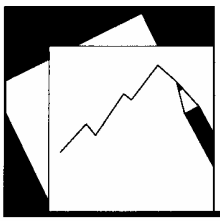
WP/04/77



IMF Working Paper

From "Hindu Growth" to Productivity Surge: The Mystery of the Indian Growth Transition

Dani Rodrik and Arvind Subramanian

INTERNATIONAL MONETARY FUND

© 2004 International Monetary Fund WP/04/77

IMF Working Paper

Research Department

From "Hindu Growth" to Productivity Surge: The Mystery of the Indian Growth Transition

Prepared by Dani Rodrik and Arvind Subramanian[1]

May 2004

Abstract

This Working Paper should not be reported as representing the views of the IMF.
The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

This paper explores the causes of India's productivity surge around 1980, more than a decade before serious economic reforms were initiated. Trade liberalization, expansionary demand, a favorable external environment, and improved agricultural performance did not play a role. We find evidence that the trigger may have been an attitudinal shift by the government in the early 1980s that unlike the reforms of the 1990s, was probusiness rather than promarket in character, favoring the interests of existing businesses rather than new entrants or consumers. A relatively small shift elicited a large productivity response, because India was far away from its income-possibility frontier. Registered manufacturing, which had been built up in previous decades, played an important role in determining which states took advantage of the changed environment.

JEL Classification Numbers: O11; O47; O53

Keywords: Productivity growth; India; liberalization; manufacturing; probusiness

Author's E-Mail Address: Dani_rodrik@harvard.edu; asubramanian@imf.org

---

[1] Dani Rodrik is Professor at Harvard University, and Arvind Subramanian is in the IMF's Research Department. We thank, without implicating, Montek Ahluwalia, Swaminathan S. Aiyar, Aaditya Mattoo, Raghuram Rajan, Shakti Sinha, T.N. Srinivasan, John Williamson, and seminar participants at Harvard University and the IMF for helpful feedback; Devesh Kapur for his insights and assistance; and Magali Junowicz and Bakar Ould-Abdallah for research assistance.

Contents Page

I. Introduction 3

II. The Facts 6

III. Explanations That Don't Work 16

A. Was It a Favorable External Environment? 16
B. Aggregate Demand and Unsustainability of 1980s Growth 17
C. External Liberalization 19
D. Was It the Green Revolution? 23
E. Was It Public Investment? 24
F. Was It "Internal" Liberalization? 25

IV. Possible Explanation 27

V. Concluding Remarks 37

References 40

Text Tables
1. India: Aggregated and Sectoral Growth Accounting 8
2. India: Unconditional State-Level Convergence 10
3. India in the Cross Section: Mean and Volatility of Growth Rate of Output per Worker, 1960–2000 11
4. India's Growth in Comparative Perspective 12
5. Contributions to Growth: India In the Cross Section, 1960–99 15
6. India: Measures of Trade Protection, 1980–2000 19
7. Gravity Model Results of Trade Outcome for India and China 22
8a. India: Growth of a Public Investment Ratio 26
8b. Estimates of Contribution of Public Capital to Total Factor Productivity 26
9. India: Attitudinal Shift 30
10. How Far Below Its Steady-State Income Is India? 31
11. Role of Manufacturing in Productivity Surge 33
12. Role of Manufacturing in Productivity Surge: Robustness Checks 34

Figures
1. Economic Performance in India, 1960–2000 9
2. Real Per Capita Net State Domestic Product, 1960–2000 13
3. India: External Terms of Trade 1960–2000 17
4. India: Customs Duties Collections and Anti-Export Bias, 1974–2001 20
5. India: Evolution of Merchandise Trade, 1960–2000 21
6. India: Real Effective Exchange Rate, 1968–2000 22
7. India: Agriculture's Terms of Trade, 1960–2001 24
8. India: Investment Rates, by Sector 31
9. Correlation Between Growth and Share of Registered Manufacturing, 1970s and 1980s ..35

I. INTRODUCTION

India's economic performance during the first three decades since independence in 1947 was christened the "Hindu" rate of growth, a term connoting a disappointing but not disastrous outcome and the acquiescence in the present that the religion supposedly imbues, because of its greater emphasis on the hereafter.

This term is, of course, gradually lapsing into disuse thanks to the remarkable transformation in India during the last two decades. Since 1980, its per capita economic growth rate has more than doubled, rising from 1.7 percent in 1950–80 to 3.8 percent in 1980–2000. Shackled by the socialist policies and the "license-permit–quota raj" (to use C. Rajaji's memorable phrase) of the past, India used to serve as the exemplar of development strategies gone wrong. It has now become the latest poster child for efforts to unleashed economic growth with a turn toward free markets and open trade. India has yet to catch up to China's growth rates (or even to China's level of income[2]), but thanks to its solid democratic institutions and impressive performance in information technology, the country is in the eyes of many knowledgeable observers increasingly vying with, if not displacing, China to be the country of the future.[3]

The improvement in India's economic performance is obviously good news for its one billion people. But equally important, this transformation also holds out hope for other poor countries around the world, insofar as it sends the message that rapid economic growth is attainable under appropriate policies.

But what exactly are those "appropriate" policies that made the Indian miracle possible? The conventional story about India, which can be glimpsed in any number of policy-oriented papers and newspaper articles, goes like this. Until 1991, India's policy-makers followed misguided policies that closed the economy to international trade, erected inefficient industries under state guidance, riddled the private sector with extraordinarily cumbersome and detailed regulations, and suffocated private economic activity with controls and bureaucratic impediments. Then, in 1991, the big breakthrough happened. Spurred by a balance of payments crisis, Indian policy-makers turned to technocrats such as Manmohan Singh, who promptly began the process of liberalizing the economy. Trade barriers were slashed; foreign investment was welcomed; the license raj was dismantled; and privatization began. The economy started to boom, with software exports and call centers leading the way.

---

[2] According to The Penn World Tables (PWT 6.1), India's purchasing-power-adjusted per capita GDP stood at $2,479 in 2000, compared with $3,747 for China. However, there are reasons to believe India's purchasing power parity level of income is understated (see Deaton, Friedmand and Atlas, 2004)

[3] See Huang and Khanna (2003).

Like all caricatures, the above story has elements of truth in it. It is indeed the case that, until recently, India had one of the most overregulated and closed economies in the world. It is also true that the economic liberalization of 1991 constitute a watershed event for the Indian economy. But the main difficulty with the standard account, as summarized here, is that the pickup in India's economic growth precedes the 1991 liberalization by a full decade. Even a cursory glance at the growth record reveals that the more-than-doubling of India's growth rate takes place sometime around 1980, with very little discernible change in trend after 1991. In fact, some indicators, such as economy-wide total factor productivity, even go in the "wrong" direction, showing a deceleration after 1991. Therefore, the striking post-1980 improvement in performance cannot be attributed to the liberalization of 1991. The latter may well have played a role in sustaining and deepening an ongoing process of growth, but we need to look elsewhere to understand how India made the transition to high growth. A related implication is that more recent phenomena, such as the boom in information technology and related services, cannot have been the original source of India's economic growth.

We present in this paper a somewhat different interpretation of India's experience. We argue that the trigger for India's economic growth was an attitudinal shift on the part of the national government in 1980 in favor of private business. Until that time, the rhetoric of the reigning Congress Party had been all about socialism and pro-poor policies. When Indira Gandhi returned to power in 1980, she realigned herself politically with the organized private sector and dropped her previous rhetoric. The national government's attitude toward business went from being outright hostile to supportive. Indira Gandhi switch was further reinforced, in a more explicit manner, by Rajiv Gandhi following his rise to power in 1984. This, in our view, was the key change that unleashed the animal spirits of the Indian private sector in the early 1980s.

It is important to characterize appropriately the attitudinal change that took place in the early 1980s. We draw a distinction here between a **promarket** and a **probusiness** orientation. The former focuses on removing impediments to markets and aims to achieve this through economic liberalization. It favors new entrants and consumers. A probusiness orientation, in contrast focuses on raising the profitability of the established industrial and commercial establishments. It tends to favor incumbents and producers. Easing restrictions on capacity expansion for incumbents, removing price controls, and reducing corporate taxes (all of which took place during the 1980s) are examples of probusiness policies, while trade liberalization (which did not take place in any significant form until the 1990s) is the archetypal market-oriented policy. This distinction can be observed, for example, in the contrasting approaches toward reform in East Asia and Latin America. Korea's reforms in the 1960s and 1970s were primarily probusiness rather than promarket. Latin America's reforms in the 1990s were primarily promarket.

The change in India in the early 1980s are accordingly best described as **probusiness** rather than **promarket.** True liberalization was, by and large, anathema to organized business at the time. Indira Gandhi was far less interested in opening up the economy and removing impediments to competition than in garnering political support from existing business groups. Rajiv Gandhi, who was somewhat more prone to liberalize, had to step back when he stepped too far out of line

and when the Bofors scandal undermined his effectiveness. The primary beneficiaries of growth were therefore incumbents and preexisting activities rather than new entrants and activities. Nevertheless, we view this shift toward a probusiness orientation as the essential trigger that set off the boom of the 1980s. That this was a powerful trigger can be deduced from the fact that the genuine liberalization after 1991 added very little to aggregate economic performance. Apparently, this attitudinal shift was, in itself, a very powerful stimulant for economic growth, even in the presence of price and other market distortions.

That an attitudinal change on the part of the national leadership could have such a strong impact on growth is, in turn, grounded in India's initial conditions. India has very strong political and economic institutions for a country at its income level. It is a democracy where the rule of law generally prevails and property rights are protected adequately. Judged by cross-country norms, it ought to have a level of income that is several times higher. The implication is that relatively minor changes in the policy environment can produce a large growth impact. We interpret the suspension of the national government's hostility to the private sector as one of these changes, something that left little paper trail in actual policies but had an important impact on investors' psychology.

We begin this paper by documenting India's growth transition in the 1980s and placing this experience in comparative context. We show that this transition is grounded in an impressive increase in productivity (rather than in factor accumulation). We also show that India has moved from being a global underperformer before 1980 to a strong overperformer since then.

We next present a series of possible explanations for this shift and show that none of them can satisfactorily account for the boom of the early 1980s. There was not much liberalization in the 1980s, and the little that took place happened during the second half of the decade. The Indian economy remained closed to world trade and in some way was more protected than ever. The Green Revolution is unlikely to have been the source of the boom in nonagricultural activity, because we do not observe the requisite changes in the internal terms of trade. Demand-side explanations are inadequate to explain the rise in productivity. Public sector investment is unlikely to have been the explanation either, unless we make demanding assumptions on time lags.

We then lay out our own explanation and provide some empirical evidence in support of it. We show, in particular, that post-1980 growth was strongest in activities and states that were most advantaged by the national government's attitudinal shift—namely in the formal manufacturing sector built up under the earlier policy regime. Hence, to some extent, the learning generated under the earlier policy regime and the modern manufacturing base created thereby provided a permissive environment for eventual takeoff once the policy stance softened vis-à-vis the private sector. So, unlike what one may have otherwise expected (from accounts of how costly import-substituting industrialization (ISI), growth occurred where the earlier investments had been made.

Our analysis focuses on the transition to high growth in the 1980s, and we have little to say about the 1991 reforms and the experience of the 1990s. We take the view that igniting growth and sustaining it are distinct challenges, requiring different sets of policies and approaches (Rodrik, 2003; Hausmann, Prietchett and Rodrik, 2004). This paper is concerned exclusively with the challenge of igniting growth and the story of how India seems to have met it.

II. THE FACTS

A key fact that we establish at the outset of this paper is that the turnaround in this performance—the decisive break with the Hindu past—occurred around 1980 and not in the 1990s as most accounts have it. We are not the first to make this point: De Long (2003) and Williamson and Zagha (2002) have both emphasized that the approximate doubling of India's growth rate took place a full decade before the 1991 reforms. Nonetheless, it is impossible to read the standard policy-oriented accounts and not leave with the impression that it is the reforms of the 1990s that have brought superlative economic performance to India (Ahluwalia, 2002; Srinivasan and Tendulkar, 2003).

Figure 1 illustrates that three measures related to aggregate growth performance—real GDP per capita, real GDP per worker, and total factor productivity—displayed a sharp upward trend beginning 1980 after remaining virtually flat for the preceding two decades. Table 1 confirms that the pick-up in labor and total factor productivity between the 1970s and 1980s amounted to about 3 percentage points. While the 1990s continued to see strong growth, the productivity measures show a *deceleration* between the 1980s and 1990s of between 0.3 and 0.6 percentage points.[4] Regardless of whether the 1990s were slightly worse (or slightly better) than the 1980s, it is abundantly clear that India's economic performance improved sharply sometime around 1980.[5]

More formal evidence that the break occurred around 1980 comes from a variety of sources. First, using the procedure described in Bai and Perron (1998, 2003), we computed the optimal one, two, and three break points for the growth rate of four series: per capita GDP computed

[4] Micro-level evidence is also consistent with the absence of any significant break associated with the reforms of 1991. Deaton and Dreze (2002) show that measures of poverty reduction, real wage growth, health and education exhibit trends in the 1990s similar to those prior to the 1990s.

[5] We note that this improvement is also evident when Indian GDP is expressed in PPP terms (i.e., using Penn World Tables data). So it cannot be argued that the pickup in growth is artificial due to the interaction of price distortions with differential sectoral expansion.

at constant dollars (World Bank) and at PPP prices (PWT), GDP per worker (PWT), and total factor productivity (Bosworth and Collins, 2003).[6] In all four cases, we find that the single break occurs in 1979.[7] Second, Hausmann et al. (forthcoming) have analyzed transitions to high growth in a large cross-national sample, and date the Indian growth transition in 1982.[8] Finally, Wallack (2003) has analyzed GDP and its disaggregated components for structural breaks. She finds evidence for a break in the GDP growth rate in the early to mid-1980s. The highest value of the F-statistic associated with the existence of a break is reached in 1980 (Wallack 2003, p. 4314).[9]

Was this improved aggregate productivity performance since the 1980s simply a consequence of re-allocation of resources from low-productivity (agriculture) to higher productivity (manufacturing and services) or was there a trend improvement in the performance of individual sectors? There has been a substantial structural change in the composition of the labor force employed in the three major sectors, with the most pronounced one being the decline in agriculture's share of about 10 percentage points between 1975 and 1995, offset by an increase in the share of services (about 7.5 percentage points) and industry (2.5 percentage points). But this shift explains a very small fraction (less than 10 percent) of the improvement in economy-wide productivity. For example, when the aggregate labor productivity growth is computed

[6] We thank Andy Berg and Marcos Souto for suggesting and estimating this procedure. For the case of a single break, the Bai and Perron procedure minimizes the sum of squared deviations of the growth rate around the means of the two resulting subsamples. For multiple breaks, we use the method described in Bai and Perron (2003), which employs a dynamic programming algorithm to compare all possible combinations, so that a minimum global sum of squared residuals is achieved. Details are available from the authors upon request.

[7] The two breaks occurred in 1970 and 1979, and the three breaks occurred in 1970, 1979, and 1994 (with the procedure suggesting that there was a trend decline after 1994).

[8] The Hausmann et al. (forthcoming) filter looks for a year such that the growth rate in the seven years following it is at least 2 percentage points or more higher than the growth rate in the prior seven years.

[9] She finds less evidence for a break in growth rates in specific sectors (such as manufacturing and agriculture), attributing the post-1980 growth to the changing composition of GDP. Note that Wallack's study focuses on value added and not productivity.

Table 1. India: Aggregated and Sectoral Growth Accounting

	1960–70	1970–80	1980–90	1990–99
Bosworth-Collins (B-C)				
Output	3.84	2.98	5.85	5.59
Output per worker (Q/L)	1.87	0.69	3.90	3.27
Capital per worker	0.83	0.61	1.06	1.32
Education	0.29	0.58	0.32	0.34
Total factor productivity (TFP)	0.74	-0.50	2.49	1.57
IMF				
Output	3.75	3.16	5.64	5.61
Output per worker	1.77	0.86	3.69	3.30
Total factor productivity 1/	1.17	0.47	2.89	2.44
Total factor productivity 2/	-0.94	-2.07	1.28	0.94
Disaggregated growth of Q/L based on current employment shares				
Agriculture 3/	1.20	0.13	2.57	1.29
Manufacturing 4/		2.00	6.30	6.00
Services (B-C) 5/		2.12	6.32	6.57
Services (IMF) 6/		3.14	5.30	6.69
Growth rate of Aggregate Q/L with base-period employment shares as weights				
Aggregate (Bosworth-Collins)		0.69	3.66	3.08
Aggregate (IMF)		0.86	3.49	3.11
Contribution of labor-shifts to aggregate Q/L growth				
Aggregate (Bosworth-Collins)	n.a.		0.24	0.19
Aggregate (IMF)	n.a.		0.20	0.19
Employment Share 7/		*1975*	*1985*	*1995*
Agriculture		70.8	64.4	60.8
Industry		12.4	15.2	15.8
Services		16.8	20.4	23.4

Sources: Bosworth and Collins (2003); Ghose (1999); and authors' estimates

1/ Based on labor force

2/ Based on average years of schooling in population above 15 years of age

3/ From World Bank's World Development Indicators

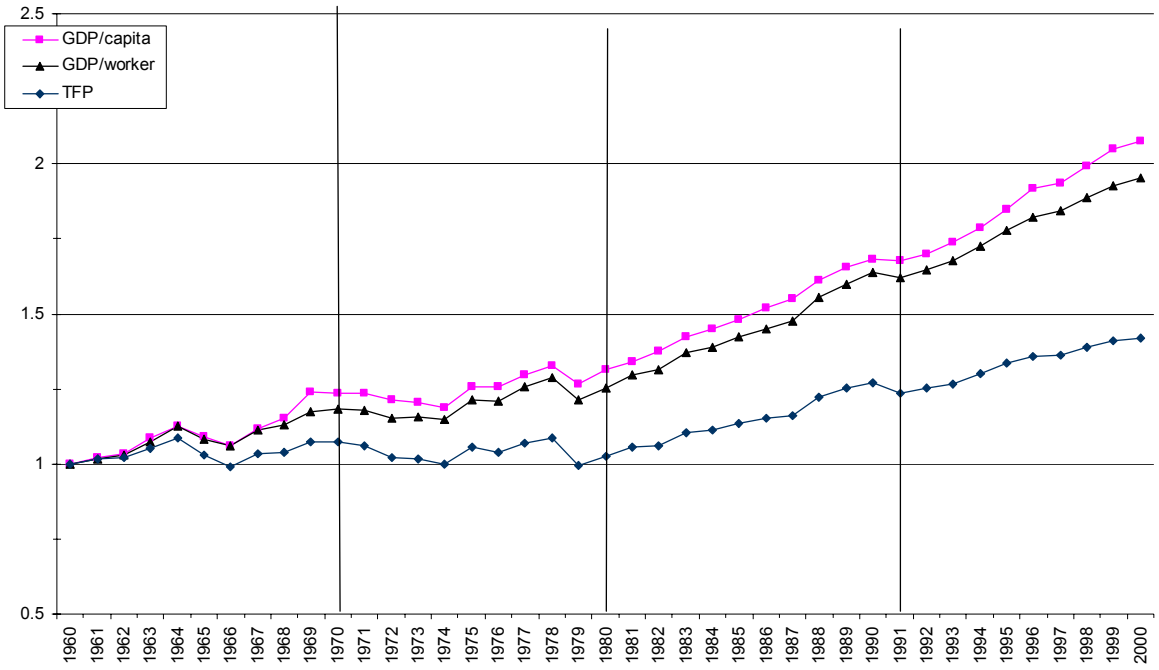
4/ For 1980s and 1990s, data from IMF Working paper; for 1970s, estimate based on Ahulwahlia (1995)

5/ Calculated as a residual by deducting weighted average sectoral productivity growth rates from B-C agg. Q/L growth rate

6/ Calculated as a residual by deducting weighted average sectoral productivity growth rates from IMF agg. Q/L growth rate

7/ Obtained from Ghose (1999). His number for 1977/78 is extrapolated backward to 1975 by applying trend between 1977/78 and 1983 and his number for 1993-94 is extrapolated forward to 1995 by applying the trend from 1987/88-1993-94.

Figure 1. Economic Performance in India, 1960–2000
(Log scale, 1960-1)



with fixed (base-period) employment shares, the pick-up in the 1980s is between 2.6 percent and 2.9 percentage points, and the deceleration in the 1990s about 0.4-0.6 percentage points (Table 1).

A number of studies have argued that manufacturing experienced a surge in productivity in the 1980s (Ahluwalia, 1995, Unel, 2003) although some of these estimates have been contested (Hulten and Srinivasan, 1999; and Balakrishnan and Pushpagandan, 1994).[10] For example, Ahluwalia's (1995) figures suggest that the increase in TFP growth during 1981-89 over the previous two decades was 3.2 percentage points.

[10] Hulten and Srinivasan (1999) make the point that conventional TFP measures understate the true contribution of productivity performance by ignoring the additional capital formation induced by an increase in productivity. Balakrishnan and Pushpagandan's (1994) critique is based on the failure of conventional measures to use separate deflators for gross output and intermediates in arriving at TFP measures. Another study (RBI, 2004), using the double deflation methodology, however, shows that manufacturing TFP grew at 3.9 percent in the 1980s and declined to 2.1 percent in the 1990s.

A break in growth performance is also suggested by the evidence on economic growth at the level of the Indian states. Figure 2 plots per capita GDP for all states for every ten years beginning in 1960. Beginning in 1980, there is both an upward trend in the average as well as a wider spread in the distribution of incomes. A more formal test of (unconditional) convergence between states for the four decades confirms this break (Table 2). For the 1960s and 1970s, the convergence coefficient is positive and insignificant. For the 1980s and 1990s, this coefficient increases and becomes statistically significant. The magnitude of the coefficient suggests that in the latter two decades, states are diverging at an annual rate of about 1.2 percent a year, very much a case of "Divergence, Big Time" (Pritchett 1997).

Table 2. India: Unconditional State-Level Convergence

Period	1960s and 19 70s	1970s and 1980s	1980s and 1990s	1960s, 1970s, 1980s, and 1990s
Initial income	0.006	0.008	0.011	
	1.15	1.34	2.04	
1960s convergence dummy				0.008
				1.75
1970s convergence dummy				0.007
				1.65
1980s convergence dummy				**0.011**
				2.71
1990s convergence dummy				**0.011**
				2.88
R-square	0.04	0.04	0.09	0.38
No. of observationss	38	41	42	80

The surge in India's performance since the 1980s is also confirmed by cross-national evidence. Table 3 provides basic data on the average growth rates and their volatility for the four decades since the 1960s for India, China, and the other regional groupings (Bosworth-Collins, 2003). For the period, 1960-80, India's growth rate of output per worker, at 1.3 percent per year, is the lowest in the world except for sub-Saharan Africa. For the next two decades, however, its average growth exceeds, by a substantial margin, all other regions, except East Asia.

Table 4 presents simple Barro-type cross-country growth regressions for the periods 1960-80 and 1980-99, using the data in Bosworth and Collins (2003). Two measures of growth performance—labor and total factor productivity—are regressed on a standard set of controls, including the convergence term. We introduce an India dummy in all these regressions to capture India's performance relative to the average country in the sample.

Table 3. India in the Cross Section: Mean and Volatility of Growth Rate of Output per Worker, 1960–2000 1/

	1960-70	1970-80	1980-90	1990-2000	1960-80	1980-2000	1960-2000
Industrial Countries							
Mean	4.12	2.12	1.54	1.47	3.12	1.51	2.34
Standard deviation	2.26	2.61	1.98	2.06	2.71	2.08	2.63
Coefficient of variation	0.55	1.23	1.29	1.41	0.87	1.38	1.13
East Asia (including China)							
Mean	4.19	4.11	4.15	3.98	4.15	4.07	4.11
Standard deviation	3.99	2.80	3.24	3.91	3.69	3.74	3.98
Coefficient of variation	0.95	0.68	0.78	0.98	0.89	0.92	0.97
China							
Mean	1.66	2.82	6.86	8.85	2.24	7.85	5.05
Standard deviation	12.45	3.40	3.59	2.37	8.90	3.13	7.17
Coefficient of variation	7.50	1.20	0.52	0.27	3.97	0.40	1.42
Latin America							
Mean	2.38	1.69	(1.65)	0.83	2.03	(0.48)	0.81
Standard deviation	3.47	4.00	4.40	3.03	4.07	4.17	4.43
Coefficient of variation	1.46	2.36	(2.66)	3.66	2.00	(8.70)	5.47
India							
Mean	1.91	0.77	3.91	3.22	1.34	3.57	2.45
Standard deviation	3.24	4.16	1.87	2.05	3.68	1.94	3.11
Coefficient of variation	1.69	5.40	0.48	0.64	2.74	0.54	1.27
Africa							
Mean	1.87	0.69	(0.47)	(0.03)	1.28	(0.26)	0.53
Standard deviation	5.41	5.25	4.48	4.48	5.54	4.89	5.55
Coefficient of variation	2.90	7.56	(9.53)	(170.29)	4.33	(18.85)	10.47
Middle East 2/							
Mean	4.61	3.47	1.81	1.19	4.04	1.51	2.81
Standard deviation	5.83	6.64	3.42	2.77	6.55	3.21	5.44
Coefficient of variation	1.26	1.91	1.89	2.33	1.62	2.12	1.94

Sources: Bosworth and Collins (2003); and authors' calculations.

1/ All regional aggregates are unweighted averages.

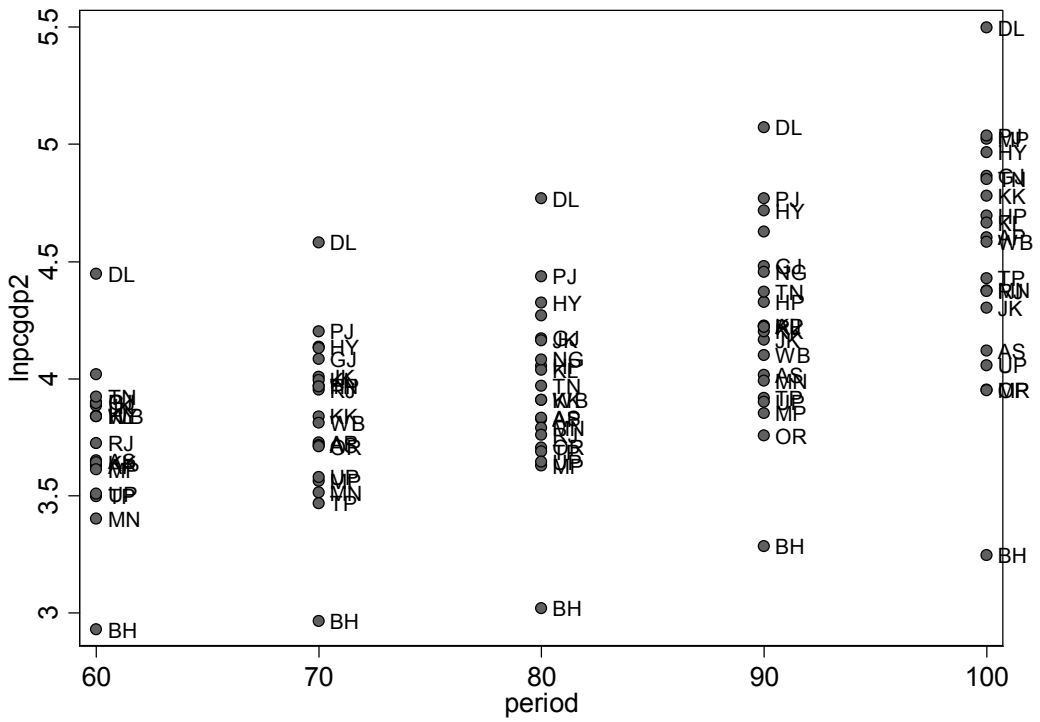
2/ Excludes Jordan.

Table 4. India's Growth in Comparative Perspective

	Labor Productivity		Total Factor Productivity	
Dependent Variable Period	1960-80	1980-99	1960-80	1980-99
Initial income	-7.24	-5.92	-3.28	-3.60
	-7.25	-5.28	-4.76	-4.59
Life expectancy	0.06	0.04	0.05	0.03
	2.84	1.27	2.56	1.22
Terms of trade	0.13	-0.01	0.11	-0.13
	2.13	-0.12	2.13	-1.67
Instability in terms of trade	-0.12	0.00	-0.08	-0.01
	-3.23	0.04	-2.38	-0.48
Budget balance	0.05	0.03	0.02	0.01
	0.79	0.56	0.36	0.38
Inflation	-0.01	-0.01	0.01	-0.01
	-0.44	-2.53	0.60	-2.29
Openness	0.53	2.03	0.12	0.82
	1.83	2.72	0.33	1.59
Geography	0.34	0.33	0.03	0.20
	2.08	1.11	0.15	0.98
Institutions	2.94	5.19	0.93	4.41
	2.07	2.94	0.70	3.33
India dummy	**-1.72**	**2.99**	**-0.71**	**2.11**
	-5.35	**4.74**	**-2.08**	**4.63**
R-square	0.65	0.61	0.36	0.57
No. of observations	73	73	73	73

Note: For description of variables, see Bosworth and Collins (2003).

Figure 2. Real Per Capita Net State Domestic Product, 1960–2000
(at 1993–94 prices)



For both productivity measures, the coefficient on the India dummy is negative and significant for the 1960-80 regressions but turns positive and significant for the period 1980-99. The TFP regressions suggest that, after controlling for policies, endowments, and initial income, India grew 0.7 percent per year slower than the average country in the 1960-80 period, but grew 2.1 percent per year faster than the average country in the 1980-99 period. These results indicate that India's turnaround is not a consequence of merely catching-up. In the cross-section, the magnitude of over-performance in the latter period has been substantial and exceeds the magnitude of under-performance in the 1960-80 period.

Table 3 also sheds light on the variability of India's growth in the various decades in absolute and relative terms. India's growth has not been more variable than other developing regions in the period 1960-80: indeed, it has the lowest standard deviation amongst all regions although the coefficient of variation is higher than for the Middle East, Latin America, and Asia. Between 1980 and 1999, however, India's growth exhibits the lowest variation in terms of both the standard deviation and the coefficient of variation. Thus, India outperformed all regions, save East Asia, in terms of average growth, and outperformed all regions, including East Asia, in terms of the stability of growth.[11] Interestingly, and contrary to some claims, Indian growth was more stable in the 1980s than in the 1990s.

A really striking feature about the Indian performance that emerges from the cross-national comparison is the respective contributions of capital accumulation and total factor productivity (TFP) growth to overall labor productivity growth (Table 5). Prior to 1980, the contribution of TFP growth to overall labor productivity growth, at 10 percent, was lower in India than in any other region, except the Middle East: even sub-Saharan Africa fared better. Since 1980, however, India almost tops the list for TFP contribution to overall growth. Nearly 60 percent of overall growth was accounted for by TFP, a feature matched only by China. Amazingly, the Indian TFP performance in 1980-99 surpasses that of East Asia even in the first twenty years of the East Asian miracle. Evidently, India has relied less on deferred gratification and more on productivity to motor its growth even compared to the fast-growing countries of East Asia. If productivity-based growth is more sustainable than accumulation-based growth, it would appear that India's future prospects appear quite promising.

[11] India's superior performance on the variability of growth in the 1980-99 period is confirmed in simple cross-section regressions (available from the authors upon request).

Table 5. Contributions to Growth: India In the Cross Section, 1960–99

Region/Period	Output	Output per Worker	Contribution of: Physical Capital	Education	Factor Productivity	Factor Productivity	Physical Capital
			In percentage points			In percent of total	
Industrial Countries							
1960–80	4.42	3.05	1.22	1.61	1.30	40	40
1980–99	2.68	1.60	0.78	0.98	0.64	40	49
1960–99	3.57	2.34	1.01	1.30	0.98	42	43
East Asia (incl. China)							
1960–80	5.64	2.98	1.45	1.93	0.96	32	49
1980–99	8.03	6.02	2.44	2.85	3.25	54	41
1960–99	6.80	4.45	1.93	2.38	2.07	46	43
China							
1960–80	4.04	1.83	0.76	0.43	0.64	35	41
1980–99	9.75	7.85	2.63	0.36	4.71	60	33
1960–99	6.78	4.72	1.66	0.39	2.60	55	35
Latin America							
1960–80	6.10	2.90	1.08	1.42	1.45	50	37
1980–99	2.20	-0.54	0.09	0.48	-1.02	189	-17
1960–99	4.18	1.21	0.60	0.96	0.24	20	49
India							
1960–80	3.41	1.28	0.72	0.43	0.12	9	56
1980–99	5.73	3.60	1.18	0.33	2.05	57	33
1960–99	4.53	2.40	0.95	0.38	1.06	44	39
Africa							
1960–80	4.36	1.78	1.06	1.21	0.66	37	59
1980–99	2.02	-0.70	-0.12	0.25	-0.93	134	18
1960–99	3.21	0.57	0.48	0.74	-0.12	-21	85
Middle East							
1960–80	5.71	3.14	2.74	3.25	0.28	9	87
1980–99	3.68	0.85	0.20	0.81	-0.08	-9	23
1960–99	4.71	2.02	1.50	2.06	0.11	5	74

Source: Bosworth and Collins (2003)

III. EXPLANATIONS THAT DON'T WORK

What explains the dramatic rise in India's growth, and in particular its productivity, performance since 1980? In this section, we discuss a number of explanations that could explain this turnaround, including those that have been put forward by recent studies. For the most part, we argue that these explanations are inadequate or unsatisfactory in some way. In Section IV, we propose some alternative hypotheses for which we provide some direct and indirect evidence.

India's performance in the 1980s has elicited a number of distinct explanations. We consider each in turn.

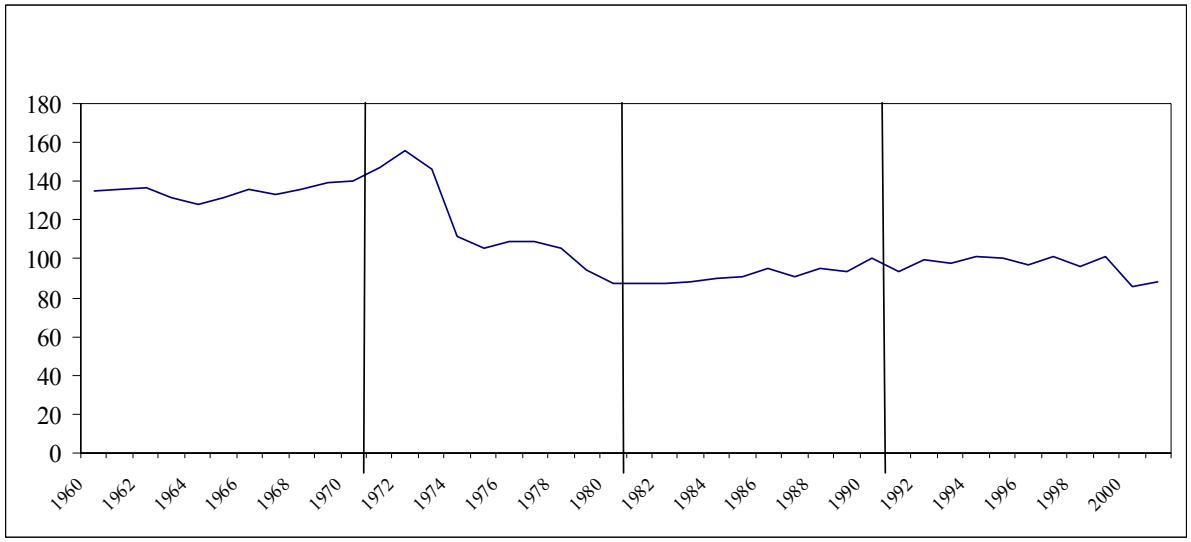
A. Was It a Favorable External Environment?

The first explanation that we need to consider is whether the improved productivity performance was simply a consequence of a more favorable external environment. There is very little to suggest that such a factor was at play. On the whole, the 1980s did not present a hospitable environment for developing countries, something that can be readily gauged by the slowdown in growth pretty much everywhere (with the notable exception of China).[12] The long decline in industrial country productivity began with the oil shocks of the 1970s. Figure 3 plots the temporal evolution of India's terms of trade, which is a gauge of external environmental conditions. It turns out that since 1960, the terms of trade were most unfavorable for India in the 1980s, during which period they declined by about 20 percent relative to the previous period. This, of course, only serves to deepen the mystery of the 1980s productivity performance because it appeared to have occurred at a time when exogenous external conditions were most adverse.[13]

[12] For example, the real price of oil was 15 percent higher in the 1980s than in the 1970s (and nearly 75 percent higher than in the 1990s); and industrial country growth averaged 3.5 percent in the 1970s versus 3.2 percent in the 1980s.

[13] By the same token, the 1990s productivity performance looks less impressive.

Figure 3. India: External Terms of Trade 1960–2000
(Index, 1980=100)



B. Aggregate Demand and Unsustainability of 1980s Growth

A common argument used in downplaying the growth of the 1980s is that it was led by fiscal expansion and hence unsustainable. This view is expressed clearly, for example, in Ahluwalia (2002) and Srinivasan and Tendulkar (2003).[14]

"This (the 1990s) growth record is only slightly better than the annual average of 5.7 percent in the 1980s, but it can be argued that the 1980s growth was unsustainable, fuelled by a buildup of external debt that culminated in the crisis of 1991. In sharp contrast, growth in the 1990s was accompanied by remarkable external stability despite the east Asian crisis." (Ahluwalia, 2002, p. 67).

"The fiscal expansionism of the 1980s, accompanied by some liberalization of controls on economic activity, generated real GDP growth of more than 5.8 percent a year. This expansionism, however, was not sustainable and led to the macroeconomic crisis of 1991. (Srinivasan and Tendulkar, 2003, p. 9).

This Keynesian-run-amok explanation is, at first blush, supported by the data. During the 1970s, the average consolidated government deficit averaged 5 percent of GDP. During the 1980s, this had soared to 9 percent, an annual increase of 4 percentage points. But the fiscal expansion has

[14] See also Chopra and others (1995).

two distinct consequences, relating respectively to its unsustainability and its impact on productivity, which the quotes above fail to distinguish. Indeed, the two consequences work at cross-purposes with each other.

Fiscal expansion can lead to rising current account deficits, and hence to a build-up of external debt which in the Indian case proved to be unsustainable, triggering the crisis of 1991. But the more this happens, i.e., the more the fiscal expansion "leaks abroad" and leads to a debt build-up, the less the demand that is generated for domestic goods and services, and the less likely that measured productivity increases could have resulted. It is because the current account deficit did not deteriorate one-for-one relative to the fiscal impulse (the current account deficit was about 1.7 percentage points higher during the 1980s than the 1970s), that the demand explanation has potential traction for explaining productivity growth.

The component of fiscal expansion that leads to increased demand for domestic goods and services, can explain output growth over short periods, strictly speaking relative to trend, but it is not clear how it can explain a large and sustained rise in *trend productivity*. The only possible explanation would rely on sustained differences in capacity utilization across time. A demand expansion can then increase output, which in the presence of idle capacity, would also show up in the measured productivity aggregates. One way to control for such a demand-induced increase in productivity is to compute the productivity aggregates incorporating changes in capacity utilization. In the Indian case, this argument would suggest that the TFP measures for the 1970s and 1980s should be corrected for capacity utilization.

Data on capacity utilization in Indian manufacturing for the period under consideration are produced by different sources and are difficult to reconcile. For example, for the 1970s, the World Bank (1995) reports an estimate of 72.7 percent while Ahluwalia's (1990) numbers yield an estimate of 77.6 percent. Estimates for the 1980s are similarly dispersed. One consistent estimate for the 1970s and 1980s (World Bank, 1995) implies an increase in capacity utilization of about 2.7 percent, which would have the effect of reducing measured TFP growth in the 1980s by about 1 percent per year.[15] Even on the strong assumption that all this change in capacity is demand-induced, the turnaround in TFP growth between the 1970s and 1980s would remain substantial (about 2-2.2 percent per year). Of course, the turnaround in labor productivity growth would remain unaffected by changes in capacity utilization.

More broadly, however, the explanation of increased demand is likely to be unsatisfactory or incomplete because the break in the 1980s that we have presented (i) related to a number of productivity aggregates, and not just at aggregate but also at the level of the states; (ii) appeared to hold not just in a time series context for India but also in the cross-section; and (iii) even on the most favorable interpretation, cannot account for a large share of the turnaround. A lot remains unexplained.

[15] Effectively, the contribution of capital accumulation to labor productivity growth is increased by an amount equal to the percentage increase in capacity utilization multiplied by the share of capital in output (assumed to be 0.35).

C. External Liberalization

Was the pickup in India's trend productivity growth in the 1980s caused by external liberalization? We present below evidence—relating to trade policies and trade outcomes—which paint a remarkably consistent picture of little, if any, liberalization taking place during the 1980s, significant liberalization taking place in the 1990s, with its full effects being felt in the late 1990s.

Table 6 below, based on Das (2003), presents data on the actual trade policy reform that was carried out since the early 1980s. We can see that during the early 1990s, trade protection declined unambiguously and markedly. However, during the 1980s, protection through tariffs (measured in terms of effective protection) increased, and protection through quantitative restrictions (measured in terms of the coverage of these restrictions) declined only marginally. This is true for manufacturing as a whole and for the different use-based sectors. It is important to note here that these numbers likely understate the increase in effective protection for final/consumer goods for much of the 1980s and 1990s stemming from the liberalization, albeit limited, of the capital goods sector.

Table 6. India: Measures of Trade Protection, 1980–2000

	1980–85	1986–90	1991–95	1996–2000
All Industries				
Average effective rate of protection	115.1	125.9	80.2	40.4
Import coverage ratio	97.6	91.6	38.0	24.8
Import penetration rate	10.0	11.0	12.0	16.0
Intermediate Goods				
Average effective rate of protection	147.0	149.2	87.6	40.1
Import coverage ratio	98.3	98.3	41.8	27.6
Import penetration rate	11.0	13.0	15.0	18.0
Capital Goods				
Average effective rate of protection	62.8	78.5	54.2	33.3
Import coverage ratio	95.1	77.2	20.5	8.2
Import penetration rate	12.0	12.0	12.0	19.0
Consumer goods				
Average effective rate of protection	101.5	111.6	80.6	48.3
Import coverage ratio	98.7	87.9	45.7	33.4
Import penetration rate	4.0	4.0	4.0	10.0

Source: Das (2003).

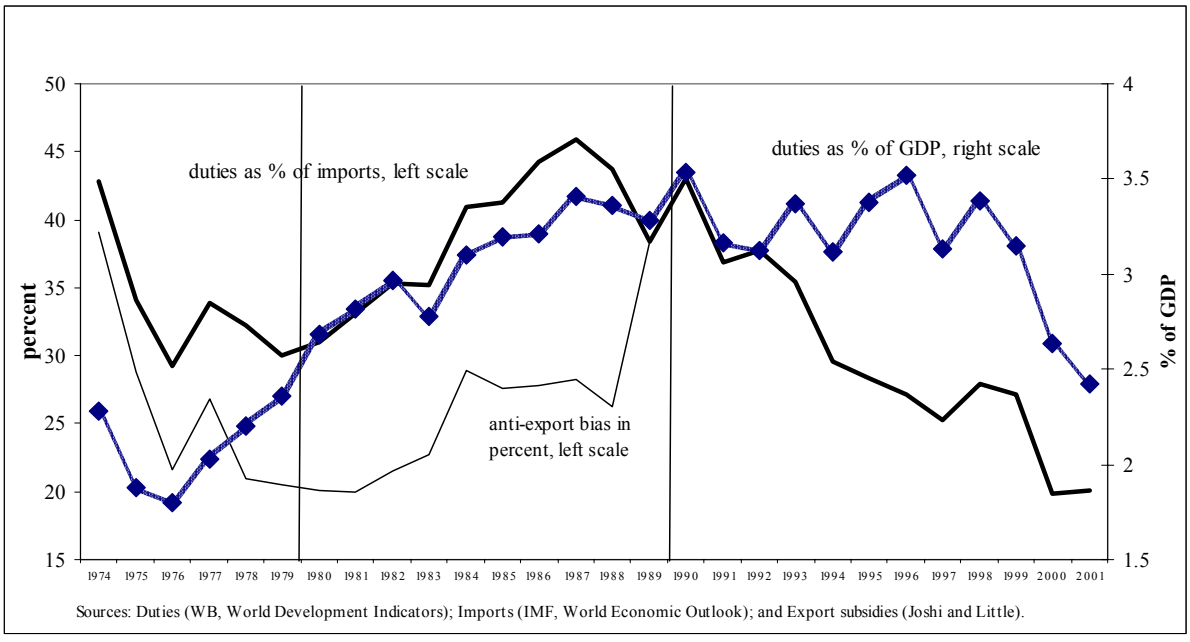
This broad pattern of trade policy reform is confirmed by the data on tariff collections and by data related to trade outcomes. Figure 4 illustrates that duties collected as a share of imports and GDP rose substantially during the 1980s, peaking in the early 1990s. Duty collection as a share of imports rose from over 30 percent in the early 1980s to nearly 45 percent in the late 1980s. As a share of GDP, duty collections declined steadily only after the mid-1990s. The Figure also computes a broader measure of trade protection—the anti-export bias—which incorporates the export subsidies granted to manufacturing under various schemes. Incorporating export subsidies reduces the *level* of protection but confirms the pattern of sharply rising protection during the 1980s. In 1991, the important export subsidies were eliminated, which imparted a one-off increase to the level of overall protection.

The pattern of trade outcomes is also consistent with the pattern of trade protection (see Figure 5 and table below).

Trade Outcomes

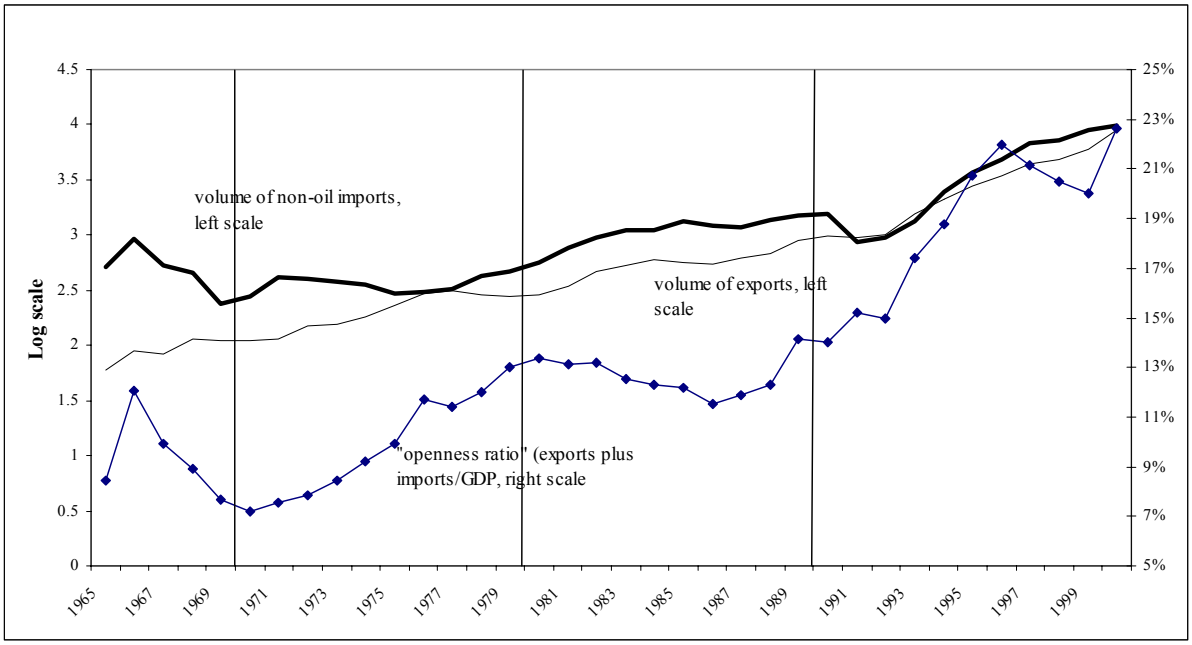
	1970s	1980s	1990s
		(In percent)	
Annual growth of non-oil import volume	1.1	2.8	12.9
Annual growth of export volume	4.6	4.0	10.7
Openness ratio	9.8	12.7	19.3

Figure 4. India: Customs Duties Collections and Anti-Export Bias, 1974–2001



Sources: Duties (WB, World Development Indicators); Imports (IMF, World Economic Outlook); and Export subsidies (Joshi and Little).

Figure 5. India: Evolution of Merchandise Trade, 1960–2000



Source: IMF, *World Economic Outlook.*

Crude outcome indicators such as the openness ratio tell a story of modest increases in openness during the 1970s and 1980s of 1.5 and 2.2 percentage points, respectively over the preceding decades followed by a more dramatic increase of 6.6 percentage points in the 1990s. The same is true for import and export volumes: export volumes grew at a slower pace in the 1980s than in the 1970s.

These indicators have the usual problem of leaving open the question of the causes of the increase in openness. A more sophisticated way of assessing trade outcomes is to use a gravity model, which controls for many of the possible determinants of trade. Table 7 presents the estimated coefficients for India and China dummies in gravity estimations for the period 1980 to 2000 based on the dataset and methodology used in Subramanian and Wei (2003). The India dummy is negative and significant for all periods except in 2000, with the value of the dummy increasing in absolute value through the 1980s, and starting to decline only in the mid-1990s, consistent with the timing of the trade policy reform. If the results are to be taken at face value, they suggest that India only become a normal trader in 2000. In contrast, the China dummy is positive and significant for most of the 1980-2000 period.

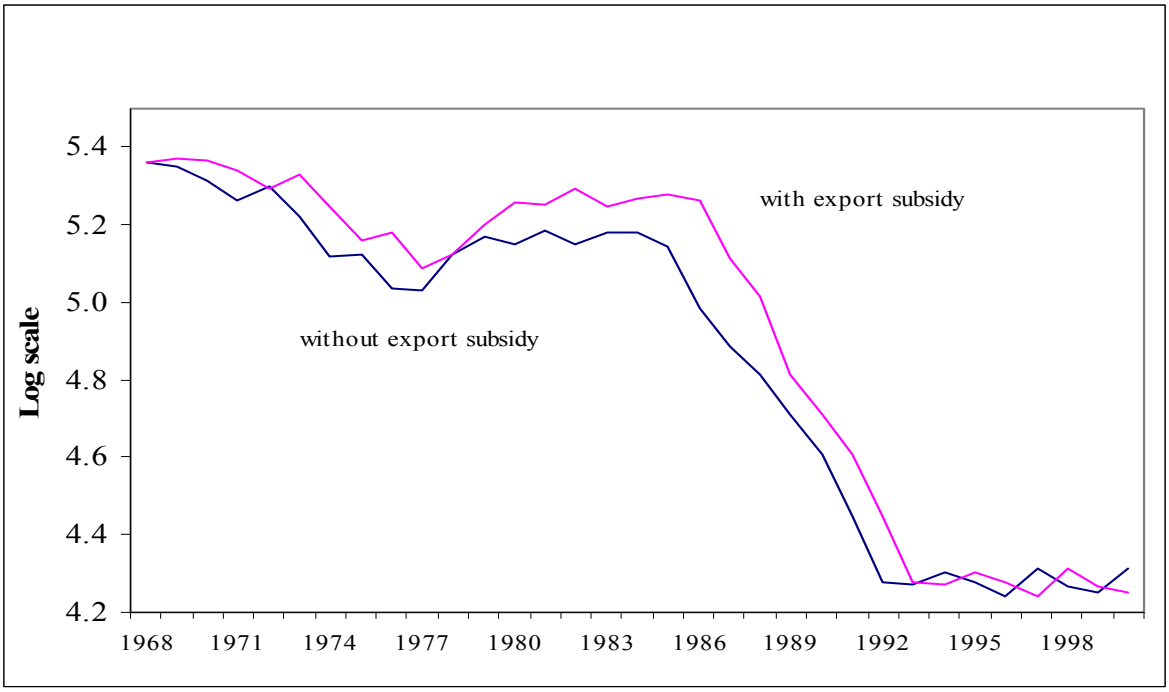
Table 7. Gravity Model Results of Trade Outcome for India and China

	1980	1985	1990	1995	2000
India	-0.39	-0.49	-0.82	-0.68	0.04
	0.13	0.13	0.15	0.12	0.10
China	0.52	0.39	0.39	-0.30	0.71
	0.15	0.12	0.14	0.13	0.12

Source: Based on data in Subramanian and Wei (2003).
Note: Standard errors below coefficients. Coefficient estimates for the standard covariates not reported.

External liberalization could also encompass exchange rate changes that could have an impact on trade and productivity. Figure 6 depicts the movement in India's real exchange rate since 1970. After remaining broadly unchanged during the first half of the 1980s, the rupee experienced a large real depreciation of over 40 percent in the second half of the 1980s. Could this have caused the productivity spurt? In terms of timing, the real depreciation followed the pick-up in productivity growth in the early 1980s. But could it have contributed to sustaining this spurt in the late 1980s?

Figure 6. India: Real Effective Exchange Rate, 1968–2000



Source: IMF's Information Notice System.

We would argue that exchange rate changes are an unlikely candidate. First, a real depreciation boosts aggregate demand and while it could have increased output growth in the short-term, its consequences for raising long-run productivity growth are less clear. Of course, a real depreciation could have an effect on overall productivity through an import substitution-induced reallocation effect: if tradables are generally more productive than the rest of the economy, raising the share of tradable goods in overall GDP can result in an economy-wide productivity increase. In India, the share of manufacturing in GDP is small, and more importantly, the increase in this share in the aftermath of the real depreciation was too small to help explain overall productivity growth.[16]

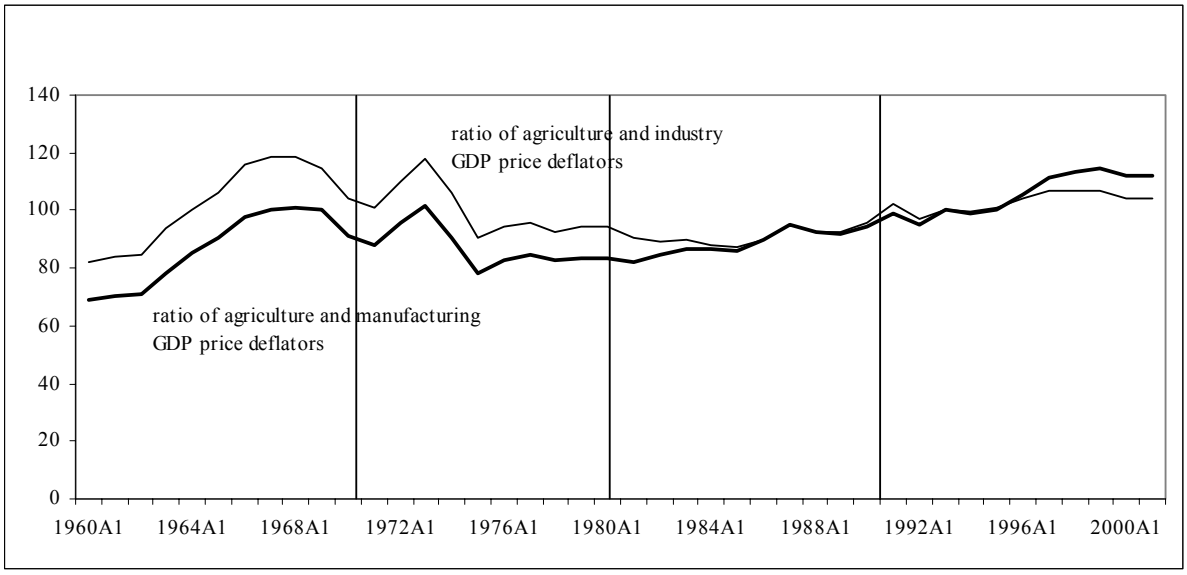
D. Was It the Green Revolution?

Another possible explanation for the growth pickup in the 1980s is agriculture, which witnessed an increase in labor productivity growth from 0.1 percent in the 1970s to 2.6 percent in the 1980s. The difficulty with agriculture as the source of the improvement in overall performance is fourfold. First, in quantitative terms, the turnaround in agriculture's performance was actually less impressive than that in manufacturing and services, where the acceleration in productivity growth was actually larger. Second, if rising agricultural productivity were the underlying cause for improved productivity performance elsewhere in the economy, a necessary condition that would have to be met is a deterioration in the agricultural terms of trade. This classic "Preobrazhensky effect" relies on improved productivity driving down agricultural prices and releasing resources for use in manufacturing. But as Figure 7 illustrates, quite the converse happened. During the 1980s, the terms of trade of agriculture with respect to industry and manufacturing actually improved. Moreover, as we showed above, the sectoral reallocation brought about by improved agricultural productivity performance would be too small to explain improvements in overall productivity. Third, recent work by Burgess and Venables (2003) and Foster and Rosenzweig (2003) shows that agricultural productivity plays a comparatively small role in explaining the interstate variation in total, urban, and surprisingly, even rural poverty.[17] It is nonfarm productivity that appears to be the driver of aggregate outcomes. Finally, in our econometric analysis described below, we too found no evidence of a role for agriculture in explaining the overall productivity improvement.

[16] Between 1986 and 1992, the share of manufacturing in GDP remained unchanged at about 16 percent.

[17] At the level of the states, agricultural growth and overall growth are negatively correlated.

Figure 7. India: Agriculture's Terms of trade, 1960–2001



Source: World Bank's World Development Indicators.

E. Was It Public Investment?

The period between the late 1970s and the late-1980s witnessed a marked rise in public investment of about 4 percentage points of GDP (Figure 8). Could this have played a role in accounting for the 1980s productivity performance? It should be emphasized that the impact of public investment via its demand-creating effects cannot be an explanation for reasons outlined in Subsection A above. But public investment could have augmented the supply capacity of the economy through its spillover effects.

A useful framework for analyzing the growth or productivity-enhancing role of public investment is provided by Barro (1990). Conceptually, certain government services (notably those related to infrastructure) have a productive role if they are inputs in private production. This can be incorporated in a standard Cobb-Douglas production function to yield:

$$Y/K = A\,(G/K)^{\alpha} \qquad (1)$$

where Y and K are expressed in per worker terms. G is the flow of government services in infrastructure (i.e., excluding output of government enterprises). The parameter α is the productivity of public services relative to private services (which should theoretically be close to the average tax rate, about 15 percent in the case of India). In turn, this yields the growth accounting decomposition:

$$y - k - a = \alpha/(1- \alpha)\ (g/y) \qquad (2)$$

where the lower case variables are the proportional rate of growth analogues of the underlying variables. This equation makes clear that the standard growth accounting decomposition could overestimate total factor productivity growth if the spillover effects of government investment are ignored. Given data on government investment, we can compute the possible contribution of government services to overall growth for given values of α. The results of this exercise are illustrated in Tables 8A and 8B. Under the assumption that the effects of public investment are contemporaneous or that only the infrastructure component of public investment is productivity enhancing, we estimate that the contribution of public investment to overall growth is quite small (0.2-0.3 percent). If, on the other hand, the effects are lagged (by say 5 years), public infrastructure investment, and especially total public spending, could explain a substantial part of overall growth (1.5-2.9 percent). The bottom line is that the surge in public investment could in principle explain India's growth in the 1980s, but only if we make an appropriate assumption about the nature of the lags between public investment and its productivity-enhancing effects.

F. Was It "Internal" Liberalization?

A promising candidate for explaining the 1980s turnaround is what in India is called "internal liberalization." This relates to the dismantling of the vast controls on domestic investment and competition implemented through a Kafka-esque array of licenses, regulations and other forms of control.

We discuss these in greater detail below, but for the purposes of our narrative it is enough to note at this stage that the timing and magnitude of internal liberalization are not quite compatible with a productivity take-off in the early 1980s. Indeed, contemporaneous accounts of these internal reforms make clear the limited range of liberalization that was attempted. In what is probably the best account of this period, Joshi and Little (1994, pp. 71–72) express this sentiment as follows:

Table 8a. India: Growth of a Public Investment Ratio
(In percent)

		Rate of Growth of G/Y			
		Contemporaneous		Lagged 5-years	
	TFP growth	Infrastructure	Total public	Infrastructure	Total public
1961-70	0.7	3.2	-1.5		
1971-80	-0.5	3.9	5.1	-0.5	-5.7
1981-90	2.5	-1.0	0.9	1.3	8.6
1991-2000	1.6		-3.7		-2.2

Table 8b. Estimates of Contribution of Public Capital to Total Factor Productivity

		Contribution of Public Capital to TFP Growth							
		Contemporaneous				Lagged five-years			
	TFP growth	Infr. 1/	Total Pub. 2/	Infr. 1/	Total Pub. 2/	Infr. 1/	Total Pub. 2/	Infr. 1/	Total Pub. 2/
	Bosworth-Collins	alpha=0.25		alpha=0.15		alpha=0.25		alpha=0.15	
1961–70	0.7	1.1	-0.5	0.6	-0.3				
1971–80	-0.5	1.3	1.7	0.7	0.9	-0.2	-1.9	-0.1	-1.0
1981–90	2.5	-0.3	0.3	-0.2	0.2	0.4	2.9	0.2	1.5
1991–2000	1.6		-1.2		-0.7		-0.7		-0.4

Sources: Authors' calculations. Infrastructure spending data are from (Joshi and Little, 1994, Table 13.7)

Note: Data on total public investment are from Joshi and Little (1994) for 1961–70 and from the IMF's *World Economic Outlook* for 1971–2000.

1/ Government spending on infrastructure

2/ Total public spending

"In summary, liberalization in our period (1964/65-1990/91) consisted of little more than the piecemeal deregulation of industrial licensing and the introduction of a measure of exchange rate flexibility. These changes were not trivial and did improve economic performance. But ideology and vested interests prevented any significant action in the more difficult areas such as trade liberalization, financial liberalization, and reform of the labor market and public sector enterprises."

Srinivasan and Tendulkar (2003, p. 2) imply the same when they talk of the "*shift in 1991* from an inward-oriented, state-led development strategy to a policy of active reintegration with the world economy" (our italics).

Others have, however, drawn attention to the important steps taken between 1985 and 1988, under Rajiv Gandhi, to dismantle the industrial licensing system in India. We shall describe these in greater detail below but a rough magnitude of the importance of these steps can be gauged by the assessment that in 1991, prior to the sweeping deregulatory effort, between 60 percent and 80 percent of industry was still subject to licensing and controls.[18] Thus, the magnitude of the reform effort not only seems modest, but it also lags behind the turnaround in the productivity surge.

IV. Possible Explanation

So what explains the Indian growth take-off in the early 1980s? In this section, we propose an alternative explanation and offer some econometric evidence in support. First, a few points on our data set and approach, which rely largely on exploiting variations in performance between the 21 states for which we have data. Accordingly, we use state-level data for the period 1960-2000 which is disaggregated by 17 sectors in the national income accounts. For one of these sectors—manufacturing—data are also available for the output of the registered and unregistered sectors. These data have been compiled and recently released by the Economic and Political Weekly Research Foundation.

We created a panel dataset with variables defined for four decades—1960s, 1970s, 1980s and 1990s. Since we are interested in changes in impact across these decades, particularly in the 1980s, we interacted the explanatory variables with the appropriate decadal dummies. Data on the political variables were gathered from the website of the Election Commission of India (http://www.eci.gov.in/infoeci/key_stat/keystat_fs.htm) and supplemented by state-level sources.

[18] The 60 percent estimate is due to Chopra and others (1995, Table 7.6, p. 60), while the 80 percent estimate is due to Hasan (1997, p. 27). Also, data compiled by Balakrishnan and Babu (2003) suggest that gross margins in industry did not decline in the 1980s relative to the 1970s.

Our explanation comprises four elements. First, that there was an attitudinal change on the part of the government in the 1980s, signaling a shift in favor of the private sector, with this shift validated in a very haphazard and gradual manner through actual policy changes. Second, this shift and the limited policy changes were probusiness rather than procompetition, aimed primarily at benefiting incumbents in the formal industrial and commercial sectors. Third, these small shifts elicited a large productivity response because India was far away from its income possibility frontier. Finally, manufacturing, which was built up through previous efforts, played a key role in determining the responses to the shifts.

We posit that sometime in the early 1980s there was a significant attitudinal change towards the private sector on the part of the national government, led by Indira Gandhi's Congress Party. Congress went from being hostile to private business[19] to mildly supportive, and eventually quite supportive. This change was inaugurated with the return of a much-chastened Indira Gandhi to political power in the 1980s after a three-year rule by the Janata party. It gathered momentum (after her assassination) under Rajiv Gandhi. The transformation has some antecedents in the 1970s, as reflected for example in the appointment of a high-level committees to propose changes to the trade regime and to industrial licensing. One important manifestation of this change, noted by Joshi and Little (1994), was the fact that import controls were *not* tightened in the wake of the balance of payments crisis in 1979/80.

But the attitudinal change was grounded primarily in political calculation, and not in a desire to enhance the efficiency of the economic regime. As Kohli (1989) notes, Indira's main objective was to counter the perceived threat posed by the Janata party, which had trounced Congress in the Hindi heartland in the 1977 elections. Her political rhetoric consequently became less secular and populist and more communal and private-sector oriented. In Kohli's words, "in India's political culture … the two packages of secularism and socialism and Hindu chauvinism and probusiness have tended to offer two alternative legitimacy formulae for mobilizing political support" (1989, 308). After 1980, Indira dropped the first package in favor of the second. From our perspective, what is particularly important is that Indira now actively sought to woo the business and industrial establishment.

As we have already noted, there were few significant policy changes in the early 1980s, and the changes later on (beginning in 1985) were restricted largely to some internal liberalization relating to the relaxation of industrial licensing. The limited nature of these changes, as well as the form that they took, is best understood by appreciating the political logic of Indira's (and later Rajiv's) efforts. These were aimed to gather support from the business establishment rather than to alienate them. Hence there was more action where business support existed—for example, in reducing taxes, easing access to imported capital inputs, or liberalizing capacity restrictions—than where it did not—for example, in external liberalization.

[19] Basu (2003) describes the general attitude of mistrust towards business in post-colonial India, tracing it back to India's experience with the East India Company and the trader mentality of the colonial rulers.

As we have noted, most observers agree that the actual policy framework did not change significantly until 1991. That is why we describe the shift as an "attitudinal" one, having to do with the government's attitude towards business and the private sector, rather than as policy reform per se. This shift had more to do with currying favor with existing business interests (essentially large, politically influential firms in the formal manufacturing sector) than with liberalizing the system as a whole.

We explore the implications of the first two elements of our explanation: if the causal mechanism is a shift in the attitudes of the national government, we should see differences in growth rates depending on the nature of the political alliance between state governments and the national government. In particular, growth post-1980 should be more pronounced in states where the ruling government was in alliance with the national government (mostly Congress in this period) than where it was not. To test for this, we coded state governments according to the party in power and constructed variables for each of the decades depending on the number of years the party ruling in a state was either the same as, or had an alliance with, the party in power at the centre. Table 9 displays the results.

As column 1 shows, states that were allied with the national government had growth rates in the 1960s and 1970s that were indistinguishable from others.' This changes dramatically in the 1980s and 1990s—when states allied with the national government had dramatically higher growth rates.[20] We would expect the change in policy attitudes to have a particularly marked effect on the formal sectors of the economy because as explained above both the attitudinal and policy shifts were in their favor. So in column 3 we look more narrowly at the growth of registered manufacturing. As expected, states that were allied with the national government had significantly higher growth rates in registered manufacturing in the 1980s.[21] Column 4 analyzes the difference between growth rates in registered and unregistered manufacturing, on the theory that an attitudinal shift towards business should have a larger impact on registered than unregistered businesses.[22] Once again, we find this intuition confirmed: states that were allied with the national government experienced differentially higher growth rates in registered manufacturing.[23]

---

[20] This result holds whether the political variable is defined as parties being allied to that in the centre or as being the same as that in the centre.

[21] Column 2 reports results when this political variable is interacted with the share of registered manufacturing. Again the coefficients for the 1980s and 1990s are positive and significant.

[22] The differential between the growth of the registered and unregistered sectors in aggregate was 4.3 percent in the 1980s compared with 1.7 percent in the 1970s.

[23] Interestingly, in the equation for registered manufacturing and for the difference in growth between registered and unregistered manufacturing, the political variable for the 1990s ceases to be significant. This suggests that the impact of the 1990s liberalization was broader than that in the 1980s.

Table 9. India: Attitudinal Shift 1/

Dependent variable	Growth rate of per capita domestic product		Growth rate of registered manufacturing	Difference in growth between registered and unregistered manufacturing
Initial income	0.011	0.009		
	2.53	*1.92*		
State party allied with Centre 60	0.000		0.029	0.027
	0.01		*1.51*	*1.40*
State party allied with Centre 70	-0.006		0.015	-0.002
	-0.85		*0.57*	*-0.08*
State party allied with Centre 80	0.021		0.097	0.058
	2.68		***3.07***	***2.09***
State party allied with Centre 90	0.027		0.004	-0.035
	2.48		***0.10***	***-1.17***
Initial level of registered manufacturing			-0.005	-0.008
			-1.28	*-1.98*
Party share of registered manufacturing 60*		-0.077		
		-0.94		
Party share of registered manufacturing 70*		-0.151		
		-1.73		
Party share of registered manufacturing 80*		0.266		
		2.48		
Party share of registered manufacturing 90*		0.241		
		3.04		
R square	0.41	0.40	0.23	0.29
No. of observations	58	58	59	59

Sources: Unless otherwise specified, data are from the Economic and Political Weekly Research Foundation.

Data on political parties compiled from (http://www.eci.gov.in/infoeci/key_stat/keystat_fs.htm)
and supplemented by state-level sources. T-statistics are reported below coefficient estimates.
1/ Asterisks indicate that the underlying variable has been interacted with the appropriate decadal dummy.

In addition to the differential impact on formal manufacturing, another suggestive piece of evidence in support of the proposition that the shift was probusiness comes from investment behavior. While aggregate private investment does not increase greatly in the 1980s, there is a striking shift in the early 1980s in private investment towards corporate sector investment (and away from the household sector, comprising largely unincorporated enterprises).

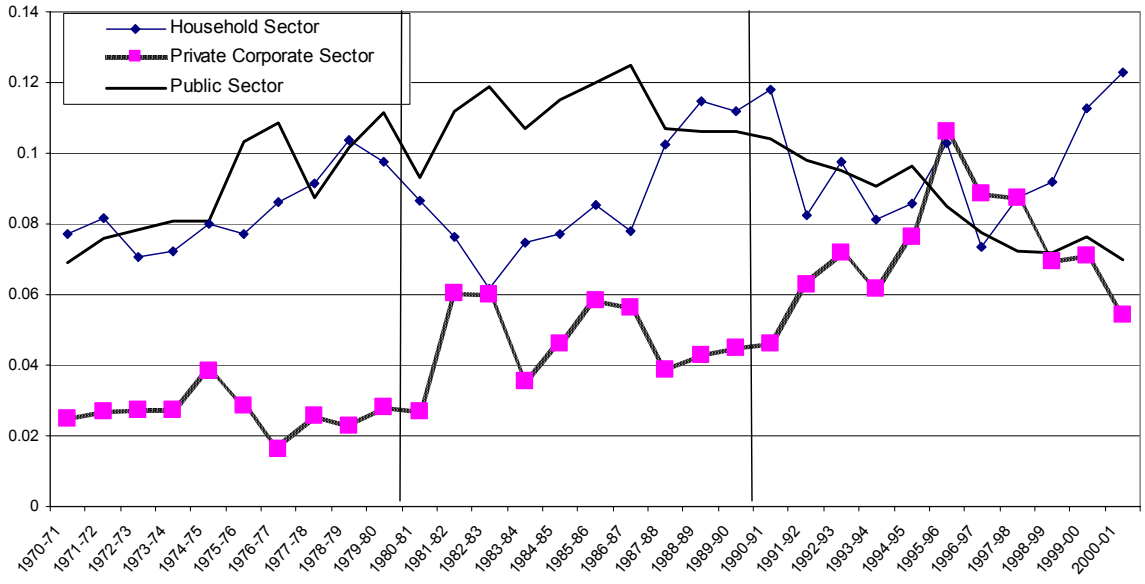
Figure 8 shows the corporate-sector investment rate rising by about 2-3 percentage points in the 1980s. It looks like the corporate form of investment became considerably safer sometime in the early 1980s.

Table 10. How Far Below Its Steady-State Income Is India?

Period	1980	1999	1980	1999	1980	1999	1980	1999
Geography	0.04	-0.07	0.03	-0.01	0.02	0.00	0.01	0.03
	5.19	*-1.51*	*2.74*	*-0.93*	*1.72*	*0.21*	*1.23*	*4.55*
Openness	0.27	-0.89	0.43	-0.54	-0.10	-0.54	-0.04	0.01
	1.07	*-1.18*	*0.66*	*-2.03*	*-0.28*	*-0.71*	*-0.17*	*0.03*
Economic institutions	0.51	2.60	1.53	1.47				
	4.32	*3.05*	*1.36*	*6.80*				
Political institutions					0.38	0.65	0.46	0.45
					3.24	*2.90*	*5.39*	*5.92*
India dummy	**-1.36**	**-1.40**	**-1.06**	**-1.33**	**-2.61**	**-2.34**	**-2.61**	**-1.69**
	-4.61	***-2.36***	***-1.28***	***-4.92***	***-4.59***	***-3.27***	***-6.82***	***-5.95***
Instrument for institutions	Settler mortality		EURFRAC, ENGFRAC		Settler mortality		EURFRAC, ENGFRAC	
No. of observations	48	66	76	114	58	58	91	91

Notes: For description of geography and openness variables and the instruments for institutions, see Rodrik and others (2002).
For 1980, economic institutions measured as the protection against expropriation in 1982 from ICRGE.
For 1999, economic institutions measured as in Rodrik et. al. (2002).
Political institutions are measures as the constraint on the executive.
T-statistics reported below coefficient estimates.

Figure 8. India: Investment Rates, by Sector
(Percent of GDP)



Source: Reserve Bank of India.

We turn next to the third element. Why did this apparently small trigger elicit such large productivity responses? It is worth noting at the outset that India was very far from its long run or steady-state level of income given the level of its domestic institutions. If the recent literature's emphasis on the importance of institutions on development is correct, India appears to be far inside the possibility frontier. Table 10 illustrates this under-achievement. It reports regressions of income on the deep determinants of income (based on Acemoglu, Johnson, and Robinson, 2001, and Rodrik, Subramanian, and Trebbi, 2002) with an India dummy.

The first four columns report results where the institutional variable is economic while the last four columns contain political institutions as the relevant determinant of long run income. The estimated coefficient on the India dummy in both sets of regressions is negative and significant, suggesting that India is an outlier. The magnitude of the dummy coefficient is large: for example, column 1 suggests that in 1980, India's level of income was about a quarter of what it should be given the strength of its economic institutions. On the other hand, if political institutions are the true long-run determinant of income, India's income is about 15 percent of what it should be. India has thus been a significant under-achiever in the sense that it has not exploited the potential created by having done the really hard work of building institutions.

Next we turn to the role of manufacturing, and in particular registered (or formal) manufacturing, in mediating the changes. We begin by noting a very strong regularity in the data: starting in the 1980s, it is states with the largest formal manufacturing base ("registered manufacturing") that take off. Figure 9 shows how the simple correlation between growth and the share of registered manufacturing in total output, which is weakly negative in the 1970s (rho=-0.08), turns significantly positive in the 1980s (rho = 0.42). Table 11 tests this more formally. When we introduce state-level registered manufacturing shares in the growth regression and allow the coefficients to vary by decade, not only are the shares for 1980s and 1990s highly positive and significant, but also these variables can "knock out" the pure period dummies (see columns 1–2).[24] In other words, whatever it is that happened in the early 1980s, it stimulated growth primarily in states with high level of formal manufacturing activities.

We note also that this is not simply an artifact of the fact that it is the richer states that take off after 1980 (the richer ones also having in general larger manufactures shares). Column 4 shows that manufacturing shares are still significant for the 1980s, when period-specific convergence terms are added to the regression (while the latter are insignificant).

The importance of the registered manufacturing sector in the productivity surge is confirmed in the robustness checks that we report in Table 12. In columns 1–4, we check whether agriculture or infrastructure, which account for a larger share of output than registered manufacturing, play a similarly important role. Not only are these variables insignificant on their own, they are also unable to "knock down" the significance of the decadal dummies. In columns 5–7, we undertake a different kind of check on the role of manufacturing. If the mechanism by which manufacturing

[24] To minimize endogeneity-related problems, the beginning-period value of the share of registered manufacturing is used as the regressor.

Table 11. Role of Manufacturing in Productivity Surge 1/
(Dependent variable is annual per capita growth of state net domestic product)

Initial income	0.010	0.008	0.009	0.007	0.019	0.007
	2.64	*1.84*	*2.27*	*1.54*	*3.86*	*1.27*
70s dummy	-0.003	-0.002				
	-0.78	*-0.30*				
80s dummy	0.014	0.007				
	3.85	*1.14*				
90s dummy	0.013	0.005				
	2.61	***0.51***				
Initial income 70				-0.001		
				-0.37		
Initial income 80				0.002		
				0.94		
Initial income90				0.001		
				0.51		
Share of registered manufacturing 60		-0.046	-0.079	-0.050		-0.030
		-0.73	*-1.70*	*-0.73*		*-0.45*
Share of registered manufacturing 70		-0.050	-0.104	-0.044		-0.046
		-0.94	*-2.43*	*-0.81*		*-1.01*
Share of registered manufacturing 80		0.076	0.119	0.080		0.170
		1.79	*3.37*	*1.78*		*3.76*
Share of registered manufacturing 90		0.100	0.113	0.096		0.157
		1.44	***2.64***	***1.31***		***2.81***
Labor regulation 60					0.004	-0.001
					0.73	*-0.23*
Labor regulation 70					0.012	0.008
					2.14	*1.45*
Labor regulation 80					-0.008	-0.008
					-2.21	*-3.56*
Labor regulation 90					0.000	0.000
					0.05	*0.11*
R square	0.38	0.42	0.40	0.42	0.34	0.55
No. of observations	80	78	78	78	59	59

Sources: Unless otherwise specified, data are from the Economic and Political Weekly Research Foundation.

Note: T-statistics are reported below coefficient estimates. Data on labor regulation from Besley and Burgess (2002).
1/ Suffixes indicate that the underlying variable has been interacted with the appropriate decadal dummy.

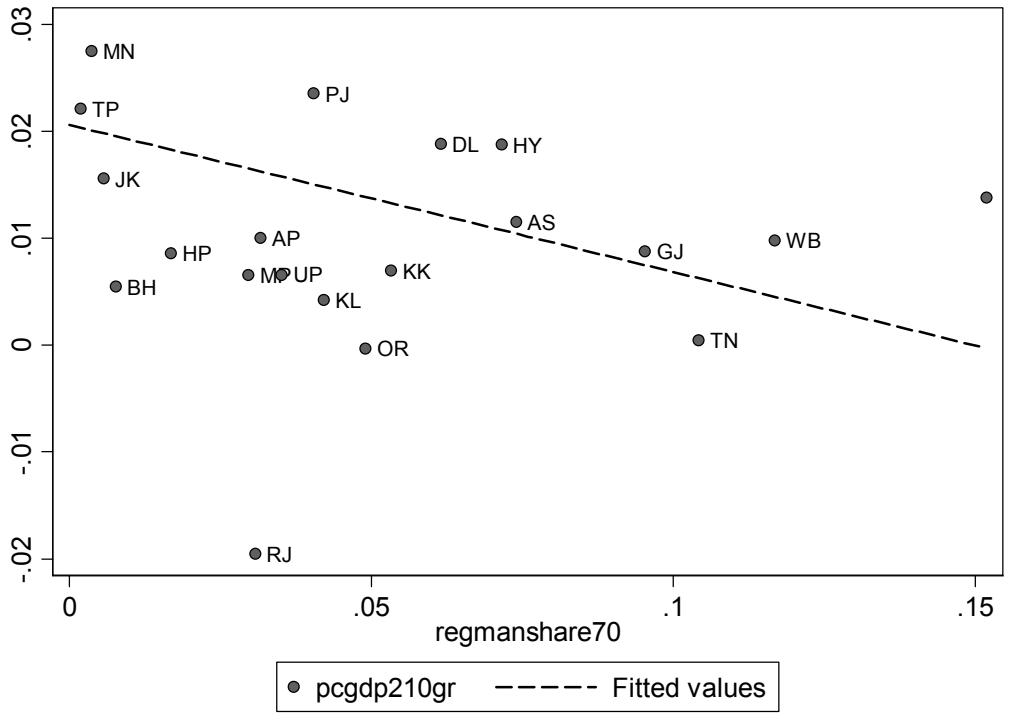
Table 12. Role of Manufacturing in Productivity Surge: Robustness Checks 1/

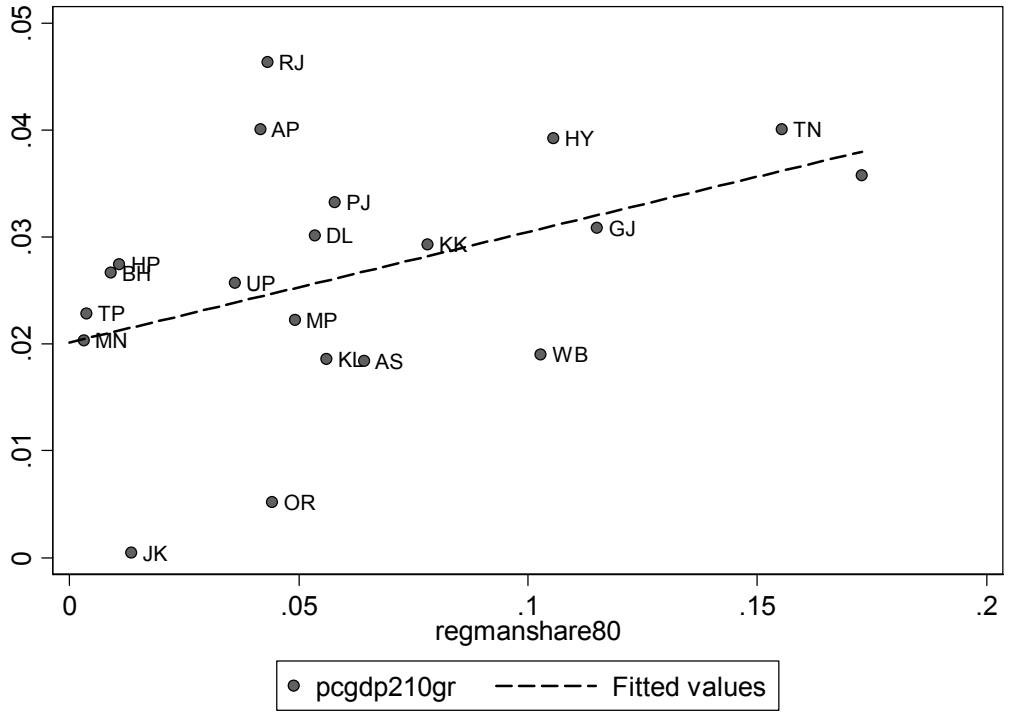
Dependent Variable	Per Capita Growth				Per Capita Nonagricultural Growth		
Initial income	0.012	0.009	0.011	0.010	-0.003	-0.003	0.018
	2.39	*2.22*	*2.43*	*2.13*	*-0.21*	*-0.19*	*1.50*
70s dummy		0.005		0.003			
		0.59		*0.39*			
80s dummy		0.020		0.016			
		2.06		*2.22*			
90s dummy		0.044		0.014			
		3.26		*1.03*			
Initial income 70						-0.003	
						-0.78	
Initial income 80						0.002	
						0.55	
Initial income90						-0.001	
						-0.24	
Share of registered manufacturing 60					-0.096	-0.122	-0.010
					-0.75	*-0.70*	*-0.06*
Share of registered manufacturing 70					-0.157	-0.032	-0.124
					-1.31	*-0.20*	*-0.99*
Share of registered manufacturing 80					0.301	0.194	0.294
					3.40	*2.18*	*3.01*
Share of registered manufacturing 90					0.150	0.180	0.128
					1.28	***1.01***	***0.80***
Share of agriculture 60	-0.008	0.020					
	-0.62	*1.14*					
Share of agriculture 70	-0.016	0.006					
	-1.12	*0.54*					
Share of agriculture 80	0.019	0.010					
	1.27	*0.58*					
Share of agriculture 90	0.013	-0.061					
	0.81	*-2.06*					
Share of infrastructure 60 2/			-0.332	0.083			
			-1.44	*0.27*			
Share of infrastructure 70 2/			-0.518	-0.244			
			-2.26	*-0.97*			
Share of infrastructure 80 2/			0.288	0.110			
			1.75	*0.73*			
Share of infrastructure 90 2/			0.193	0.106			
			1.23	*0.35*			
Labor regulation 60							-0.006
							-0.29
Labor regulation 70							0.020
							1.70
Labor regulation 80							-0.015
							-2.65
Labor regulation 90							-0.001
							-0.07
R square	0.33	0.43	0.45	0.48	0.19	0.21	0.37
No. of observations	80	80	63	63	77	77	59

Sources: Except as otherwise specified, all data are from the Economic and Political Weekly Research Foundation.

Note: T-statistics are reported below coefficient estimates. Data on labor regulation from Besley and Burgess (2002).
1/ Suffixes indicate that the underlying variable has been interacted with the appropriate decadal dummy.
2/ Infrastructure includes railways, electricity, gas and water supply, and communication.

Figure 9. Correlation Between Growth and Share of Registered Manufacturing, 1970s and 1980s





was affecting overall GDP growth was spillovers, for example, in the form of human and managerial capital built up in industry and being applied elsewhere in the economy, it seems plausible that these spillovers should occur more in relation to services than agriculture. To test this, we change the dependent variable in columns 5–7 to per capita nonagricultural GDP growth. In all these specifications, the registered manufacturing variable for the 1980s is highly significant. Interestingly, the magnitude of this coefficient is more than twice its value in the specification with overall GDP as the dependent variable (Table 12, col. 3), suggesting that any spillover benefits from manufacturing are greater in the nonagricultural than in the agricultural sector.

So these registered manufacturing shares are capturing something about the nature of the change that occurred. The question is what. We interpret these findings in the following way. It is reasonable to suppose that an anti-business attitude on the part of top political leaders entails a disproportionate "tax" on formally registered entities. That is because these firms' operations are intensive in transactions with the government (paying taxes, complying with regulations, seeking licenses, etc.) When political attitudes become more probusiness, it is formal firms that should receive a particularly strong boost. That is exactly how we read the results with respect to the registered manufacturing.

We also show evidence that the labor regulation data recently compiled by Besley and Burgess (2002) has some traction for the turnaround in the 1980s. We interpret this index as a measure of how prolabor (and anti-business) the environment in different states was. We find that the nature of these regulations in different states plays a role in explaining differential performance in the crucial decade of the 1980s (whether manufacturing shares are controlled or not—see columns 5 and 6 of Table 11). This once again is consistent with our hypothesis that what made the difference in the 1980s is a shift towards a more probusiness stance.

To sum up, the evidence points to an unleashing of the organized and incumbent private sector sometime in the early 1980s. While it is impossible to pinpoint exactly the source for this, there is circumstantial evidence that the trigger was a shift in the national government's attitude towards the private sector. This evidence also indicates that the beneficiary of this attitudinal shift was the formal sector built up under the earlier policy regime. Hence to some extent, the learning generated under the earlier policy regime and the modern manufacturing base created thereby provided a permissive environment for eventual takeoff once the policy stance softened vis-à-vis the private sector. So, unlike what one may have otherwise expected (from accounts of how costly ISI was), growth occurred where the earlier investments had been made. This is, of course, in contrast to the experience of the transition countries where post-transition growth was greatest where the drag exerted by the previous state sector was smallest.[25]

[25] Sachs and Woo (1997) argue that this drag was important in explaining the differential performance of China and the East European countries in the wake of liberalization.

V. CONCLUDING REMARKS

We believe that our findings raise a number of issues related to growth and, in particular, growth transitions. We would summarize them as follows.

India's growth transition began in the early 1980s rather than after the crisis of 1991. The performance of the 1980s cannot be explained by Keynesian pump priming, because there is a variety of time-series and cross-section evidence pointing to trend improvements in productivity indicators. Equally, this transition was not triggered by implementing the conventional litany of the Washington Consensus reforms, because the transition occurred a full decade before such reforms were initiated. They appear to have been triggered by a perception on the part of the private sector that the government's attitude toward it had changed, a perception that was subsequently (in the mid-to-late 1980s) mildly validated by piecemeal reforms of the industrial licensing system. The attitudinal shift signaled by the Congress Party governments in the 1980s elicited a large productivity response, a phenomenon facilitated by the fact that India was far away from its income-possibility frontier.

Manufacturing, and in particular registered manufacturing, which had been built up in the previous decades, appears to have played an important role in determining which states took advantage of the changed attitude of the private sector. Thus, although the costs associated with these investments may have been high, they may have generated some spillover benefits in the post-1980s period.

Most observers, focusing on the 1990s and, to some extent the 1980s have emphasized gradualism as the hallmark of the Indian approach to reforms in contrast to the shock therapy employed in some of the transition countries and the ambitious liberalization in Latin America since the mid-1980s (Ahluwalia, 2002). Equally important but somewhat neglected has been the approach to reforms adopted by India in the 1980s whose the distinctiveness has arguably had less to do with their pace than with their manner and sequencing.

We would stress that our characterization of the 1980s reform is not about whether "liberalization" took place but about how it happened. Some accounts of the 1980s point to the easing of access to foreign technology, to foreign capital goods, and to foreign direct investment (with the entry of Suzuki into the domestic car market as the most telling example) as examples of "liberalization." To us, these reforms in the 1980s were not proliberalization but probusiness in the important sense that they served to boost the profits of existing businesses without threatening them with real competition because external barriers remained largely in place. Allowing a single foreign firm, Suzuki, to enter the domestic car market under existing conditions of limited external liberalization (and subject to local-content requirements) is very different from opening the domestic car market to all foreign producers, which is the normal liberalization strategy and the approach adopted in the 1990s.[26]

[26] Guaranteed profits were arguably why Suzuki accepted the onerous conditions—including a joint venture with the public sector, and the requirement to fulfill local-content requirements—associated with its entry.

This probusiness rather than promarket/procompetition orientation manifested itself in the greater focus on "internal" than "external" reforms. In addition, even the internal reforms that favored business were slanted more toward preexisting activities than facilitating new businesses (i.e., through faciliting entry by domestic firms).[27] This approach had the political economy merit of avoiding the creation of losers. And it appears that the economic impact of favoring existing activities, which must have entailed some inefficiency, was not only not negative but was actually positive. This is reflected in the fact that the growth of the 1990s also appears to have taken place in states with a large initial share of registered manufacturing, some of it built up during the 1980s. Thus, India's "reforms" in the 1980s, which essentially amounted to more import substitution, were attractive from a political economy perspective because they created virtually no losers. This is reminiscent of China's reforms as well, although the latter obviously took on a very different form.

But, just as in China, economic dynamism created a fertile environment not only for incumbents but also for new entrants and activities. It is perhaps not a coincidence that some of the IT powerhouses that would begin to fuel India's growth a decade or so later got established in the early 1980s, just as the economic environment was turning more business friendly. For example, Wipro first ventured into IT in 1980, and Infosys was founded in 1981. These firms eventually were able to reap handsome benefits from India's prior public investments in higher education (the IITs in particular) once the policy environment turned permissive. Their story is in many ways similar to the one we have laid out for the more traditional activities during the 1980s: preexisting strengths were unleashed by more probusiness policy attitudes.

What about the reforms of the 1990s? It may well be that the performance of the 1980s would have run out of steam and that the "true" reforms of the 1990s were essential to keep the productivity growth alive. The reforms of the 1990s were, of course, triggered by the crisis of 1991. The quick rebound from the crisis has been almost entirely attributed to the decisive break from the dirigiste past. But if the 1980s experience was as successful as we think it might have

[27] The four major internal liberalization measures that were implemented in 1985 and 1986 involved: (i) Eliminating the licensing of 25 categories of industries subject to certain fairly onerous conditions; (ii) extending delicensing to large companies in 22 industries which were previously restricted by the Monopolies and Trade Restrictive Practices Act (MRTP) and Foreign Exchange Regulation Act (FERA); (iii) allowing companies in 28 industries to expand the scope of their operations into related activities; and (iv) allowing companies that had reached 80 percent capacity utilization to expand their capacity up to 133 percent of that reached in any of the previous years. Apart from the first, all the remaining measures essentially allowed incumbents to operate more freely rather than facilitate the entry of new domestic firms and promote competition. Even the limited reduction in protection of capital goods industries served to increase the effective protection of incumbents in final goods industries.

been in creating a strong base of manufacturing and productivity growth, it is hard not to draw the conclusion that the quick rebound was also rendered possible by the strength of the 1980s performance.[28] In some ways, although India was reforming in response to a macroeconomic crisis, it was reforming from a position of strength in the real sector of the economy. That might explain why the response to the reforms in India in the 1990s was so different from those in Latin America or in sub-Saharan Africa.

Finally, one consequence of the conventional story that we sketched out at the beginning—that the 1990s marked the watershed for India—has been the unfortunate neglect of research on policies and performance in the 1980s. We hope that this paper will kindle research interest in a number of very interesting issues relating to the 1980s, which could be important in deriving broader lessons for growth transitions across the world.

[28] This is supported by cross-industry studies, which show that the positive impact of liberalization on productivity in the 1990s is small in magnitude (Topalova 2004).

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson, 2001, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, Vol. 91, No. 5, pp. 1369–1401.

Ahluwalia, I.J., 1991, *Productivity and Growth in Indian Manufacturing*, (Delhi: Oxford University Press).

———, 1995, "India: Industrial Development Review," The Economist Intelligence Unit and UNIDO.

———, 2002, "Economic Reforms in India Since 1991: Has Gradualism Worked," *Journal of Economic Perspectives*, Vol. 16, No. 7, pp. 67-88.

Bai, Jushan, and Pierre Perron, 1998, " Estimating and Testing Linear Models with Multiple Structural Changes", *Econometrica*, 66 (1), pp. 47-78.

———, 2003, "Computation and Analysis of Multiple Structural Change Models", *Journal of Applied Econometrics*, 18, pp.1-22.

Balakrishnan, P., and M.S. Babu, 2003, "Growth and Distribution in Indian Industry in the Nineties," *Economic and Political Weekly*, (September), pp. 3997-4005.

Balakrishnan, P., and K. Pushpagandan, 1994, "Manufacturing Industry: A Fresh Look," *Economic and Political Weekly*, October, pp. 2028-35.

Barro, R., 1990, "Government Spending in a Simple Model of Endogenous Growth," *Journal of Political Economy*, Vol. 98, No. 5, pp. S103-19.

Basu, Kaushik, 2003, "The Indian Economy: Up to 1991 and Since," BREAD Working Paper No 052, (December).

Besley, T., and R. Burgess, 2002, "Can Labor Regulation Hinder Economic Performance? Evidence From India," CEPR Discussion Paper No. 3260, (London: Center for Economic Policy Research).

Bosworth, B., and S. Collins, 2003, "The Empirics of Growth: An Update," mimeo, (Washington: Brookings Institution).

Burgess, R., and A. J. Venables, 2003, "Towards a Microeconomics of Growth," mimeo, (London: London School of Economics).

Chopra, A., C. Collyns, R. Hemming, and K. Parker with W. Chu and O. Fratzcher, 1995, *India: Economic Reform and Growth*, Occasional Paper No. 134 (Washington: International Monetary Fund).

Das, D. K., 2003, "Quantifying Trade Barriers: Has Trade Protection Declined Substantially in Indian Manufacturing," Indian Council for Research on International Economic Relations, Working Paper No. 105.

Deaton, Angus, and Jean Dreze, 2002, "Poverty and Inequality in India: A Re-Examination," *Economic and Political Weekly*, (September), pp. 3729-48.

Deaton, A., J. Friedman, and V. Atlas, 2004, "Purchasing Power Exchange Rates from Household Survey Data: India and Indonesia," unpublished (New Jersey: Princeton University).

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

Foster, A.D., and M.R. Rozenzweig, 2003, "Agricultural Development, Industrialization and Rural Inequality," unpublished, (Cambridge, Massachusetts: Harvard University).

Ghose, A.K., 1999, "Current Issues of Employment Policy in India," *Economic and Political Weekly*, Vol. 4 (September), pp. 2592-2608.

Hasan, R., 1997, "Productivity growth and Technological Progress in a reforming Economy: Evidence From India," Ph.D. dissertation, (Maryland: University of Maryland).

Hausmann, Ricardo, 2004, Lant Pritchett, and Dani Rodrik, "Growth Transitions," manuscript in preparation, (Cambridge, Massachusetts: Harvard University).

Hausmann, Ricardo, and Dani Rodrik, 2003, "Economic Development as Self-Discovery," *Journal of Development Economics*, (December).

Hulten, C., and S. Srinivasan, 1999, "Indian Manufacturing Industry: Elephant or Tiger? New Evidence on the Asian Miracle," National Bureau of Economic Research Working Paper No. 7441.

India Government of, *Economic Survey*, Various Issues.

Joshi, V., and I.M.D. Little, 1994, *India: Macroeconomics and Political Economy, 1964-1991* (Washington: World Bank).

Khanna, T., and Y. Huang, 2003, "Can India Overtake China?" *Foreign Policy*, (July/August).

Kohli, A., 1989, "Politics of Economic Liberalization in India," *World Development*, Vol. 17, No. 3, 1989, pp. 305-28.

Panagariya, A., 2003, "Weak Reforms, Fragile Growth," unpublished, University of Maryland.

Pritchett, L., 1997, "Divergence, Big Time," *Journal of Economic Perspectives*, Vol. 11, No. 3, pp. 3-17.

Reserve Bank of India, 2004, *Report on Currency and Finance*, 2002-03, (Delhi).

Rodrik, D., 2003, "Growth Strategies," Harvard University, September 2003.

———, A. Subramanian, and F.Trebbi, 2002, "Institutions Rule: The Primacy of Institutions Over Integration and Geography in Development," National Bureau of Economic Research Working Paper No. 9305.

Sachs, J., and W.T. Woo, 1997, "Understanding China's Economic Performance," National Bureau of Economic Research Working Paper No. 5935.

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

Subramanian, A., and Shang-Jin Wei, 2003, "The WTO promotes Trade Strongly, But Unevenly," National Bureau of Economic Research Working Paper No. 10024.

Topalova, P., 2004, "Trade Liberalization and Firm Productivity: The Case of India," forthcoming IMF Working Paper.

Unel, B., 2003, "Productivity Trends in India's Manufacturing Sectors in the Last Two Decades," IMF Working Paper, WP/03/22, (Washington: International Monetary Fund).

Wallack, Jessica Seddon, 2003, "Structural Breaks in Indian Macroeconomic Data," *Economic and Political Weekly*, (October) pp. 4312-15.

Williamson, John, and Roberto Zagha, 2002, "From Slow Growth to Slow Reform," Institute for International Economics (Washington).

World Bank, 1995, *India: Recent Economic Developments and Prospects* (Washington: World Bank).