has been consumption driven at the margin, with the relative contribution of consumption having risen in the high growth phase that begins in the early 1980s. This of course does not imply that there has been no investment growth. Indeed right through the 52 year period, rate of growth of investment has been higher than that of consumption (see table 2). But aggregate demand being consumption driven at the margin means that, relative to investment growth, rates of growth of consumption have been high. And equally importantly, in the high growth phase, relative to investment, consumption growth has risen quite sharply, that is to say, accelerated. As a result, in the latter half of the high growth phase aggregate demand growth is not even weakly investment driven, which it was in the early part of the high growth phase.

To put it differently, at these rates of growth of consumption one would require much higher rates of growth of investment growth if aggregate demand at the margin is going to be even weakly investment driven. The narrowing of the gap between investment and consumption growth as a result of the acceleration in consumption growth, by lowering the ($\Delta I/\Delta Y$) ratio constrains growth of the I/Y ratio which in turn constrains output growth in the latter half of Period III.

Aggregate demand growth in India is consumption driven not because of increases in the private final consumption (PFCE)[17] ratio but because of increases in the government final consumption expenditure (GFCE) ratio. GFCE ratios have risen rapidly because

[15] See for example section V in Mohanty (2006) for a discussion on employment trends in the 1980s and 1990s and in particular a slowing down in the ability of the Indian economy to generate jobs.
[16] It is worth noting however that the last NSSO large sample survey (61st round) suggests both an improvement in employment elasticities and some revival of employment growth (see Rangarajan et al (2007). However see Kannan and Raveendran (2009) on how organised manufacturing has seen capital intensification as the expense of employment growth.
[17] The distribution of PFCE across income classes might in itself be problem at least to the extent that it determines the output profile which in turn might impact upon employment elasticity of output. For the moment however we have left out of the ambit issues related to the distribution of PFCE.

Government expenditure has shifted towards consumption at the expense of investment except in Period I and for a brief while in the early part of Period III.

The increasing share of government expenditure in GDP has been an important part of the solution of the market problem that has perennially faced the Indian economy. The market question however is at least in part an issue of the inducement to invest. It would appear that the complementarity between Public investment and Private investment pointed out by Srinivasan and Narayana (1977) and Shetty (1978) would still characterise the Indian economy, at least as far as Private Corporate investment is concerned (and not for Household investment). Given that complementarity, the shift in composition of Government expenditure away from Public investment adversely affects the inducement to invest of the Private Corporate sector which leads to a slowdown of investment in the economy. In addition, as a result of this complementarity, in face of declining Public investment ratios, Private investment (both Private corporate and Household taken together) on its own is unable to sustain investment and output growth. In other words, GFCE dominated government expenditure is unable to underpin the inducement to invest, thereby constraining the growth of the economy. And even though the economy itself is on a higher trend rate of growth, given declining employment elasticities with respect to output, this growth is inadequate to meaningfully absorb the labour force – the market question is back staring at India.

How does this square with explanations for the break in the trend rate in the early 1980s? There is very little consensus on the reasons for the break. Rodrik and Subramaniam (2004) look at various hypotheses and cast reasonable doubt on the tenability of any of these. For example there is little agreement on increases in TFP explaining the break, with Ahluwalia's (1995) claim that there was a productivity surge in the 1980s being contested by Balakrishnan and Pushpangadan (1994) and Hulten and Srinivasan (1999). Moreover, RBI (2004) reports that there was a clear deceleration in TFP growth in the 1990s as compared with the earlier decade of the 1980s. They also consider other possible candidates that might explain the improved growth performance that begins in the 1980s such as a benign external environment, the nature of aggregate demand growth, public investment and external liberalisation and find that either these are insufficient as explanations or do not fit the facts as we know them.

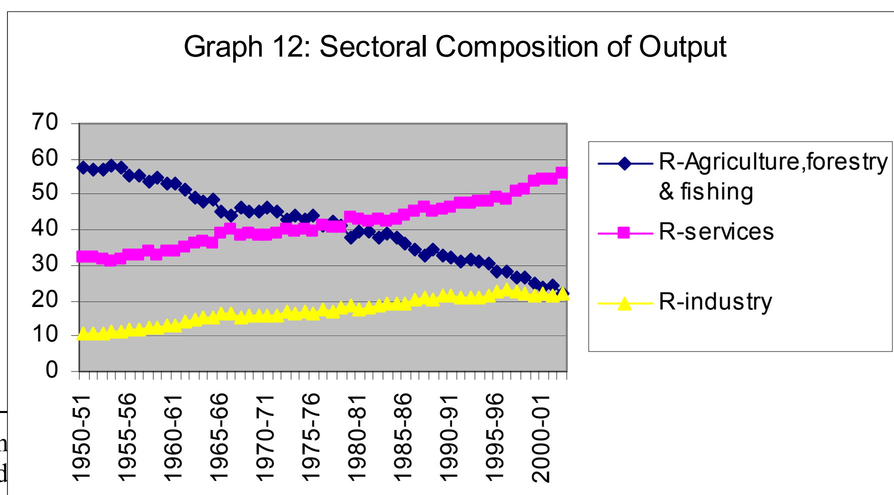
They suggest that that perhaps a much better explanation for the growth surge may be the pro-business (as opposed to a pro-market) attitudinal shift of the Congress government when it returned to power in 1980. This attitudinal shift combined with strong economic and political institutions had a large impact on growth essentially by helping unlock keynesian 'animal spirits' of investors. They also argue that the sustained improvement in growth performance is driven largely by impressive productivity increases rather than factor accumulation. In addition it leverages earlier investments made during the less permissive ISI (import-substituting-industrialisation) regime. Therefore it is a coming together of all of these factors – strong economic and political institutions; earlier investments made during the ISI regime; and finally the pro-business shift in government attitude in 1980 which would explain the productivity driven growth surge in India that can be dated from the early 1980s. Sinha and Tejani (2004) also suggest that the break in the trend rate of growth is a result of what they call "vertical growth", i.e. increases in labour productivity, rather than "horizontal growth", i.e. capital accumulation.

This is not the place to critique Rodrik and Subramaniam (2004) but we would like to make a couple of observations about their conclusions: First, they dismiss Public investment as a possible candidate for explaining the break in the trend rate of growth because it cannot explain productivity growth in the economy. However when we pose the issue as that of an inducement to invest, then Public investment by inducing Private Corporate investment (as we have seen there is a sharp increase in the 1980s), still remains a prime candidate to explain the break in the trend rate. Second, an important part of their explanation is the unleashing of keynesian 'animal spirits' in the 1980s[18]. We would agree with that, but are able to ground that unleashing far more concretely in the ability of Public investment to induce Private Corporate investment rather than references to 'pro-business' attitudes of the government, which beyond a point are neither here nor there.

Therefore the fact that composition of aggregate demand might constrain investment or that, in the context of increasing inequality of the growth of per capita incomes, rapid consumption growth might constrain growth is of course is not a new idea. Their analysis as ours leads us to old fashioned questions such as nature of the state and income distribution. Only in today's brave new world, these old fashioned questions do not matter and at the margin, consumption led aggregate demand growth is supposed to deliver rapid growth in per capita incomes and catch-up. In the panglossian world of international mobility, the nature of aggregate demand, investment and or technology are not issues that constrain income growth.

Section V: The Supply Response

Turning to the supply side:



[18] Though ... pirits were unleashed ... 970) notes, Period I s... in part explained by the ability of Public investment to induce Private Corporate investment (see above). See also Srinivasan and Narayana (1977) and Shetty (1978).

As graph 12 above and Table 7 below suggest change in output shares has been along expected lines. The share of the agricultural sector (including forestry and fishing as well as on a stand alone basis) has declined across all three periods. The decline in agriculture's share has benefited both industry and service sectors. It is worth noting that at the beginning of the period, 1950/51, Agriculture and allied sectors are the dominant sectors accounting for more than half the output. The share of Industry in output is relatively small and the share of Services relatively large, being nearly thrice the size of the relatively small industrial sector. By 2002/3, even though the share of Industry has grown, it is Services which is the dominant sector of the economy, accounting for well over half of output.

Table 7: Period Averages of Actual Sectoral Output Ratios

	Ag/Y	**Iy/Y**	**S/Y**
Period I	**52.8**	**13.0**	**34.2**
Minimum	44.0	10.6	31.0
Maximum	58.0	16.2	39.9
Period II	**43.5**	**16.6**	**39.9**
Minimum	37.9	15.1	38.2
Maximum	46.6	18.6	43.5
Period III	**31.5**	**20.9**	**47.6**
Minimum	22.0	17.6	42.3
Maximum	39.7	23.1	56.1

Note: 'Ag' denotes Agriculture. Forestry and Fishing; 'Iy' denotes Industry and includes Manufacturing, Electricity and Mining and Quarrying; and 'S' denotes Services and includes Construction, Trade, Transport and Hotels, Real Estate and Finance, and Personal And Community Services.

Table 8: Estimated Growth Rates of Sectoral Output

	Period I		Period II		Period III	
	Nature of Growth	Growth rate	Nature of Growth	Growth rate	Nature of Growth	Growth rate
GDP at factor cost	K	3.60%	K	3.32%	K	5.54%
Agriculture + Forestry	D	3.62 to 0.42%	K	2.02	K	3.02
Agriculture	D	5.2 to 0%	K	2.17	K	3.07
Industry	K	6.49%	K	3.7%	K	6.49%
Manufacturing	A	8.08 to 13.74%	A	6.44 to 7.86%	D	9.65 to 5.05%
Electricity	A	5.51 to	A	1.41 to	A	3.38 to

		7.85%		3.17%		6.60%
Services	D	6.62 to 6.12%	A*	4.43 to 5.11%	D	8.6 to 4.27%
Construction	D	3.37 to 2.89%	A	3.51 to 4.85%	D	10.98 to 6.58%
Trade, Hotels and Transport	A	4.11 to 5.81%	A	3.4 to 4.7%	A	5.59 to 7.93%
Real Estate and Finance**						
Community and Personal Services**						
*6.8% significance level ** Not reported due to low DW values						

The growth of the agricultural sector shows a sharp deceleration in Period I from 3.6 to 0.4%[19]. In the other two periods, agriculture has grown at a constant level, with Period III growth being greater than that in Period II.

Industry has grown at a constant level in all three periods, with Periods I and III growth rates being statistically similar and greater than Period II growth rates.

Within Industry however, the Manufacturing sector exhibits interesting variations. Both Period I and II growth rates show significant acceleration even though growth rates in the former are greater than that in the latter period. In Period I growth accelerates from 8.1 to 13.7% and Period II from 6.4 to 7.9%. In Period III however, there is a sharp deceleration in Manufacturing growth rates – from 9.7 to 5.1%

Service sector growth decelerates in Periods I and III and accelerates in Period II. In Period I it decelerates from 6.6 to 6.1% and Period III from 8.6 to 4.3%. In Period II it accelerates from 4.4 to 5.1%.. Despite the deceleration in Periods I and III, it is important to note that it has grown faster than GDP in all three periods, except towards the very end of Period III. Within Services, it is noteworthy that the growth rate of 'Trade, Transport and Hotels' has accelerated in all three periods. However in Periods I and II, despite the acceleration, it has grown slower than GDP. In Period III however, it continues to accelerate but in this instance has grown faster than GDP right through the period. It is also worth keeping in mind, 'Trade, Transport and Hotels' growth continues to accelerate in Period III even as overall Service Sector growth decelerates.

Unfortunately, 'Real Estate and Finance' and Community and Personal Services' did not yield interpretable results because of low DW statistics. However, looking at the behaviour of sectoral ratios over time reported in Table 9 might allow us to infer a little more about the nature of Service sector growth. As we have already noted, the Service sector has increased its share in output right through all three periods. What Table 9 tells us is that the ratio has increased at an accelerating rate right the three periods. The same

[19] For agriculture alone the deceleration is even sharper – from 5 to 0%.

trend is true for all sub-sectors of service sector growth except 'Real Estate and Finance'. Which is to say that 'Real Estate and Finance' increases its share in output in all three periods but in Periods I and III, the ratio increases at a decelerating rate and In Period II at an accelerating rate.

Clearly, both the behaviour of growth rates and ratios suggest that the 'Trade, Transport and Hotels' has an important bearing on the overall growth of Service sector, particularly in Period III. And very tentatively, the other sub-sector having an important bearing on Service sector growth may be Personal and Community Services. Obviously a lot more needs to be done before anything definitive can be said on the behaviour of sub-sectors within Services.

Table 9: Growth Pattern of Sectoral Ratios over time

	Period I	Period II	Period III
	Nature of Growth	Nature of Growth	Nature of Growth
(Agriculture+Forestry)/GDP	Decreasing with Deceleration	Decreasing at a Constant Level	Decreasing at a Constant Level
A/GDP	Decreasing with Deceleration	Decreasing at a Constant Level	Decreasing at a Constant Level
Iy/GDP	Increasing with Acceleration	Increasing with Acceleration	Increasing with Deceleration
Manufacturing/GDP	Increasing with Acceleration	Increasing with Deceleration	Increasing with Deceleration
Electricity/GDP	Increasing with Acceleration	Increasing with Acceleration	Increasing with Acceleration
Services/GDP	Increasing with Acceleration	Increasing with Acceleration	Increasing with Acceleration
Construction/GDP	Increasing with Acceleration	Increasing with Acceleration	Increasing with Acceleration
Finance and Real Estate/GDP	Increasing with Deceleration	Increasing with Acceleration	Increasing with Deceleration
Community Services/GDP	Increasing with Acceleration	Increasing with Acceleration	Increasing with Acceleration
Trade, Hotels and Transport/GDP	Increasing with Acceleration	Increasing with Acceleration	Increasing with Acceleration

What can we then conclude about supply response to growth? First, both Services and Industry see a secular increase in output shares through all three periods, at the expense of Agriculture and allied sectors. Second, manufacturing growth has been very rapid in Period I and II, though the latter period growth is significantly slower than the former. Equally importantly, growth in both periods, particularly in Period I, exhibits significant acceleration. Third, manufacturing growth in Period III shows significant deceleration, and by the latter half of the period has slows down to its lowest ever rates of growth. Fourth, growth in 'Trade, Hotels and Transport' has accelerated right through all three periods and in Period III has grown faster than both GDP and overall service sector growth. Finally, analysis of movement of ratios suggests that Personal and Community Services might also have played an important role in the strong growth of the service sector.

Turning now to a comparison of relative sectoral contributions to output, we look at pair wise comparisons and rank them in terms of importance.

Agriculture (Agriculture + Forestry) – Industry

$\Delta Ag - \Delta Iy$
$= g_a Ag - g_{iy} Iy = A[g_a - g_{iy} (Iy/Ag)]$
Therefore if $g_a > g_{iy} (Iy/A)$, then $\Delta Ag > \Delta Iy$

According to our estimated growth equations, Agricutural and Forestry growth rates decelerate in Period I from 3.62 to 0.42% and Industry grows at a constant rate of 6.49%,

Using our estimated equations we find that for $\Delta Iy > \Delta Ag$, we need (Iy/Ag) to be more than 0.558 when Agriculture is growing at its fastest, i.e., 3.62%. Actual (Iy/Ag) ratios never approach this required ratio. Even using a mid-point growth rate (i.e., 2.02%) and the average ratio of (Iy/Ag) for the period (i.e., 0.281), $\Delta Ag > \Delta Iy$.

However, using our estimated equations we find that when Agriculture is growing at it slowest, i.e., 0.42%, for $\Delta Iy > \Delta Ag$, we need required (Iy/Ag) to be more than 0.065. The actual (Iy/Ag) is greater than 0.065 for the entire period.

Given that Agriculture is on a decelerating trend, and at the mid-point growth rate of 2.02 $\Delta Ag > \Delta Iy$, at best, Industrial growth at the margin would have been more important than Agriculture between 1963/64 to 1966/67. For the rest of period I, Agriculture contributes more than Industry to output growth, in the sense that $\Delta Ag > \Delta Iy$.

In Period II, Agriculture is growing at a constant rate of 2.02%. At this growth rate, (Iy/Ag) needs to be more than 0.431 for $\Delta Iy > \Delta Ag$. This condition obtains in two years, i.e., 1978/79 and 1979/80. For the rest of the period, we find that $\Delta Ag > \Delta Iy$.

In Period III, Agriculture is growing at a constant rate of 3.03%. At this growth rate, (Iy/Ag) needs to be more than 0.465 for $\Delta Iy > \Delta Ag$. This condition obtains in all but two years, i.e., 1980/81 and 1981/82. For the rest of the period, we note that $\Delta Iy > \Delta Ag$.

In conclusion we can safely argue that, that in periods I and II taken together, out of 30 years the marginal contribution of Industry to output growth is greater than of Agriculture only in 6 years – 1963/64 to 1966/67, 1978/79 and 1979/80. In Period III however of 23 years, the marginal contribution of Industry to output growth dominates that of Agriculture in all but 2 years – 1980/81 and 1981/82.

Industry - Services

If $g_{iy} > g_s$ (S/Iy), then ΔIy > ΔS

In period I, Industry grows a constant rate 6.49 and Services is on a decelerating trend falling from 6.62 to 6.12%. When Services grows its slowest (6.12%) the required (S/Iy) ratio for Services to dominate Industry is 1.06. The minimum (S/Iy) ratio for this period is 2.39. Therefore, ΔS > ΔIy for all of Period I and hence the marginal contribution of Services sector growth to output growth is greater than that of Industry.

In Period II, Industry's growth is constant at 4.69% and Services accelerates from 4.43 to 5.11%. At the minimum growth rate attained by the Services, the ratio (S/Iy) needs to be greater than 1.058 for ΔS > ΔA. The minimum value of the ratio (S/Iy) is 2.25 for this period and therefore the marginal contribution of Services to output growth dominates that of Industry over this period as well.

In Period III, Industry's growth is constant at 6.49% and Services decelerates from 8.67 to 4.27%. At the minimum of the Services growth rate, the ratio (S/Iy) needs to be > 1.519 for ΔS > ΔA. The minimum value of the ratio (S/Iy) is 2.106 for this period and therefore the marginal contribution of Services to output growth is greater than that of Industry over this Period III as well.

Therefore over all three periods, the marginal contribution of Services to output growth is greater than that of Industry.

(Agriculture + Forestry) – Services

If $g_a > g_s$ (S/Ag), then ΔAg > ΔS

In period I, both Agriculture and Services are on a decelerating trend. Agriculture decelerates from 3.62 to 0.42% and Services from 6.62 to 6.12%.

Taking maximum growth rates for both sectors the ratio (S/Ag) needs to be more than 0.546 for ΔS > ΔA. When we take maximum growth rates for Agriculture and minimum for Services we require the ratio to be 0.59 for ΔS > ΔAg. This condition is met for all years except 1953/54 and 1954/55. Therefore for the rest of the Period I, the marginal contribution of Services to output growth is greater than that of Agriculture.

In Period II, Agriculture's growth is constant at 2.02% and Services accelerates from 4.43 to 5.11%. At the minimum Services growth rate, the ratio (S/Ag) needs to 0.456 and at the maximum of Services growth rate, the ratio needs to be > 0.395 for ΔS >Δ Ag. The minimum value of the ratio (S/Ag) is 0.825 for this period and therefore the marginal contribution of Services dominates Agriculture over Period II as well

Finally, in Period III, Agriculture's growth is constant at 3.02% and Services decelerates from 8.67 to 4.27%. At the minimum Services growth rate, the ratio (S/Ag) needs to be > 0.707 for ΔS > ΔAg. The minimum value of the ratio (S/Ag) is 1.074 for this period and therefore the marginal contribution of the Services sector is greater than that of Agriculture over Period III..

The ranking of relative contributions is as follows:

In Period I
1953/54 and 1954/55: ΔAg > ΔS > ΔIy
1963/64 to 1966/67: ΔS > ΔIy > ΔAg
For all other years: ΔS > ΔAg > ΔIy

In Period II
1978/79 and 1979/80: ΔS > ΔIy > ΔAg
For all other years: ΔS > ΔAg > ΔIy

In Period III
1980/81 and 1981/82: ΔS > ΔAg > ΔIy
For all other years: ΔS > ΔIy > ΔAg

Therefore, in conclusion, outside of 1953/54 and 1954/55, when the marginal contribution of Agriculture to output growth is greater than the marginal contribution of both other sectors, in every other period the marginal contribution of Services to output growth has been greater than of the other two sectors. Therefore it would not be incorrect to characterise output growth at the margin being driven by Service sector growth.

Why is it that Manufacturing growth despite accelerating to very high rates of growth in Period I does not dominate marginal contributions? The answer lies in the smallness of the size of the Manufacturing sector (< 10% of GDP) relative to the other two. Matters might have been different in Period III but that is precisely the period over which Manufacturing growth decelerates rapidly.

Section VI: Conclusions

To draw this discussion to a close, with regard to aggregate demand, it is possible to conclude the following: First, between 1950/51 and 2001/2, both in the low and higher growth phases of the Indian economy, aggregate demand, is at the margin, consumption driven and is only weakly investment driven for some part of both periods. Second, however, at the margin, aggregate demand is more consumption driven in the higher growth phase than in an earlier high investment phase. Third, particularly, in the post-reform period, unlike any other period (including the 1980s), aggregate demand at the margin is not even weakly investment driven. Fourth, this happens because, in the high growth phase, consumption exhibits significant acceleration in trend rate of growth. Fifth, demand growth is consumption driven because of the changing composition of government expenditure as a source of autonomous demand. But this very shift towards increased government consumption expenditure, as opposed to investment expenditure, also adversely affects the inducement to invest and therefore output growth.

As far as the aggregate supply response is concerned, at the margin, across both low and higher growth phases of the Indian economy, except for a couple of years in the early 1950s, it is dominated by the relative contribution of the Services sector. In the low growth phase, for the most part, the relative contribution of Industry lags behind that of the Services and Agriculture. In the higher growth phase the relative contribution of industry improves but still lags behind that of the Service sector. The relative contribution of the Agricultural sector lags behind that of Services and Industry in the higher growth phase.

Associated with this supply response are a few noteworthy trends. First, manufacturing growth in the higher growth phase showed significant deceleration, and by the latter half of the period slows down to its lowest ever rates of growth. Second, growth in 'Trade, Hotels and Transport' has accelerated right through all three periods and in high growth phase has grown faster than both GDP and overall service sector. Third, Personal and Community Services might also have played an important role in the strong growth of the service sector.

The above of course is merely a description of the evolution of demand and supply in the Indian economy between 1950/51 and 2002/03. But these conclusions lead us to the following set of questions: changes in which relative prices allow the acceleration in consumption to happen? To what extent was this policy induced? To the extent that it is policy induced, what set of factors explain that policy shift? What explains the supply response and connects the supply response to the demand response?

Finally, it is worth pointing out that the acceleration in growth rates witnessed between 2002/3 and 2007/8 when the economy grew at an average of more than 8% was accompanied by a huge surge in investment. As GOI (2009) notes, "The most important contribution to demand growth has come from investment, while the external trade made negligible or negative contribution." (p.7) In other words $\Delta I > \Delta C$, just as we would expect phases of high-growth to be. Of course, the more interesting question is what allowed demand growth to switch from being strongly consumption driven to strongly investment driven. This is an area we hope to explore in subsequent work.

[This paper has benefited enormously from comments from Amitava Bose, Anindya Sen, Ashok Dhareshwar, Debashish Bhattacharjee, Nirmal Chandra, Subrata Guha, Sudip Chaudhuri and Sushil Khanna. Unfortunately none of the above is implicated in any way in the outcome.]

Appendix I

The equations below establish sufficient conditions to be satisfied if both ratios and the underlying rates of change have to be increasing with respect to time.

$$R_t = \frac{y_t}{x_t} \qquad \text{Eq.1}$$

$$\dot{R}_t = \frac{dR}{dt} = \frac{x\dot{y} - y\dot{x}}{x^2} = \frac{xy}{x^2}\left(\frac{\dot{y}}{y} - \frac{\dot{x}}{x}\right) = R_t(g_y - g_x) \geq 0 \text{, if } g_y \geq g_x \qquad \text{Eq.2}$$

Where, g_y and g_x are growth rates at time t.

$$g_y = \frac{\dot{y}}{y} \quad \therefore \dot{g}_y = \frac{dg_y}{dt} = \frac{y\ddot{y} - \dot{y}^2}{y^2} = \frac{\ddot{y}}{y} - \frac{\dot{y}^2}{y^2} = \frac{\ddot{y}}{y} - g_y^{\ 2} \qquad \text{Eq.3}$$

$$\therefore \dot{g}_y = \frac{\ddot{y}}{y} - g_y^{\ 2} \text{ or } \frac{\ddot{y}}{y} = \dot{g}_y + g_y^{\ 2} \text{ or } \ddot{y} = (\dot{g}_y + g_y^{\ 2})y \qquad \text{Eq.4}$$

Similarly $\ddot{x} = (\dot{g}_x + g_x^{\ 2})x$ Eq.5

Now consider $\frac{d}{dt}\dot{R}_t = \ddot{R}_t = \frac{x^2(\dot{x}\dot{y} + x\ddot{y} - y\ddot{x} - \dot{y}\dot{x}) - (x\dot{y} - y\dot{x})2x\dot{x}}{x^4}$

$$= \frac{(x\ddot{y} - y\ddot{x})}{x^2} - \frac{2xxy\dot{x}(g_y - g_x)}{x^4}$$

$$= \frac{xy[(\dot{g}_y + g_y^{\ 2}) - (\dot{g}_x + g_x^{\ 2})]}{x^2} - 2g_x\frac{y}{x}(g_y - g_x)$$

$$= R_t[(\dot{g}_y - \dot{g}_x) + (g_y - g_x)(g_y + g_x) - 2g_x(g_y - g_x)] \qquad \text{Eq.6}$$

$$= R_t[(\dot{g}_y - \dot{g}_x) + (g_y - g_x)^2] \qquad \text{Eq.7}$$

For Equation 7 to be greater than 0, $\dot{g}_y \geq \dot{g}_x$ is a sufficient condition.

References

Amsden, A.H., (1989), **Asia's Next Giant: South Korea and Late Industrialisation**, Oxford University Press, New York

Aoki, M., Okuno-Fujiwara and Kim (1998), **The Role of Government in East Asian Economic Development: Comparative Institutional Analysis,** Oxford University Press, UK

Ahluwalia, I.J., 1995, "India: Industrial Development Review," **The Economist Intelligence Unit and UNIDO.**

Bagchi, A.K., 1970, "Long-term Constraints on India's Economic Growth" in EAG Robinson and M Kidron (ed.) **Economic Development in South Asia**, Macmillan, London

Balakrishnan, P., and K. Pushpagandan, 1994, "Manufacturing Industry: A Fresh Look," **Economic and Political Weekly**, October, pp. 2028-2035.

Bhaduri, A., (2006), 'Endogenous Economic Growth: a new approach', **Cambridge Economic Journal**, Vol. 30(1), pp 69-83

Bhaduri, A., and S. Marglin (1990), 'Unemployment and the Real Wage: the economic basis for contesting political ideologies', **Cambridge Economic Journal**, Vol. 14, pp 374-93

Bosworth, B., and S. Collins, 2003, "The Empirics of Growth: An Update," **Brookings Papers on Economic Activity**, Brookings Institution, Washington D.C.

Chakravarty, S., 1977, "Reflections on the Growth Process of the Indian Economy" in C.D. Wadhwa (ed.) **Some Problems of Indian Economic Policy**, Tata McGraw Hill, New Delhi

Chakravarty, S., (1979), 'On the Question of Home Market and Prospects for Indian Growth', **Economic and Political Weekly**, August, Special Issue, pp 1229-1242

Chakravarty, S., (1984), 'Aspects of India's Development Strategy for 1980s', **Economic and Political Weekly**, May 19-26, pp 845-52

Chamley.C, and D. Gale, (1994), 'Information Revelation and Strategic Delay in a Model of Investment', **Econometrica**, 62, pp 1065-85

Chang, H-J, (1994), **The Political Economy of Industrial Policy,** Palgrave Macmillan, London

Chaudhuri, S., (1998), 'Debates on Industrialisation' in T.J Byres (ed.) **The Indian Economy: Major Debates since Independence**, Oxford University Press, Delhi

De Long, B., 2003, "India Since Independence: An Analytic Growth Narrative," in D. Rodrik (ed.) **In Search of Prosperity: Analytic Narratives on Economic Growth**, Princeton University Press, Princeton, New Jersey.

Dore, R., (1986), **Flexible Rigidities: Industrial Policy and Structural Adjustment in the Japanese Economy, 1970-80**, Athlone Press, London

Foley, D.K., and T.R. Michl (1999), **Distribution and Growth**, Harvard University Press, Cambridge, Mass., USA

Goodwin (1951), 'The Non-linear Accelerator and the Persistence of Business Cycles', **Econometrica**

Government of India (GOI), 2009, **Economic Survey 2008-9**, Ministry of Finance, Government of India, New Delhi

Hausmann, R., L. Pritchett, and D. Rodrik, 2004, "Growth Accelerations," **NBER Working Paper** No. 10566

Kalecki, M., (1962), 'Some Observations on the Theory of Economic Growth', **Economic Journal**, March

Kalecki, M., (1976(1965)), **Essays on Developing Economies**, Harvester Press, Sussex, UK

Kannan, K.P. and G Raveendran, (2009), 'Growth sans Employment: A Quarter Century of Jobless Growth in India's Organised Manufacturing', **Economic and Political Weekly,** Vol.44, No.10, March 7

Luxemburg, R., (1963), **The Accumulation of Capital**, Routledge and Kegan Paul, London

Maddison, A., (2001), **The World Economy: A Millenial Perspective**, OECD Development Studies Centre, Paris

Marglin, S.A., and A. Bhaduri, (1990), 'Profit Squeeze and Keynesian Theory' in S.A. Marglin and J.B. Schor (eds.) **The Golden Age in Capitalism: Reinterpreting the Postwar Experience**, Clarendon Press, Oxford

Michl, T.R., (2002), **Macroeconomic Theory: A Short Course**, M.E. Sharpe, Armonk, New York

Mohanty, M. (2006), 'Social Inequality, Labour Market Dynamics and the need for expanding Reservation', **Economic and Political Weekly,** Vol.41, No.35, September 2

Nayyar, D., (1978), “Industrial Development in India: Some Reflection on Growth and Stagnation”, **EPW**, Annual Number

Nayyar, D., (1994) (ed.), **Industrial Growth and Stagnation: The Debate in India**, Oxford University Press, Mumbai

Nayyar, D., (2006), ‘Economic Growth in Independent India – Lumbering Elephant or Running Tiger?’, **Economic and Political Weekly**, Vol.41, April 15

Panagariya, A., (2004), “Growth and Reform in the 1980s and the 1990s” **Economic and Political Weekly**, Vol. 39, No. 25, June

Patnaik, P., (1984), “The Market Question and Capitalist Development in India”, **Economic and Political Weekly**, Annual Number

Patnaik, P., (1995) (ed.), **Macroeconomics**, Oxford University Press, Delhi

Patnaik, P., (1997), **Accumulation and Stability under Capitalism**, Clarendon Press, Oxford

Prebisch, R., (1950), **The Economic Development of Latin America and Its Principal Problems,** United Nations, New York

Pritchett, L., 2000, “Understanding Patterns of Economic Growth: Searching for Hills among Plateaus, Mountains, and Plains,” **World Bank Economic Review**, 14(2)

Raj, K.N., (1976), “Growth and Stagnation in Indian Industrial Development”, **Economic and Political Weekly**, Annual Number

Rangarajan, C., P.I. Kaul and Seema, (2007), ‘Revisiting Employment and Growth’, **Money & Finance**, September 2007

Rodrik, D., 2003, “Growth Strategies,” Harvard University, September 2003.

Rodrik , D. and A. Subramaniam, 2004, “From Hindu Rate of Growth to Productivity Surge: The Mystery of the Indian Growth Transition”, **NBER Working Paper** No. 10376.

Shaikh, A., (2006), ‘Economic Policy in a Growth Context: A Synthesis of Keynes and Harrod’, Working Paper, Graduate Faculty, Dept. of Economics, New School for Social Research

Shetty, S.L. (1978), ‘Structural Retrogression of the Indian economy since the Mid-Sixties’, **Economic and Political Weekly**, Annual Number

Sinha, A. and S. Tejani, 2004, ‘Trend Breaks in India’s GDP Growth Rate’, **Economic and Political Weekly**, Vol. 39, No. 52

Srinivasan, T.N., and S. Tendulkar, 2003, **Reintegrating India with the World Economy**, Institute for International Economics, Washington D.C.

Srinivasan , T.N., and N.S.S. Narayana (1977), 'Economic Performance since the Third Plan and its implications for Policy', **Economic and Political Weekly**, Annual Number

UNCTAD (1996),**Trade and Development Report 1996**, United Nations, New York and Geneva

Virmani, A., 2004, "India's Economic Growth: From Socialist Rate of Growth to Bharatiya Rate of Growth" **ICRIER Working Paper** No. 122

Wade, R., (2003(1990)), **Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization,** Princeton University Press

Wallack, J. S., (2003), "Structural Breaks in Indian Macroeconomic Data," **Economic and Political Weekly**, October 11, pp 4312-4315.

Williamson, J., and R. Zagha, "**From Slow Growth to Slow Reform**," Institute for International Economics, Washington, DC, July 2002.

APPENDIX II: MODEL RESULTS

GDP SECTORAL RATIOS

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estiate	Durbin-Watson
1	.997[a]	.994	.993	.8345	2.262

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. **Dependent Variable: RAGRIFOR**

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.696	.261		121.240	.000
	D1	22.383	.401	1.022	55.772	.000
	D2	12.330	.436	.519	28.279	.000
	X1	-.779	.026	-.419	-29.698	.000
	D1X1	-.054	.049	-.015	-1.095	.280
	D2X1	.223	.067	.040	3.313	.002
	X2	-.004	.004	-.012	-.898	.374
	D1X2	-.048	.010	-.077	-4.547	.000
	D2X2	-.035	.019	-.030	-1.841	.072

a. Dependent Variable: RAGRIFOR

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.991	.989	.9076	2.339

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RAGRI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.048	.284		102.169	.000
	D1	19.100	.436	1.031	43.761	.000
	D2	9.589	.474	.477	20.223	.000
	X1	-.692	.029	-.440	-24.265	.000
	D1X1	-.040	.053	-.013	-.754	.455
	D2X1	.254	.073	.054	3.474	.001
	X2	-.006	.005	-.024	-1.331	.190
	D1X2	-.057	.011	-.110	-5.049	.000
	D2X2	-.018	.021	-.018	-.887	.380

a. Dependent Variable: RAGRI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.978[a]	.956	.948	8.494E-02	1.506

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RMININ

Coefficients[a]

Model				t	Sig.
		B	Std. Error		
1	(Constant)	2.616	.027	98.329	.000
	D1	-.985	.041	-24.108	.000
	D2	-.728	.044	-16.400	.000
	X1	4.358E-03	.003	1.632	.110
	D1X1	3.128E-02	.005	6.279	.000
	D2X1	-.002	.007	-.308	.760
	X2	-.004	.000	-7.966	.000
	D1X2	6.980E-03	.001	6.554	.000
	D2X2	7.207E-03	.002	3.693	.001

a. Dependent Variable: RMININ

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.990[a]	.980	.976	.4108	1.255

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RMANUFA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.499	.129		128.190	.000
	D1	-5.966	.198	-1.062	-30.197	.000
	D2	-3.273	.215	-.537	-15.249	.000
	X1	.150	.013	.315	11.631	.000
	D1X1	.139	.024	.147	5.781	.000
	D2X1	3.573E-02	.033	.025	1.080	.286
	X2	-.008	.002	-.098	-3.698	.001
	D1X2	1.566E-02	.005	.098	3.040	.004
	D2X2	1.406E-02	.009	.046	1.489	.144

a. Dependent Variable: RMANUFA

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.998[a]	.996	.996	5.030E-02	1.381

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RELECT

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.393	.016		151.837	.000
	D1	-1.877	.024	-1.147	-77.600	.000
	D2	-1.061	.026	-.597	-40.364	.000
	X1	3.659E-02	.002	.263	23.141	.000
	D1X1	5.468E-03	.003	.020	1.854	.071
	D2X1	1.473E-02	.004	.036	3.637	.001
	X2	-.003	.000	-.134	-12.050	.000
	D1X2	5.615E-03	.001	.121	8.902	.000
	D2X2	4.629E-03	.001	.052	4.006	.000

a. Dependent Variable: RELECT

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.950[a]	.902	.884	.2365	1.412

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RCONSTR

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.193	.074		70.086	.000
	D1	-.571	.114	-.388	-5.020	.000
	D2	.648	.124	.406	5.247	.000
	X1	-.030	.007	-.239	-4.029	.000
	D1X1	.181	.014	.731	13.059	.000
	D2X1	-.033	.019	-.090	-1.745	.088
	X2	2.615E-03	.001	.121	2.081	.043
	D1X2	6.805E-03	.003	.163	2.294	.027
	D2X2	1.095E-02	.005	.137	2.015	.050

a. Dependent Variable: RCONSTR

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.996[a]	.992	.991	.2208	1.634

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RFINANCE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.303	.069		148.925	.000
	D1	-4.016	.106	-.809	-37.812	.000
	D2	-4.096	.115	-.761	-35.495	.000
	X1	.311	.007	.739	44.837	.000
	D1X1	-.347	.013	-.415	-26.772	.000
	D2X1	-.255	.018	-.204	-14.323	.000
	X2	-.006	.001	-.081	-5.033	.000
	D1X2	8.194E-03	.003	.058	2.959	.005
	D2X2	9.803E-03	.005	.036	1.932	.060

a. Dependent Variable: RFINANCE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.960[a]	.922	.908	.4002	1.126

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RCOMMU

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	12.020	.125		95.886	.000
	D1	-2.888	.192	-1.032	-15.009	.000
	D2	-.873	.209	-.288	-4.176	.000
	X1	7.103E-02	.013	.299	5.646	.000
	D1X1	6.448E-03	.023	.014	.275	.785
	D2X1	-.008	.032	-.011	-.242	.810
	X2	4.765E-03	.002	.116	2.241	.030
	D1X2	1.106E-02	.005	.140	2.203	.033
	D2X2	-.012	.009	-.080	-1.317	.195

a. Dependent Variable: RCOMMU

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.996[a]	.992	.991	.3132	1.334

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RTRADE

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	19.280	.098		196.509	.000
	D1	-6.082	.151	-.886	-40.385	.000
	D2	-2.948	.164	-.396	-18.017	.000
	X1	.236	.010	.405	23.947	.000
	D1X1	3.766E-02	.018	.033	2.050	.046
	D2X1	2.518E-02	.025	.015	.999	.323
	X2	1.738E-02	.002	.173	10.445	.000
	D1X2	-.007	.004	-.034	-1.668	.102
	D2X2	8.062E-04	.007	.002	.112	.911

a. Dependent Variable: RTRADE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.991	.989	.7008	1.875

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RSERVICE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	46.794	.220		213.161	.000
	D1	-13.553	.337	-.957	-40.218	.000
	D2	-7.264	.366	-.473	-19.842	.000
	X1	.588	.022	.489	26.695	.000
	D1X1	-.122	.041	-.051	-2.959	.005
	D2X1	-.271	.056	-.076	-4.797	.000
	X2	1.890E-02	.004	.091	5.076	.000
	D1X2	1.934E-02	.009	.048	2.201	.033
	D2X2	9.351E-03	.016	.012	.581	.564

a. Dependent Variable: RSERVICE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.990	.989	.3978	1.537

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RINDUSTR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.509	.125		172.611	.000
	D1	-8.828	.191	-1.111	-46.149	.000
	D2	-5.061	.208	-.587	-24.353	.000
	X1	.191	.013	.283	15.295	.000
	D1X1	.175	.023	.131	7.515	.000
	D2X1	4.749E-02	.032	.024	1.483	.145
	X2	-.015	.002	-.128	-7.052	.000
	D1X2	2.828E-02	.005	.126	5.669	.000
	D2X2	2.570E-02	.009	.060	2.812	.007

a. Dependent Variable: RINDUSTR

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[a]	.999	.999	2.355E-02	1.627

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNGDPMP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.582	.007		1840.811	.000
	D1	-1.358	.011	-.965	-119.893	.000
	D2	-.820	.012	-.537	-66.605	.000
	X1	5.507E-02	.001	.461	74.382	.000
	D1X1	-.016	.001	-.069	-11.744	.000
	D2X1	-.021	.002	-.060	-11.134	.000
	X2	1.285E-04	.000	.006	1.026	.310
	D1X2	.000	.000	-.011	-1.470	.149
	D2X2	-8.6E-006	.001	.000	-.016	.987

a. Dependent Variable: LNGDPMP

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	.999	.999	1.835E-02	1.762

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNPFCE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.198	.006		2295.966	.000
	D1	-1.128	.009	-.957	-127.843	.000
	D2	-.712	.010	-.557	-74.274	.000
	X1	4.370E-02	.001	.437	75.755	.000
	D1X1	-.012	.001	-.061	-11.315	.000
	D2X1	-.015	.001	-.051	-10.312	.000
	X2	3.602E-04	.000	.021	3.695	.001
	D1X2	-.001	.000	-.026	-3.719	.001
	D2X2	6.687E-04	.000	.010	1.586	.120

a. Dependent Variable: LNPFCE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.998[a]	.997	.996	5.655E-02	.819

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNGFCE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.421	.018		644.660	.000
	D1	-2.054	.027	-1.060	-75.519	.000
	D2	-.996	.030	-.474	-33.721	.000
	X1	5.780E-02	.002	.351	32.511	.000
	D1X1	8.993E-03	.003	.028	2.711	.010
	D2X1	-.013	.005	-.027	-2.883	.006
	X2	-7.7E-005	.000	-.003	-.255	.800
	D1X2	4.257E-03	.001	.078	6.004	.000
	D2X2	-.001	.001	-.008	-.629	.532

a. Dependent Variable: LNGFCE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	.999	.999	1.945E-02	1.400

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNCE1

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.354	.006		2191.619	.000
	D1	-1.221	.009	-.972	-130.577	.000
	D2	-.747	.010	-.548	-73.528	.000
	X1	4.558E-02	.001	.427	74.550	.000
	D1X1	-.011	.001	-.053	-9.793	.000
	D2X1	-.015	.002	-.049	-9.880	.000
	X2	3.046E-04	.000	.017	2.947	.005
	D1X2	.000	.000	-.011	-1.662	.104
	D2X2	5.545E-04	.000	.008	1.241	.221

a. Dependent Variable: LNCE1

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.989	.987	9.345E-02	1.568

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNGDFC

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.140	.029		414.694	.000
	D1	-1.688	.045	-.961	-37.568	.000
	D2	-.975	.049	-.512	-19.971	.000
	X1	6.690E-02	.003	.449	22.772	.000
	D1X1	-.001	.005	-.003	-.145	.885
	D2X1	-.020	.008	-.045	-2.647	.011
	X2	1.078E-04	.000	.004	.217	.829
	D1X2	-5.0E-005	.001	-.001	-.042	.966
	D2X2	1.486E-03	.002	.016	.692	.493

a. Dependent Variable: LNGDFC

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.940[a]	.884	.863	.6975	1.873

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RPUI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.595	.219		43.910	.000
	X1	-.200	.022	-.590	-9.117	.000
	X2	-.009	.004	-.158	-2.502	.016
	D1	-1.739	.335	-.435	-5.183	.000
	D2	-.775	.364	-.179	-2.126	.039
	D1X1	.644	.041	.959	15.747	.000
	D1X2	3.290E-03	.009	.029	.376	.709
	D2X1	.472	.056	.470	8.411	.000
	D2X2	2.960E-02	.016	.137	1.847	.071

a. Dependent Variable: RPUI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.908[a]	.824	.792	1.0777	.505

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RPVTI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.796	.338		17.170	.000
	X1	.261	.034	.613	7.702	.000
	X2	-.009	.006	-.120	-1.541	.131
	D1	-3.500	.518	-.698	-6.754	.000
	D2	-4.023	.563	-.739	-7.145	.000
	D1X1	-.177	.063	-.210	-2.805	.007
	D1X2	-.001	.014	-.010	-.103	.918
	D2X1	-.267	.087	-.211	-3.078	.004
	D2X2	.000	.025	-.002	-.019	.985

a. Dependent Variable: RPVTI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.754[a]	.568	.490	1.4070	1.309

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RHHI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.360	.441		18.967	.000
	X1	.220	.044	.619	4.969	.000
	X2	1.768E-02	.007	.288	2.365	.023
	D1	-1.466	.677	-.351	-2.166	.036
	D2	1.328	.735	.293	1.806	.078
	D1X1	-.289	.083	-.412	-3.507	.001
	D1X2	1.264E-02	.018	.107	.716	.478
	D2X1	-.198	.113	-.188	-1.746	.088
	D2X2	4.002E-03	.032	.018	.124	.902

a. Dependent Variable: RHHI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.968[a]	.937	.925	.9906	1.385

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: RGFCEI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.129	.310		68.087	.000
	X1	-.169	.031	-.259	-5.425	.000
	X2	-.012	.005	-.103	-2.211	.032
	D1	-7.548	.476	-.982	-15.845	.000
	D2	-2.657	.518	-.319	-5.134	.000
	D1X1	.811	.058	.627	13.960	.000
	D1X2	3.818E-02	.012	.175	3.074	.004
	D2X1	.547	.080	.282	6.854	.000
	D2X2	2.446E-02	.023	.059	1.075	.288

a. Dependent Variable: RGFCEI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.989	.987	8.756E-02	1.846

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNPUI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.235	.027		409.555	.000
	X1	3.216E-02	.003	.231	11.683	.000
	X2	-.001	.000	-.045	-2.318	.025
	D1	-1.556	.042	-.948	-36.950	.000
	D2	-.905	.046	-.508	-19.788	.000
	D1X1	6.900E-02	.005	.250	13.437	.000
	D1X2	-.002	.001	-.042	-1.790	.080
	D2X1	3.087E-02	.007	.075	4.379	.000
	D2X2	3.067E-03	.002	.034	1.524	.135

a. Dependent Variable: LNPUI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.982[a]	.965	.958	.2529	1.113

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNPVTI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.656	.079		134.500	.000
	X1	.106	.008	.477	13.353	.000
	X2	-.002	.001	-.041	-1.185	.242
	D1	-2.277	.122	-.869	-18.721	.000
	D2	-1.942	.132	-.683	-14.701	.000
	D1X1	-.022	.015	-.050	-1.474	.148
	D1X2	-.003	.003	-.044	-1.022	.312
	D2X1	-.077	.020	-.117	-3.791	.000
	D2X2	-.004	.006	-.025	-.619	.539

a. Dependent Variable: LNPVTI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.980[a]	.960	.953	.1691	1.364

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNHHI

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	11.094	.053		209.408	.000
	X1	7.829E-02	.005	.557	14.727	.000
	X2	1.696E-03	.001	.070	1.887	.066
	D1	-1.554	.081	-.938	-19.107	.000
	D2	-.669	.088	-.372	-7.573	.000
	D1X1	-.050	.010	-.178	-4.999	.000
	D1X2	1.664E-03	.002	.035	.785	.437
	D2X1	-.043	.014	-.102	-3.130	.003
	D2X2	5.899E-04	.004	.007	.152	.880

a. Dependent Variable: LNHHI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.998[a]	.996	.995	5.936E-02	1.399

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNGFCEI

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	12.026	.019		646.737	.000
	X1	4.669E-02	.002	.309	25.025	.000
	X2	.000	.000	-.017	-1.388	.172
	D1	-1.799	.029	-1.011	-63.009	.000
	D2	-.954	.031	-.494	-30.758	.000
	D1X1	3.710E-02	.003	.124	10.659	.000
	D1X2	9.960E-04	.001	.020	1.338	.188
	D2X1	7.164E-03	.005	.016	1.499	.141
	D2X2	9.961E-04	.001	.010	.731	.469

a. Dependent Variable: LNGFCEI

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.996[a]	.991	.990	3.940E-02	2.213

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNAGRFOR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.333	.012		999.240	.000
	D1	-.796	.019	-.955	-41.988	.000
	D2	-.487	.021	-.539	-23.677	.000
	X1	3.017E-02	.001	.427	24.358	.000
	D1X1	-.010	.002	-.072	-4.379	.000
	D2X1	-.010	.003	-.047	-3.084	.004
	X2	.000	.000	-.020	-1.196	.238
	D1X2	-.001	.000	-.052	-2.470	.017
	D2X2	-.001	.001	-.013	-.667	.508

a. Dependent Variable: LNAGRFOR

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.990	.988	4.501E-02	2.224

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNAGRICU

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.245	.014		868.401	.000
	D1	-.823	.022	-.948	-38.015	.000
	D2	-.532	.024	-.565	-22.608	.000
	X1	3.068E-02	.001	.417	21.685	.000
	D1X1	-.011	.003	-.075	-4.121	.000
	D2X1	-.009	.004	-.043	-2.569	.014
	X2	.000	.000	-.026	-1.385	.173
	D1X2	-.002	.001	-.063	-2.755	.009
	D2X2	.000	.001	-.003	-.148	.883

a. Dependent Variable: LNAGRICU

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[a]	.998	.998	3.867E-02	1.289

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNMINES

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.836	.012		811.831	.000
	D1	-1.798	.019	-1.038	-96.685	.000
	D2	-1.142	.020	-.608	-56.513	.000
	X1	5.713E-02	.001	.389	46.996	.000
	D1X1	-.001	.002	-.003	-.444	.659
	D2X1	-.023	.003	-.052	-7.267	.000
	X2	-.001	.000	-.048	-5.971	.000
	D1X2	2.605E-03	.000	.053	5.371	.000
	D2X2	3.315E-03	.001	.035	3.731	.001

a. Dependent Variable: LNMINES

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[a]	.998	.998	3.633E-02	1.035

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNINDUS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.678	.011		1026.084	.000
	D1	-1.778	.017	-.988	-101.765	.000
	D2	-1.035	.019	-.530	-54.548	.000
	X1	6.486E-02	.001	.425	56.796	.000
	D1X1	-.002	.002	-.006	-.786	.436
	D2X1	-.018	.003	-.039	-6.076	.000
	X2	.000	.000	-.013	-1.738	.089
	D1X2	3.896E-04	.000	.008	.855	.397
	D2X2	8.199E-04	.001	.008	.982	.331

a. Dependent Variable: LNINDUS

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	.999	3.054E-02	1.246

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNMANUF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.747	.010		1018.668	.000
	D1	-2.864	.015	-1.046	-194.996	.000
	D2	-1.398	.016	-.471	-87.602	.000
	X1	7.254E-02	.001	.312	75.554	.000
	D1X1	3.660E-02	.002	.079	20.435	.000
	D2X1	-.001	.002	-.002	-.519	.607
	X2	-.001	.000	-.033	-8.234	.000
	D1X2	2.775E-03	.000	.036	7.245	.000
	D2X2	1.591E-03	.001	.011	2.268	.028

a. Dependent Variable: LNMANUF

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.998[a]	.995	.994	5.240E-02	1.447

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNELECT

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	10.520	.016		640.945	.000
	D1	-1.444	.025	-.977	-57.311	.000
	D2	-.697	.027	-.435	-25.451	.000
	X1	4.992E-02	.002	.398	30.309	.000
	D1X1	1.692E-02	.003	.068	5.506	.000
	D2X1	-.027	.004	-.072	-6.376	.000
	X2	7.318E-04	.000	.034	2.629	.012
	D1X2	3.763E-04	.001	.009	.573	.570
	D2X2	1.751E-03	.001	.022	1.455	.153

a. Dependent Variable: LNELECT

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	1.000	1.814E-02	1.604

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNCONSTR

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	11.205	.006		1971.319	.000
	D1	-1.821	.009	-.952	-208.709	.000
	D2	-1.320	.009	-.636	-139.214	.000
	X1	8.778E-02	.001	.541	153.898	.000
	D1X1	-.057	.001	-.179	-53.977	.000
	D2X1	-.046	.001	-.095	-31.313	.000
	X2	-.001	.000	-.030	-8.747	.000
	D1X2	8.794E-04	.000	.016	3.865	.000
	D2X2	1.568E-03	.000	.015	3.761	.000

a. Dependent Variable: LNCONSTR

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[a]	.999	.999	2.640E-02	.591

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNFINANC

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.361	.008		1373.600	.000
	D1	-1.601	.013	-.986	-126.087	.000
	D2	-.889	.014	-.505	-64.462	.000
	X1	6.114E-02	.001	.444	73.666	.000
	D1X1	-.017	.002	-.063	-11.087	.000
	D2X1	-.022	.002	-.055	-10.564	.000
	X2	5.999E-04	.000	.025	4.277	.000
	D1X2	6.617E-04	.000	.014	1.999	.052
	D2X2	-.001	.001	-.013	-1.879	.067

a. Dependent Variable: LNFINANC

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	.999	.999	2.395E-02	.940

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNCOMMUN

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	11.834	.008		1577.457	.000
	D1	-1.707	.012	-.956	-148.257	.000
	D2	-.978	.013	-.505	-78.170	.000
	X1	6.683E-02	.001	.441	88.778	.000
	D1X1	-.011	.001	-.036	-7.637	.000
	D2X1	-.018	.002	-.040	-9.355	.000
	X2	1.025E-03	.000	.039	8.057	.000
	D1X2	-.001	.000	-.015	-2.490	.017
	D2X2	3.844E-06	.001	.000	.007	.994

a. Dependent Variable: LNCOMMUN

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	1.000	1.713E-02	1.042

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNTRADE

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	12.720	.005		2370.188	.000
	D1	-1.670	.008	-.970	-202.689	.000
	D2	-.982	.009	-.526	-109.697	.000
	X1	6.762E-02	.001	.463	125.564	.000
	D1X1	-.018	.001	-.063	-18.196	.000
	D2X1	-.027	.001	-.061	-19.227	.000
	X2	5.316E-04	.000	.021	5.840	.000
	D1X2	1.688E-04	.000	.003	.786	.436
	D2X2	3.075E-04	.000	.003	.781	.439

a. Dependent Variable: LNTRADE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	.999	.999	2.980E-02	1.060

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNSERVIC

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.943	.009		1279.173	.000
	D1	-1.857	.014	-1.001	-129.558	.000
	D2	-1.083	.016	-.538	-69.549	.000
	X1	6.470E-02	.001	.411	69.064	.000
	D1X1	-.001	.002	-.002	-.419	.677
	D2X1	-.017	.002	-.036	-7.089	.000
	X2	-.001	.000	-.019	-3.230	.002
	D1X2	8.470E-04	.000	.016	2.266	.028
	D2X2	1.281E-03	.001	.013	1.871	.068

a. Dependent Variable: LNSERVIC

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[a]	.999	.999	2.343E-02	1.766

a. Predictors: (Constant), D2X2, D2X1, D1X1, X2, D1X2, X1, D1, D2

b. Dependent Variable: LNGDP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.480	.007		1836.709	.000
	D1	-1.328	.011	-.958	-117.872	.000
	D2	-.814	.012	-.541	-66.511	.000
	X1	5.542E-02	.001	.471	75.248	.000
	D1X1	-.019	.001	-.083	-14.146	.000
	D2X1	-.022	.002	-.064	-11.784	.000
	X2	2.264E-04	.000	.011	1.819	.076
	D1X2	-.001	.000	-.014	-1.921	.061
	D2X2	-1.7E-005	.001	.000	-.031	.975

a. Dependent Variable: LNGDP