

# India Since Independence: An Analytic Growth Narrative

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## Abstract

Before the late 1980s the economic growth rate of independent India looks ordinary: India's rate of growth of output per worker is square in the middle of the world's distribution, and the values of its proximate determinants of growth are ordinary too. This puts a bound on the growth-retarding effects of the "license raj" generated by prime minister Jawaharlal Nehru's attraction to Fabian socialism and central planning.

Since the late 1980s India does not look ordinary at all. It has been one of the fastest-growing economies in the world, with a doubling time for average GDP per capita of only sixteen years. Conventional wisdom traces the growth acceleration neoliberal economic reforms implemented under the government of Narasimha Rao. Yet the timing of the growth acceleration suggests an earlier start for the current Indian boom under the government of Rajiv Gandhi.

## **I. Introduction**

How useful is the modern theory of economic growth? Does it provide a satisfactory framework for analyzing the wealth and poverty of nations? This paper investigates this question by attempting to apply modern growth theory to the case of the economic development of India over the past half-century. Whether growth theory turns out to be useful—whether valid, interesting, and non-obvious insights are generated—is left as an exercise to the reader.

I should note at the start that this is a hazardous exercise: I know a fair amount about growth theory. I know relatively little about India. The general rule is that one should try to write about subjects where one is knowledgeable, rather than about subjects where one is not. Whether the exercise I undertake in this paper yields useful insights is not for me to judge.

The conventional narrative of India's post-World War II economic history begins with a disastrous wrong turn by India's first prime minister, Jawaharlal Nehru, toward Fabian socialism, central planning, and an unbelievable quantity of bureaucratic red tape. This "license raj" strangled the private sector and led to rampant corruption and massive inefficiency. As a result, India stagnated until bold neoliberal economic reforms triggered by the currency crisis of 1991, and implemented by the government of Prime Minister Narasimha Rao and Finance Minister Manmohan Singh, unleashed its current wave of rapid economic growth--growth at a pace that promises to double average productivity levels and living standards in India every sixteen years.

Yet if you look at the growth performance of India during its first post-independence generation under the Nehru Dynasty in the context of the general cross-country pattern, India does not appear to be an exceptional country. Its rate of economic growth appears average. Moreover, its values of the proximate determinants of growth appear average as well.

Simple growth theory tells us that the proximate determinants of growth are (a) the share of investment in GDP (to capture the effort being made to build up the capital stock), (b) the rate of population growth (to capture how much of investment effort has to be devoted to simply equipping a larger population with the infrastructure and other capital needed to maintain the current level of productivity, and (c) the gap between output per worker and the world's best practice (to capture the gap between the country's current status and its steady-state growth path, and also to capture the magnitude of the productivity gains possible through acquisition of the world's best-practice technologies). Neither India's investment share nor its rate of population growth are in any sense unusually poor for an economy in India's relative position as of independence.

The fact that pre-1990 India appears "normal," at least as far as the typical pattern of post-World War II economic growth is concerned, places limits on the size of the damage done to Indian economic growth since World War II by the Nehru dynasty's attraction to Fabian socialism and central planning. India between independence and 1990 was not East Asia as far as economic growth was concerned, to be sure. But it was not Africa either.

**Table 1: Indian Rates of Economic Growth**

Period	1950-1980	1980-1990	1990-2000
Annual Real GDP Growth	3.7%	5.9%	6.2%
Annual Real GDP per Capita Growth	1.5%	3.8%	4.4%

Source: IMF.

One possibility is that the constraints placed on growth by the inefficiencies of the Nehru dynasty's "license raj" were simply par for the course in the post-World War II world: that only exceptional countries were able to avoid inefficiencies like those of the license raj. A second possibility is that the failure of economic policies in terms of promoting efficiency was in large part offset by successes in mobilizing resources: India in the first post-World War II decades had a relatively high savings rate for a country in its development position.

Yet a third possibility is that the destructive effects of inefficiency-generating policies were offset by powerful advantages--whether a large chunk of the population literate in what was rapidly becoming the world's *lingua franca*, cultural patterns that placed a high value on education, the benefits of democracy in promoting accountability and focusing politicians' attention on their constituents' welfare, or some other factors--that should and would with better policies have made India one of the fastest growing economies of the world not just in the 1990s but in previous decades as well.

If Indian economic growth before the past decade appears more or less ordinary, no one believes that Indian economic growth in the past decade and a half is anything like

ordinary. In the 1990s India has been one of the fastest growing economies in the world. At the growth pace of the 1990s, Indian average productivity levels double every sixteen years. If the current pace of growth can be maintained, sixty-six years will bring India to the real GDP per capita level of the United States today. The contrast between the pace of growth in the 1990s and the pace of growth before 1980--with a doubling time of fifty years, and an expected approach to America's current GDP per capita level not in 2066 but in 2250--is extraordinary.

Moreover, this acceleration in Indian economic growth has not been "immiserizing." Poverty has not fallen as fast as anyone would wish, and regional and other dimensions of inequality have grown in the 1990s. But it is not the case that India's economic growth miracle is being fueled by the further absolute impoverishment of India's poor. Ahluwalis (1999) quotes Tendulkar (1997) as finding a 7% decline in the urban and a 20% decline in the rural poverty gap<sup>1</sup> between 1983 and 1988, followed by a further 20% decline in both the urban and rural poverty gaps between 1988 and 1994. According to the Indian Planning Commission, the years between 1994 and 1999 saw a further 20% decline in the nation's poverty gap, leaving the best estimate of the proportional poverty gap today at 54 percent of its value back in 1983.

What are the sources of India's recent acceleration in economic growth? Conventional wisdom traces them to policy reforms at the start of the 1990s. In the words of Das (2000), the miracle began with a bang:

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<sup>1</sup> The percentage gap between the expenditure levels of all poor households, and what the expenditure levels of all poor households would be if they were pulled up to the poverty line.

...in July 1991... with the announcement of sweeping liberalization by the minority government of P.V. Narasimha Rao... opened the economy... dismantled import controls, lowered customs duties, and devalued the currency... virtually abolished licensing controls on private investment, dropped tax rates, and broke public sector monopolies.... [W]e felt as though our second independence had arrived: we were going to be free from a rapacious and domineering state..."

Yet the aggregate growth data tells us that the acceleration of economic growth began earlier, in the early or mid-1980s, long before the exchange crisis of 1991 and the shift of the government of Narasimha Rao and Manmohan Singh toward neoliberal economic reforms.

Thus apparently the policy changes in the mid- and late-1980s under the last governments of the Nehru dynasty were sufficient to start the acceleration of growth, small as those policy reforms appear in retrospect. Would they have just produced a short-lived flash in the pan--a decade or so of fast growth followed by a slowdown--in the absence of the further reforms of the 1990s? My hunch is that the answer is "yes." In the absence of the second wave of reforms in the 1990s it is unlikely that the rapid growth of the second half of the 1980s could be sustained. But hard evidence to support such a strong counterfactual judgment is lacking.

## II. Pre-1990 Economic Growth

### Simple Growth Theory

The simplest of the theoretical approaches to understanding economic growth derived from Solow (1956) begins with an aggregate production function:

$$(1) \quad \frac{Y_t}{L_t} = \left( \frac{K_t}{L_t} \right)^\alpha (E_t)^{1-\alpha}$$

Real GDP per worker ( $Y/L$ ) is equal to the product of two terms. The first term is the economy's average capital-labor ratio ( $K/L$ ) raised to the power less than one,  $\alpha$ , that parameterizes how rapidly diminishing returns to investment set in. The second term is the economy's level of total factor productivity, written for convenience' sake as the efficiency of labor  $E$  raised to the  $(1-\alpha)$  power.

In this approach, there are three factors that are proximate determinants of economic growth. The first, labeled  $s$ , is the share of the economy's output devoted to building up its capital stock: the investment-to-GDP ratio. Higher shares of investment in GDP increase the speed with which the economy's capital stock grows, and raise productivity by increasing the economy's capital-labor ratio. (Moreover, in more complicated models in which technology is embodied in capital or in which learning-by-doing is an important source of productivity growth, higher investment raises output by more than just the private marginal product of capital. See DeLong and Summers (1991)).

The second proximate determinant, labeled  $n$ , is the population growth rate. A higher rate of growth of population means that more of the economy's resources must be devoted to

infrastructure and capital accumulation just to stay in the same place. It is expensive to equip each additional worker with the economy's current average level of capital per worker, and to provide the extra infrastructure to connect him or her with the economy. In an economy with a disembodied efficiency-of-labor growth rate  $g$  and a rate of depreciation of capital equipment  $\delta$ , over time the capital-output ratio will tend to head for its steady state value  $\kappa^*$  of:

$$(2) \quad \kappa^* = \frac{s}{n + g + \delta}$$

At this value of the capital-output ratio, the proportional rate of growth of the capital stock  $g(k)$  is:

$$(3) \quad g(k) = \frac{s}{\kappa^*} - \delta = \left( \frac{s}{s/(n + g + \delta)} \right) - \delta = n + g$$

and is equal to the proportional growth rate of output  $g(y)$ , so once the capital-output ratio is at its steady-state value it will remain there.

Thus a higher level of the population growth rate  $n$  reduces the steady-state value of the capital-output ratio. It makes the economy less capital intensive and poorer because a greater share of investment is going to equip an enlarged workforce, and less remains to support capital deepening.

The third of the proximate determinants of economic growth is the economy's initial level of output per worker. The initial level captures how far the economy is away from its



steady-state growth path, and thus what are the prospects for rapid catch-up growth as the economy converges to its steady-state growth path. (In more sophisticated models, the initial level of output per worker also captures the technology gap vis-à-vis the world's potential best practice. It thus indicates the scope for growth driven by the successful transfer of technology from outside to the economy.)

Under the approximations set out by Mankiw, Romer, and Weil (1992), the economy's average growth rate of output per worker,  $g(y/l)$ , over a period from some initial year 0 to year  $t$  will be given by:

$$(4) \quad \Delta g(y/l) = \frac{(1 - e^{-\lambda t})}{t(1 - \alpha)} \times \frac{\Delta \bar{s}}{\bar{s}} - \frac{(1 - e^{-\lambda t})}{t(1 - \alpha)} \times \frac{\Delta \bar{n}}{n + \bar{g} + \delta} - \frac{(1 - e^{-\lambda t})}{t} \times \Delta \ln(Y_0 / L_0)$$

where capital  $\Delta$ s indicate deviations from the world's average values, where lines over variables indicate that they are world average values, and where  $\lambda$  is a function of the other parameters of the model given by:

$$(5) \quad \lambda = (1 - \alpha)(n + g + \delta)$$

Thus this simple growth theory suggests an obvious regression to investigate the worldwide pattern of economic growth. In the cross-country sample, simply regress the average growth rate of output per worker ( $g(y/l)$ ) on the share of investment in GDP ( $\bar{s}$ ), on the population growth rate ( $\bar{n}$ ), and on the log of output per worker in 1960 ( $\ln(Y_0/L_0)$ ). Such a regression run for 85 economies in the Summers-Heston Penn World

Table database for which data from 1960 to 1992 are available produces the estimated equation:<sup>2</sup>

$$(6) \quad g(y/l) = + 0.149 s \quad - 0.406 n \quad - 0.007 \ln(Y_0/L_0) \quad \text{SEE} = 0.012 \quad n = 85$$

$$\quad \quad \quad (0.023) \quad \quad (0.204) \quad \quad (0.002) \quad \quad \quad R^2 = 0.431$$

The coefficients on these variables have natural interpretations as composed of terms--like  $(1 - e^{-\lambda\tau})/t$ --that capture the theoretical prediction that differences in growth rates diminish over time as countries converge to their Solow steady-state growth paths, and terms--like  $1/((1-\alpha)s)$ --that captures the immediate output-boosting benefit of that factor. This estimated equation accounts for more than 40% of the variance in 1960-1992 growth rates for these 85 countries with just three simple proximate determinants of growth.

It is, however, not possible to have confidence that this equation captures a "structural" relationship. The population growth rate  $n$  is determined by where the country is in the demographic transition, and is thus highly likely to be unaffected by any growth-influencing omitted variables or residual disturbances (see Livi-Bacci (1992)). But omitted variables that slow down growth will also lead to a low level of initial output per worker: omitted variables will thus reduce the absolute value of the coefficient on initial output per worker below its "structural" value. And there is little reason to believe that the investment share is exogenous: it may be functioning as much as an indicator for

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<sup>2</sup> Regression run using the Heston and Summers Penn World Table, version 5.6; data file at [http://www.j-bradford-delong.net/Econ\\_Articles/India/Data-india\\_growth.jsp](http://www.j-bradford-delong.net/Econ_Articles/India/Data-india_growth.jsp). See Summers and Heston (1991).

residual factors left out of the regression as as a direct booster of production via a higher capital stock.<sup>3</sup>

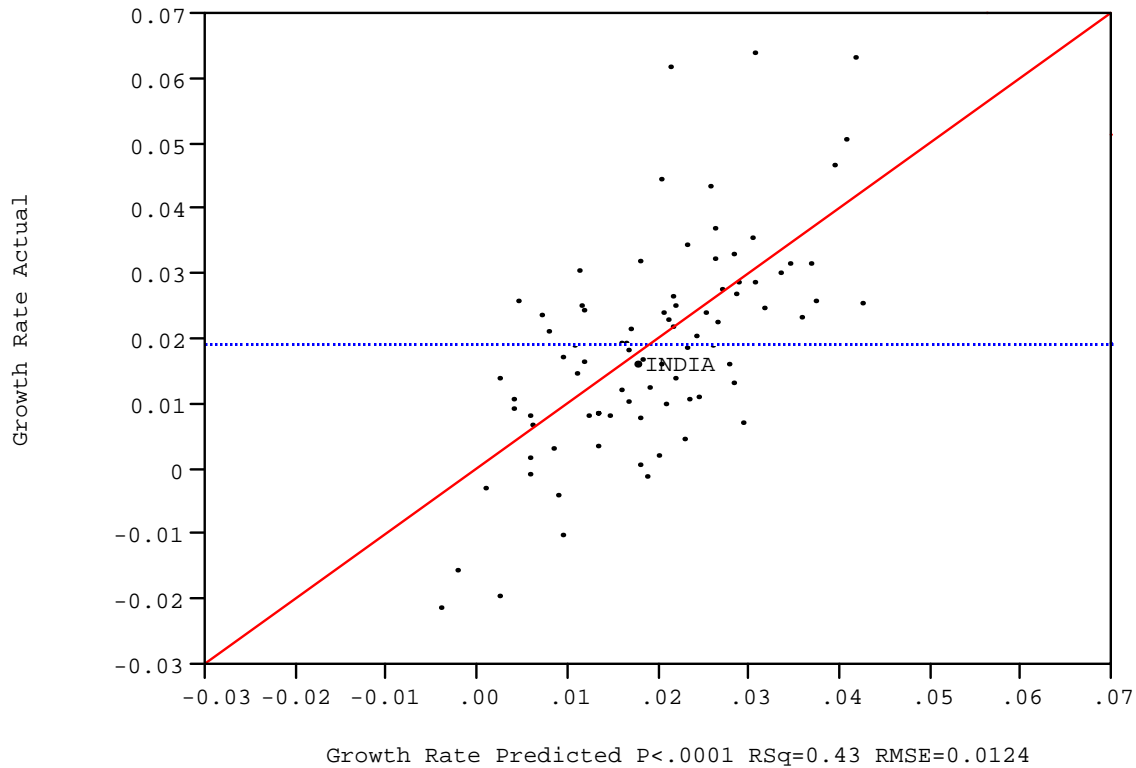
### Average India?

However, the non-structural nature of this regression is not disturbing. For our purposes the most interesting factor is that from the perspective of the regression above there is very little that appears unusual about India's economic growth between independence and the late 1980s. In cross-country growth experience of 85 countries from 1960 to 1992, India lies smack in the middle of the scatter of world growth rate, as Figure 1 shows.

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<sup>3</sup> However, for an argument that investment shares are close to exogenous in practice even if not in theory--that shifts in investment have powerful effects on growth no matter what their causes--see DeLong and Summers (1991).

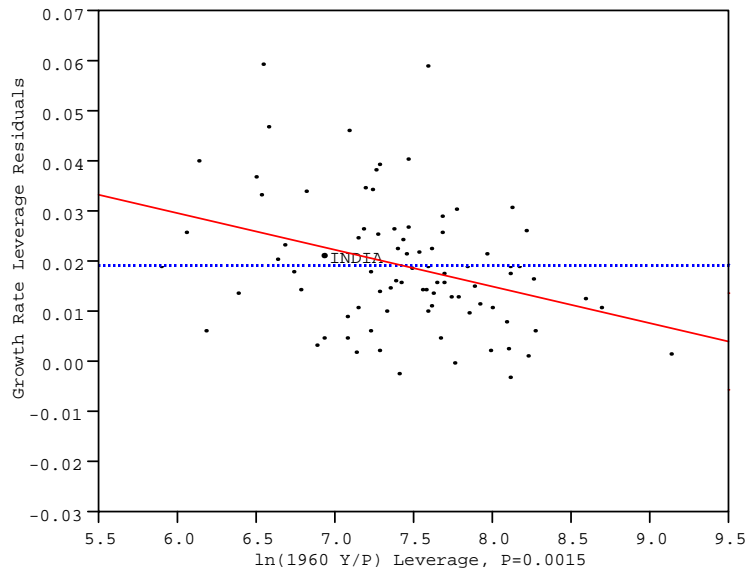
**Figure 1: Actual and Predicted 1960-1992 Output per Worker Growth**

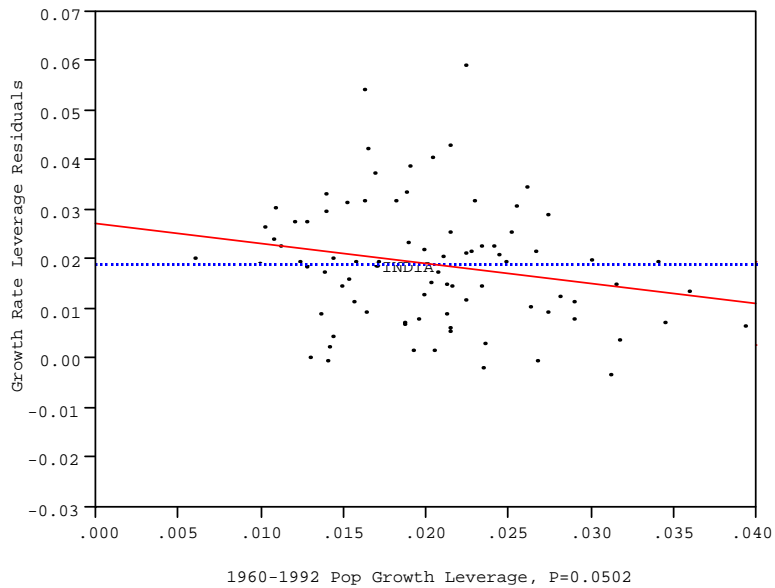
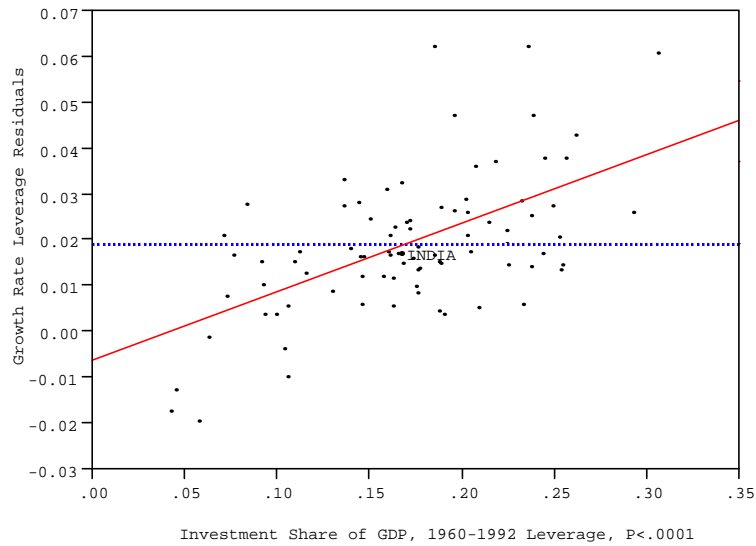


Moreover, it is not just that India's actual rate of growth of output per worker has been very close to the average across the world's nations. The rate of growth predicted for India from its initial level of log output per worker, its share of investment in GDP, and its population growth rate had also been very close to the world's average. Conditional on the values of the other right-hand side variables, the proximate determinants of growth in India take on unsurprising values. The investment-to-GDP share is just what one would expect for a country with India's rate of population growth and output per worker level in 1960. The rate of population growth is just what one would expect for a country with India's initial output per worker level and investment share of GDP. As Figure 2 shows,

leverage plots--diagrams that show the partial scatters of the variables in a multivariate regression--find nothing unusual in India's proximate determinants of economic growth over 1960-1992. For none of the three right-hand side variables is India an outlier, or does it contribute any significant identifying variance to the cross-country regression. India's 1960-1992 growth experience appears ordinary.

**Figure 2: Leverage Plots for 1960-1992 Output per Worker Growth**





### Implications of "Average" India

The conventional wisdom today is that India's first prime minister, Jawaharlal Nehru, took it down the wrong road as far as economic development was concerned, and so wasted nearly half a century in economic stagnation. Nehru was impressed with what he

(and many others at the time) saw as the successful mobilization of resources for development by the Soviet Union. In the shadow of the Great Depression only a decade past, it seemed naïve to believe that the private sector could successfully and reliably generate the investment that a growing economy needed. And in a country as desperately poor as India, the government needed to put its thumb on the scales to insure that economic growth produced widely distributed income gains. It could not afford to have increased productivity channeled into the fortunes of a small slice of the population made up of merchant and industrial princes.

As Gurchuran Das (2000) puts it, the desire to make sure that private industrial development conformed to social needs led to:

a nightmare... [a]n untrained army of underpaid engineers... operating... without clear-cut criteria, vetted thousands of applications on an ad-hoc basis... months in... futile microreview.... again lost months reviewing the same data... interministerial licensing committee... equally ignorant of entrepreneurial realities... also operat[ing] upon ad hoc criteria in the absence of well-ordered priorities.... seek approval for the import of machinery from the capital goods licensing committee... foreign agreements committee... state financial institutions. The result was enormous delays... years... with staggering opportunities for corruption...

Moreover, established business houses learned how to game the system with "...parallel bureaucracies in Delhi to follow up on their files, organize bribes, and win licenses..." Established businesses could use the first-come, first-served nature of the licensing

process to foreclose competition: apply for your competitor's license before they did, watch their application be rejected because enough capacity had already been licensed in that industry and the government did not want to see overinvestment, and then simply sit on the license without using it to build any capacity.

Thus the consensus view among economists is that of Bhagwati (2000), who describes Indian growth before the reforms of the early 1990s as having been "stuck at a drastically low level" during "nearly three decades of illiberal and autarkic policies." He endorses Lal (1998) who attributes the failures of economic growth to two factors, the first and less important "cultural"<sup>4</sup> and the second and more important "political." As Bhagwati summarizes Lal, India's bane is:

...the professional 'povertywallas': the politicians who have incessantly mouthed slogans such as 'garibi hathao' ... [Indira Gandhi is meant here: that was the major slogan of her 1971 election campaign] and the economists who write continually about 'abysmal poverty'. Both have generally espoused policies, such as defending public sector enterprises at any cost, discounting and even opposing liberal reforms, promoting white-elephant style projects that use capital-intensive techniques on unrealistic grounds such as that they would create profits and savings when in fact they have drained the economy through losses...

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<sup>4</sup> A deeply-held distrust over centuries of the commercial classes and preference for dirigisme reinforced by the colonial elite's English education in Fabianism socialism. Anyone who makes any firm and bold statements about culture and economic growth is braver than I. Consider that while there is much to admire in Weber's (1904) *Protestant Ethic and the Spirit of Capitalism*, Weber also was certain that East Asia was doomed to centuries of economic stagnation because of the deep incompatibility of Hindu, Buddhist, and Confucian values with the requirements of modern economic rationality.



The rhetoric seems to suggest that India has suffered a unique series of disasters caused by bad judgment on the part of Jawharlal Nehru in being overimpressed with the Soviet Union's resource mobilization, bad company being kept by Indian colonial elites who listened too much to British Fabian socialists, and malevolent bad judgment exercised by politicians (chief among them Nehru's daughter Indira Gandhi) who saw India's poverty not as a problem to be solved through economic growth but as an interest group to be appeased in an attempt to seize and maintain political power.

Yet as was pointed out above, the extraordinary thing about India's post-World War II growth experience is how ordinary and average it seemed to be--up until the end of the 1980s. It is not nearly as bad as growth performance in Africa (see Dumont (1965), Bates (1984)). It is not nearly as good as growth performance in East Asia (see World Bank (1994)). It is average--suggesting either that India's poor growth-management policies were not *that* damaging, or rather that they were par for the course in the post-World War II world.

There are three ways to reconcile the widespread belief that the inefficiencies of the Nehru dynasty's "license raj" were very destructive for pre-1990 India. The first is to argue that the inefficiencies created by the Nehru dynasty were paralleled by similar mistakes of economic management in most of the countries of the world. If true, this would suggest that a different mode of explanation is needed to account for Indian economic policy and its failures in the first post-World War II generation. It is possible to attribute economic policy mistakes to bad ideology or bad judgment if such mistakes are exceptional. But if it is indeed the case that the same growth-retarding policy biases

found in India were found throughout most of the world, then a different, more structural mode of explanation is called for. Why were governments attracted to an inward-looking, import-substituting path rather than an outward-looking, export-promoting one? What were the political benefits seen from a massive and monopolistic--and inefficient--publicly-owned enterprise sector? Why the fear of foreign capital and foreign technology?

At the ideological level, I believe we understand very well where the attachment to planning and near-autarky came from. But as an economist I believe that in almost all cases ideologies can become powerful and effective only if they reflect (in distorted fashion, perhaps) the material interests of politically powerful groups. And here I do not think I understand the political strength of the interest groups that supported policies of overregulation and hostility to foreign trade, either in India or elsewhere.

A second possibility is that the failure of economic policies in terms of promoting efficiency was in large part offset by successes in mobilizing resources. For example, India in the first post-World War II decades maintained a relatively high savings rate for a country in its development position. Total private savings as a share of national product were about 6 percent of GDP in the early 1950s, but rapidly rose to 15 percent of GDP in the early 1960s, and by the 1980s averaged 23 percent of income. As Jones (1994) pointed out, however, over most of the post-World War II period India's relatively high savings effort as a share of GDP translated into relatively low increases in the real capital stock because the price of capital goods was relatively high in India. A high price of capital goods means that a given amount of expenditure on investment buys little real capital.

Under this interpretation, the conventional wisdom about Nehru dynasty economic policies is too pessimistic because it sees only the efficiency costs, and does not see the potential gains from resource mobilization, of which a high savings rate would be one. This line of argument would be more convincing, however, if more Indians were literate. The failure of Indian governments to approach universal literacy, and the failures of Indian public health, suggest that the view that Indian central planning and public investment had massive benefits overlooked by economists' current conventional wisdom cannot bear too much weight.

Yet a third possibility is that the "license raj" was very destructive, destructive enough to cripple what would otherwise have been a true growth miracle along the lines of those seen in East Asia over the past two generations. It is plausible to speculate that in the long run India *must* have powerful growth advantages. For millennia it has had a culture that places a high value on formal education and literacy. One of the legacies of the British Empire is a large chunk of the population literate in what is rapidly becoming the world's *lingua franca*. People who can process English-language information may well become one of the world's production bottlenecks over the next generation. India is very well-placed to take advantage of high demand for English-readers, -speakers, and -writers. Add to these the likely benefits of democracy in promoting accountability and focusing politicians' attention on their constituents' welfare, and a case can be made that India ought to have been one of the fastest growing economies of the world not just in the 1990s but in previous decades as well.

To my mind, all three of these ways of assessing Indian economic growth in the first post-independence generation are still live possibilities. I do not yet have the information I need to enable me to think that I can firmly establish that the weight of probability lies on any particular one of them.

Nevertheless, the central point is clear: India's economic growth failure in the first generation after independence was absolute, not relative. It is not that India fell far behind the benchmark established by the average performance of other developing economies. It is that Indian growth was much slower than one could not unreasonably have hoped, and much slower than the benchmark established by the performance of the fastest-growing developing economies.

### **III. The Indian Growth Miracle**

#### The Value of India's Example

The fact that India's growth performance seemed to *ordinary* in world context for the first three post-independence decades makes India's acceleration of economic growth since that much more exciting. With other countries that have experienced growth miracles, it is very difficult to imagine how to translate their experience into lessons for other developing countries. How is a country that seeks to emulate the Italian growth miracle to reproduce the close transport and trade links with the northwest European core? How is a country that seeks to repeat the growth miracle of Taiwan to attain the initial condition of an astonishingly equal distribution of land? How is a country that seeks to follow the Japanese model to assemble--more than one hundred years ago--the national elite

consensus for structural transformation and economic development that developed among those who ruled in the name of the Emperor Meiji?

It cannot be done. That is why the Indian case is so interesting, because it shows an example of an economy that was relatively stagnant, and did suffer from mammoth growth blockages, but that managed to turn all that around, and to turn all that around in a short period of time.

### Structural Breaks

To the extent that we trust aggregate national-level income accounts, it is clear that by 1985 Indian aggregate economic growth had undergone a structural break. Whether that means that we should look for key causes of India's growth acceleration in the years immediately before 1985 depends on how we conceptualize that structural break. Was it the result of a once-and-for-all change that put the economy on a new, different path? Or when we say "structural change" are we referring to an ongoing process of waves of reform, each of which requires that the political coalition behind reform be reassembled, each of which could fail, and the failure of any wave of reform could return Indian growth to its pre-1980 pace?

Depending on how you answer this question, you focus on one of two time periods. If you look for a single structural break, you look at the last years of Indira Gandhi's rule and at Rajiv Gandhi's administration, the years when economic reform and economic

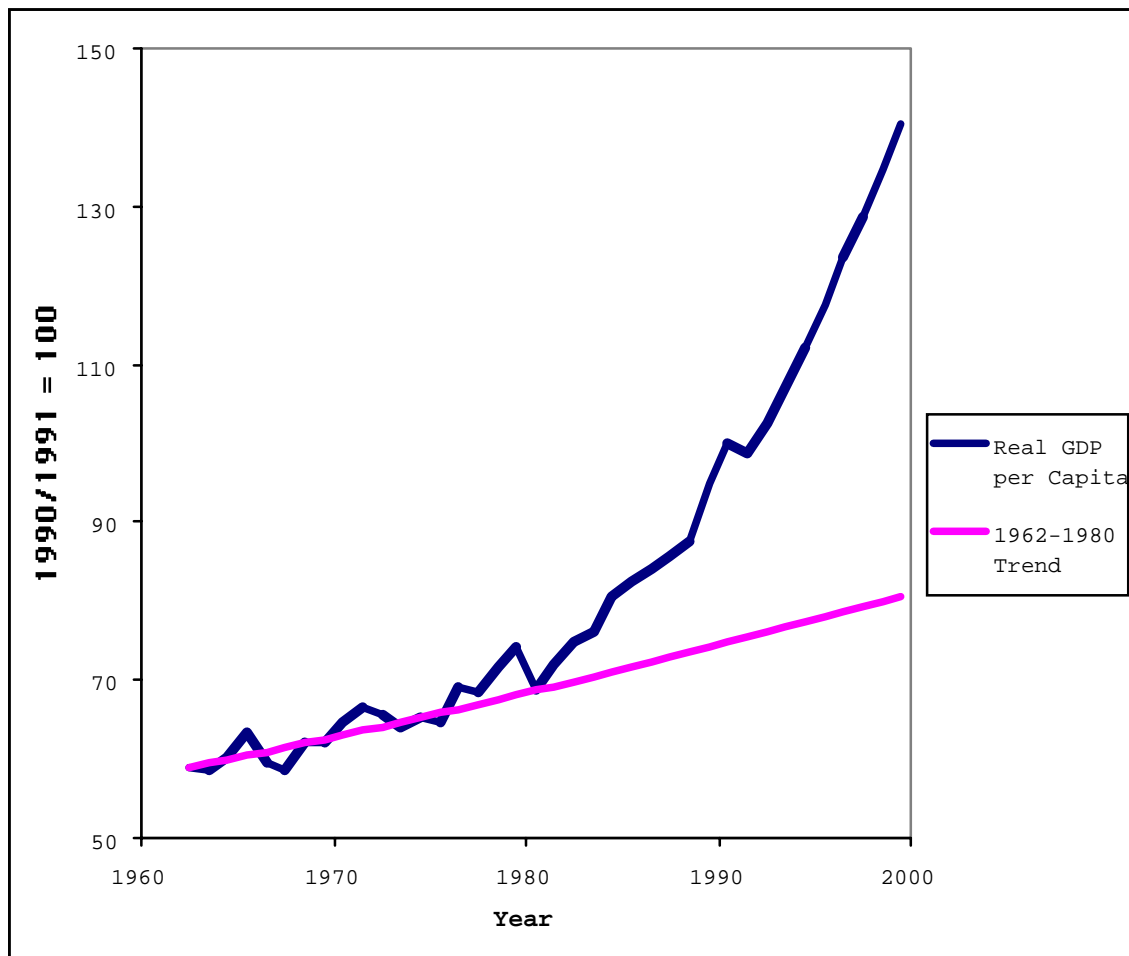
liberalization became ideologically respectable within the Indian government and policies that a development-seeking government ought to pursue to some degree.

If you look for ongoing waves of reform, each of them debated and debatable, then you are more likely to focus on the early 1990s--when the exchange crisis served as a trigger for larger-scale reforms by the government of Narasimha Rao than had been previously contemplated--and today, when one key item on the table is reform of India's budget so that claims on social resources in excess of production do not lead to an inflation crisis.

#### The Last Nehru-Gandhi Government

Rajiv Gandhi's Congress party won 77 percent of the seats in the Lok Sabha in the election that followed his mother's assassination by her bodyguards. Party discipline was not overwhelmingly strong, but the magnitude of the majority--and the association of most members of parliament with Rajiv--meant that a relatively underdeveloped apparatus for enforcing party discipline did not matter. During Rajiv Gandhi's administration India came as close to an *elected* dictatorship as it has ever been. And as the visible representative of a new Indian generation--uncorrupt, interested in reform, focused on applying modern managerial techniques--this last Nehru-Gandhi government ought to have had the power to carry out whatever plans of reform its leader could decide on.

**Figure 3: Indian Real GDP per Capita Level and 1962-1980 Trend**



Source: IMF.

Winning 48 percent of the national vote in the December 1984 election, and with 415 out of 545 seats in the Lok Sabha, this last government of the Nehru Dynasty had the overwhelming majority needed for substantial reform. Moreover, the fact that Rajiv Gandhi himself was a new politician with his own circle of advisors and his own priorities meant that his government met the preconditions for a strong reforming executive: his government had the “relative autonomy” needed for it to have a good

chance to transform the economy, rather than—as is usually the case—finding itself pulled back to the “political mainstream” by the standard pressures of politics.<sup>5</sup>

For the first time, private industry executives found it easy to move into powerful ministerial positions in an Indian government. Prime Minister Rajiv Gandhi himself spoke of how his government would pursue “deregulation, import liberalization, and... access to foreign technology” and invoked the example of Japan, which had in less than a generation moved from a country whose products were “synonymous with shoddy goods” to “a byword for the best available” (see Varshney (1999)). The first budget of the Rajiv Gandhi government sought to reduce marginal tax rates, reduce tariffs, make restrictions on imports transparent by replacing quotas with tariffs, remove restrictions on by large firms that had been imposed in 1969 as part of India’s antitrust policy, and begin the process of eliminating license restrictions on manufacturing industries.<sup>6</sup>

The economic reform program that Rajiv Gandhi's government decided upon focused on (a) encouraging capital imports and commodity exports, (b) a modest degree of industrial deregulation, and (c) a modest degree of tax system rationalization. In the government's first year it eliminated quantitative controls on imports of industrial machinery, and cut tariffs on imports of capital goods by 60%. (I know: it is hard to think of a reason for a country like India to have any tariffs or restrictions on imports of capital goods whatsoever. But you have to crawl before you can walk.) Taxes on profits from exports were halved as well. Subsidies were reduced (arousing extremely strong political

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<sup>5</sup> This is Varshney’s (1999) judgment, relying on the typology of economic reform set out by Haggard and Webb (1994).

<sup>6</sup> The requirements that businesses obtain government licenses before they could build a plant or expand their capacity.



opposition: Varshney (1999) cites Kothari (1986) as an example). The government reduced the number of industries subject to government capacity licensing from 77 to 27 in 1988. And—although only in its last days--the government began to end price controls on industrial materials like cement and aluminum.

Yet somehow, somewhat paradoxically, the political power of Rajiv Gandhi's government was not transformed into rapid structural reform. Factions within the Congress Party seemed not to believe that their interests were bound up with the success of their leader and his policies, but were instead threatened by the potential backlash against an administration that was concerned with the prosperity of the rich rather than alleviating poverty: the Rajiv Gandhi regime had, after all, tried to increase the profits of businesses and cut marginal tax rates food, kerosene, and fertilizer. Thus the reform plans carried out under Rajiv Gandhi were hesitant, and less bold than one would have expected given the rhetoric of its initial speeches.

The consequence of this first wave of economic reform was an economic boom. Real GDP growth averaged 5.6 percent per year over the Rajiv Gandhi government, while real rupee exports grew at 15 percent per year. By the end of the 1980s Indian aggregate labor productivity was one-third higher than a simple extrapolation of the pre-1980 trend would have predicted.

### Using Growth Theory to Assess India's Growth Acceleration

The lens of growth theory provides a natural interpretation of the sustained three percentage point per year acceleration in economic growth under the Rajiv Gandhi government. The first starts with the equation for the speed of an economy's convergence to its steady-state growth path. As Mankiw, Romer, and Weil (1991) showed, an economy closes approximately  $\lambda$  percent of the gap to its steady state growth path each year, where  $\lambda$  is given by:

$$(7) \quad \lambda = (1 - \alpha)(n + g + \delta)$$

with  $\alpha$  being the capital share in the production function,  $n$  being the population growth rate,  $g$  the long-run trend growth rate of the efficiency of labor, and  $\delta$  being the capital depreciation rate. The latter three variables sum up in the case of India to approximately 8%.  $\lambda$  is unknown: it could—for narrow definitions of “capital”—be as low as 0.3; it could—for views of the growth process closer to those of endogenous growth theorists, or of DeLong and Summers (1991)—be as high as 0.8. Thus estimates of  $\lambda$  lie in the range between 0.016 and 0.056.

Thus today's standard simple growth theory predicts, in the presence of reforms that raise the economy's long-run steady-state growth path, economic growth will accelerate in the short run by an amount equal to  $\lambda \times \Delta y$ , where  $\Delta y$  is the proportional change in the economy's long-run steady-state growth path produced by the reforms. In the longer run, as the economy closes in on its new long-run steady-state growth path and the gap between its current position and the steady-state path narrows, this “convergence” component of annual economic growth will shrink. A large acceleration in economic

growth can only be produced by a change in economic policy or in the economic environment that causes a large upward jump in the economy's steady-state growth path. The fact that growth accelerated so rapidly in the mid-1980s suggests that the 1980s saw structural changes that did indeed have an enormous effect on India's long-run economic destiny.

If we model the effect of economic reform as a one-time once-and-for-all upward jump in the economy's steady-state growth path, then the 3% per year acceleration of growth that followed the beginnings of economic reform is the result of convergence—at the rate  $\lambda$  above—to the new, higher steady-state growth path. For a value of  $\lambda$  equal to 1.6%, this means that the Rajiv Gandhi government's change in policies boosted the economy's long-run steady-state growth path by 186%. For a value of  $\lambda$  equal to 5.6%, this means that the Rajiv Gandhi government's changes in policies boosted the economy's long-run steady-state growth path by 54%. In either case, this is an extremely large long-run effect for what seemed at the time to be relatively small changes in economic policy.

Much conventional wisdom claims that the boom created by Rajiv Gandhi's reforms was "unsustainable" and in some way "fictitious" because the late-1980s boom ended in an exchange rate crisis. The country's net capital import bill rose to three percent of GDP by the end of the 1980s. This growing foreign indebtedness--more than a quarter of exports were going to pay international debt service by the end of the 1980s--set the stage for the exchange crisis of 1991. Nevertheless, it is hard to argue that India would have been better off in the 1980s had it not borrowed from abroad. (It is easy to argue that it would have been better off had it followed a more realistic exchange rate policy in 1989 and 1990.) With limited exports, foreign borrowing is an extremely valuable way to finance

capital goods imports. If Lee (1994) is correct in arguing that such capital goods imports are extraordinarily productive sources of technology transfer, then even extreme vulnerability to international financial crises as a result of foreign borrowing is a cost that weighs lightly in the balance relative to the benefits of one's firms being able to buy more foreign-made capital on the world market.

Standard simple growth theory would predict that over time after reform the speed of growth would slow as the economy closed in on its new, higher steady-state growth path. After a decade the “convergence” component of economic growth should be between .85 and .60 of its initial, immediate post-reform value. This would suggest a slowing of growth by the late 1990s of between 0.6 and 1.4 percentage points relative to the second half of the 1980s, if Rajiv Gandhi’s reforms were the only powerful change in the economy’s long-run growth prospects.

However growth did not slow in the 1990s. Further, larger waves of reform washed over the economy in the 1990s. Economic growth accelerated by at least one further percentage point per year in the 1990s.

How large were the effects of these subsequent waves of reform, at least according to standard growth theory? Performing the same kinds of calculations then suggests that the second wave of reforms—those undertaken by the government of Narasimha Rao and Manmohan Singh—had effects on the country’s long run steady-state growth path between  $\frac{2}{3}$  and  $\frac{5}{6}$  as large as those of the first wave of reforms. Moreover, there has been a third wave of reforms undertaken in recent years by the BJP government. It is as

of yet too early to use growth theory to try to assess the impact of this latest wave of reform on the economy's long-run steady-state growth path.

### The Narasimha Rao Government

The fact that simple growth theory suggests that the effects of the Rao government's policies on growth were less than the effect of the Rajiv Gandhi government's is both interesting and puzzling. It is puzzling because the Rao era economic reforms seem much more comprehensive and significant. It is interesting because it raises the possibility that the particular reforms undertaken by the Rajiv Gandhi government had an extraordinarily high payoff.

Narasimha Rao's Congress Party won only 43% of the seats in the Lok Sabha in the 1991 election. For five years, however, he maintained his hold on the Prime Ministership and a narrow working majority. Varshney (2000) points out that in some respects the failure of the Congress Party to achieve a majority in the Lok Sabha in 1991 is deceptive, and understates the strength of his government. By 1991 the Hindu nationalist BJP had come to prominence in Indian national politics (see Hansen (1999)). It was the second largest party in the Lok Sabha after the 1991 election. All of the other minor parties--the Janata Dal, the CPI(M), and so forth--had to reckon that upsetting the Rao government and the Congress Party might well lead to the coming to power of the BJP, which was not to any of their taste. Challenging any of the decisions of the Rao government might bring it down. Hence, as Echeverri-Gent (1998) puts it, because it was so weak--because it was a minority government--the Rao government could be very strong.

Under the Rao government, tariffs were reduced from an average of 85 percent to 25 percent of import value. The rupee became convertible. By the mid-1990s total foreign trade--imports plus exports--amounted to more than 20 percent of GDP. Foreign direct investment was encouraged, and grew from effectively zero in the 1980s to \$5 billion a year by the mid-1990s. The government walked rapidly down the path of reform that Rajiv Gandhi's government had tiptoed cautiously onto.

On the macroeconomic side, attention was focused on limiting money growth and thus controlling inflation. The government attempted—unsuccessfully—to erase the extremely high budget deficits of the past. And the government attempted—successfully—to build up its foreign exchange reserves.

The Rao government took the steps that the Rajiv Gandhi government had proposed to encourage foreign investment: it provided automatic government approval for FDI joint ventures in which foreigners held up to 51 percent of the equity; it provided automatic government approval for agreements licensing foreign technology as long as royalty payments to foreigners were kept at or below five percent of total sales.

And the Rao government carried through to completion a number of initiatives begun during the Rajiv Gandhi government to replace quantitative restrictions on imports by tariffs, to lower tariffs, to reduce the scope of licensing, and to attempt to reduce the scope of publicly-owned monopolies.

Given that all of these reforms surely add up to much more than did the Rajiv Gandhi's government, it is interesting that the simple applications of growth theory above suggest that their effect on the economy's long-run steady-state growth path was smaller. Two possibilities suggest themselves: first, that simple growth theory is in fact not very useful considered as a lens to understand the process of economic growth in different countries; second, that in some way the reforms undertaken by the Rajiv Gandhi administration were strategic—that they had a uniquely high benefit-cost ratio, a uniquely high social product.

### The Vajpayee Government

The governments that succeeded the Rao government have, in a move that many commentators found somewhat surprising, continued the reform process. After the Rao government, reform had become politically popular--indeed, inescapable for governments that wanted to take their share of credit for India's relatively rapid economic growth.

Most recently the BJP-led government of Prime Minister Vajpayee has removed capacity-licensing restrictions from the fossil-fuel and oil-cracking industries, from bulk pharmaceuticals, and from the sugar industry. The government has attempted to make sure that the remains of its old-fashioned industrial policy do not hobble the rapidly-expanding Indian information technology industry. The government has gingerly taken steps toward establishing private industry and competition in electricity and telecommunications. The process by which licensing restrictions are removed from

imports has continued. And further steps have been taken to try to rationalize the tax system.

The net effect of all of these reform policies has been a decade and a half of growth at the “new Hindu rate of growth” of 6% per year for overall real GDP, and of 3.5%-4% per year for labor productivity. Such a pace of growth has made India one of the world’s fastest-growing large economies—behind only China.

Reforms have had an effect not only on the policies notionally followed by the government, but on how those policies are implemented—on the amount of red tape and inefficiency generated by the government. The *Economist* reports that the head of General Electric’s Indian subsidiaries, Scott Bayman, tells its reporters that the proportion of his time he spends in government offices has fallen from 70% to less than 5%.

#### **IV. Conclusion**

What comes next for India? The governments that followed the Rao government--first the United Front and now the BJP-led coalition--have continued reform and liberalization, albeit not as rapidly as one might have hoped given the pace of economic reform in the first half of the 1990s. But the amount that is still left to be done is staggering.



For example, consider the electricity sector. The State Electricity Boards generate electricity and distribute it to consumers. Many consumers, including farmers and the politically-favored, pay virtually nothing for their electricity. Many others steal it: losses in transmission and distribution amount to 35% of all electricity generated. The State Electricity Boards finance their operations by overcharging industrial and commercial consumers—giving them an incentive not to use higher-productivity electricity-intensive means of production. The rest of the State Electricity Boards' funding comes from the government. According to the *Economist*, the year-2000 losses of State Electricity Boards amounted to more than one percent of GDP, and accounted for 12 percent of the total public sector deficit. And the electricity provided is of miserable quality, with frequent blackouts and voltage spikes that have driven a third of industrial consumers to establish their own—small-scale, technically inefficient—private electricity generation facilities.

For another example, consider that India still has internal customs barriers. Trucks making a 500 mile journey may well have to pay internal tariffs at three different stops.

Moreover, India's government is a federal government. Much red-tape reduction that needs to be accomplished needs to be accomplished not at the national but at the provincial level. And there are many provinces with huge populations and large shares of India's poor—Uttar Pradesh, Bihar, Orissa—in which the political establishment does not believe that increased governmental efficiency and reduced red tape should be a priority.

In the second half of the 1990s, India's governments have failed to make progress in bringing social claims on output into balance with productivity. The total deficits of the public sector--state and local governments, national government, and state-owned

enterprises together--now amount to more than 10 percent of GDP. Unless this budget deficit is reduced and the rate of growth of the debt-to-GDP ratio brought under control, an inflation crisis at some point in the future seems likely once potential lenders to the Indian government decide that its debt-to-GDP ratio has risen too high for comfort.

Whether Indian real economic growth continues at the rapid pace of the past decade even if reform slows down and government budget deficits continue will tell us much about the resiliency of the growth process.

If Indian real economic growth does continue to be rapid even in the face of erratic public-sector performance, that will suggest to us that the most important factors were those that changed in India in the 1980s. What changed in the 1980s were three things. The first was a shift toward integration with the world economy—both the encouragement of exports, and the recognition that foreign investment and foreign-made capital goods had enormous potential as carriers of new and improved technology. The second was a shift in entrepreneurial attitudes: the fact that Rajiv Gandhi had not spent his life as a politician and the fact that his powerful ministers included ex-businessmen may have functioned as the Indian equivalent of Deng Xiaping's catch-phrase: "to get rich is glorious!" The third was a belief that the old Nehru Dynasty order had come to an end, and that the rules of the economic game had changed. It may well be that these deeper changes had more importance for Indian growth than did individual policy moves.

On the other hand, if reform stagnates—or even continues at its current not very rapid pace—it may well be that Indian real growth will slow over the next decade. If so, that will suggest that the potential benefits in terms of higher growth from each act of policy

liberalization are quickly taken up and exhausted. In that case successful reform will require not just that reformers be strong at one moment but that they institutionalize the reform and liberalization process over generations.

In either case, the world's economists now have an example of an economy that did *not* have remarkably favorable initial conditions but that has sustained rapid economic growth over two decades. To those for whom the East Asian miracle seemed out of reach--for whom the advice to emulate South Korea seemed so unattainable as to lead to despair--advice to emulate India may well prove more useful.

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