

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

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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 O11, O47, O53]

India’s economic performance during the first three decades after 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 gradually lapsing into disuse thanks to India’s remarkable transformation during the past two decades. Since 1980, its per capita economic growth

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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 exemplify development strategies gone wrong. It has now become the latest poster child for efforts to unleash 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),¹ but thanks to its solid democratic institutions and impressive performance in information technology (IT), the country is, in the eyes of many knowledgeable observers, increasingly vying with, if not displacing, China as the country of the future.²

The improvement in India’s economic performance is obviously good news for its one billion people. But equally important, this transformation 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? Any number of policy-oriented papers and newspaper articles describe the following conventional story about India. Until 1991, India’s policymakers 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 policymakers turned to technocrats such as Manmohan Singh, who promptly began 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.

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 constituted 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 took place sometime around 1980, with very little discernible change in trend after 1991. In fact, some indicators, such as economywide total factor productivity (TFP), 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.

¹ 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, Friedman, and Atlas, 2004).

² See Huang and Khanna (2003).

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's 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 changes 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 did not leave much of a 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 ways 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.

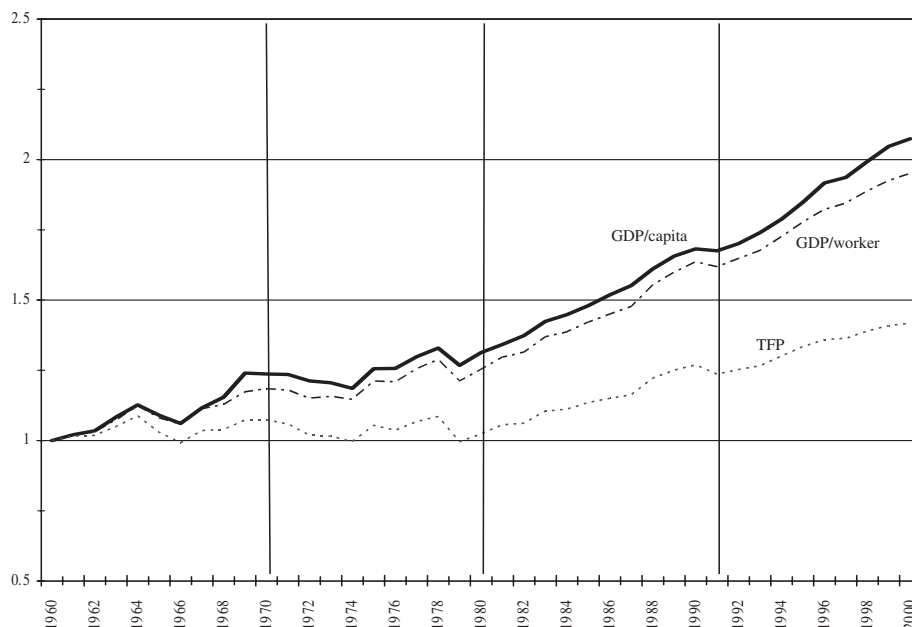
We then lay out our own explanation and provide some empirical evidence in support of it. We show, in particular, that post-1980 growth was strongest in activities and states that were most advantaged by the national government's attitudinal shift—namely in the formal manufacturing sector built up under 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) was, 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, Pritchett, 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.

I. 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: Williamson and Zaghera (2002) and De Long (2003) 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 was the reforms of the 1990s that brought superlative economic performance to India (Ahluwalia, 2002; Srinivasan and Tendulkar, 2003).

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



Sources: Bosworth and Collins (2003); PWT 6.1.

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 in 1980 after remaining virtually flat for the preceding two decades. Table 1 confirms that the pickup 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 point.³ 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 1980.⁴

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 and 2003), we computed the optimal one, two, and three break points for the growth rate of four series: per capita GDP computed at constant dollars (World Bank) and at purchasing power parity (PPP) prices (PWT), GDP per worker (PWT), and total factor

³Micro-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.

⁴We note that this improvement is also evident when Indian GDP is expressed in purchasing power parity (PPP) terms (that is, using Penn World Tables data). So it cannot be argued that the pickup in growth is artificial, owing to the interaction of price distortions with differential sectoral expansion.

Table 1. India: Aggregated and Sectoral Growth Accounting
(Annual average growth rates, unless otherwise specified)

	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 share⁷				
		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.

¹Based on labor force.

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

³From World Bank's *World Development Indicators*.

⁴For 1980s and 1990s, data from Unel (2003); for 1970s, estimate based on Ahulwahlia (1995).

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

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

⁷Obtained 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 through 1993–94.

productivity (Bosworth and Collins, 2003).⁵ In all four cases, we find that the single break occurs in 1979.⁶ Second, Hausmann, Pritchett, and Rodrik (2004) have analyzed transitions to high growth in a large cross-national sample and date the Indian growth transition to 1982.⁷ 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).⁸

Was this improved aggregate productivity performance since the 1980s simply a consequence of reallocating 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 of about 10 percentage points in agriculture's share 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 economywide productivity. For example, when the aggregate labor productivity growth is computed with fixed (base-period) employment shares, the pickup in the 1980s is between 2.6 and 2.9 percentage points, and the deceleration in the 1990s is about 0.4 to 0.6 percentage point (Table 1).

A number of studies have argued that manufacturing experienced a surge in productivity in the 1980s (Ahluwalia, 1995; and Unel, 2003), although some of these estimates have been contested (Hulten and Srinivasan, 1999; and Balakrishnan and Pushpagandan, 1994).⁹ For example, Ahluwalia's (1995) figures suggest that the increase in TFP growth from 1981 to 1989 over the previous two decades was 3.2 percentage points.

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

⁵We thank Andy Berg and Marcos Souto for suggesting and estimating this procedure. For the case of a single break, the Bai and Perron (1998) 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.

⁶The 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).

⁷The Hausmann, Pritchett, and Rodrik (2004) filter looks for a year whose growth rate in the seven years following it is at least 2 or more percentage points higher than the growth rate in the seven years preceding it.

⁸She 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.

⁹Hulten 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 (Reserve Bank of India, 2004), using the double-deflation methodology, however, shows that manufacturing TFP grew by 3.9 percent in the 1980s and by 2.1 percent in the 1990s.

Table 2. India: Unconditional State-Level Convergence

Period	1960s and 1970s	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 observations	38	41	42	80

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 it 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 overperformance in the latter period is substantial and exceeds the magnitude of underperformance 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 was not more variable than that of other developing regions in the period 1960–80: indeed, it has the lowest standard deviation among 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.¹⁰ Interestingly, and contrary to some claims, Indian growth was more stable in the 1980s than in the 1990s.

A striking feature of Indian performance that emerges from the cross-national comparison is the respective contributions of capital accumulation and 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

¹⁰India'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 3. India in the Cross-Section: Mean and Volatility of Growth Rate of Output per Worker, 1960–2000¹

	1960–70	1970–80	1980–90	1990–2000	1960–80	1980–2000	1960–2000
<i>Industrial countries</i>							
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
<i>East Asia (including China)</i>							
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
<i>China</i>							
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
<i>Latin America</i>							
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
<i>India</i>							
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
<i>Africa</i>							
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
<i>Middle East²</i>							
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.

¹All regional aggregates are unweighted averages.

²Excludes Jordan.

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 20 years of the East Asian miracle. Evidently, India has relied less on deferred gratification and more on productivity to drive its growth, even compared with the fast-growing countries of East Asia. If

Table 4. India's Growth in Comparative Perspective

Dependent Variable Period	Labor Productivity		Total Factor Productivity	
	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).

productivity-based growth is more sustainable than accumulation-based growth, it would appear that India's prospects are quite promising.

II. 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 account for 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 III, we propose 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.

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

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

Region/Period	Output	Output per Worker	Contribution of:				In percent of total
			Physical capital	education	Factor productivity	Factor productivity	
			In percentage points				
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).

did not present a hospitable environment for developing countries, something that can be readily gauged by the widespread slowdown in growth (with the notable exception of China).¹¹ 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 are 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, serves only to deepen the mystery of productivity performance in the 1980s, because it appeared to have occurred at a time when exogenous external conditions were most adverse.¹²

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).¹³

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

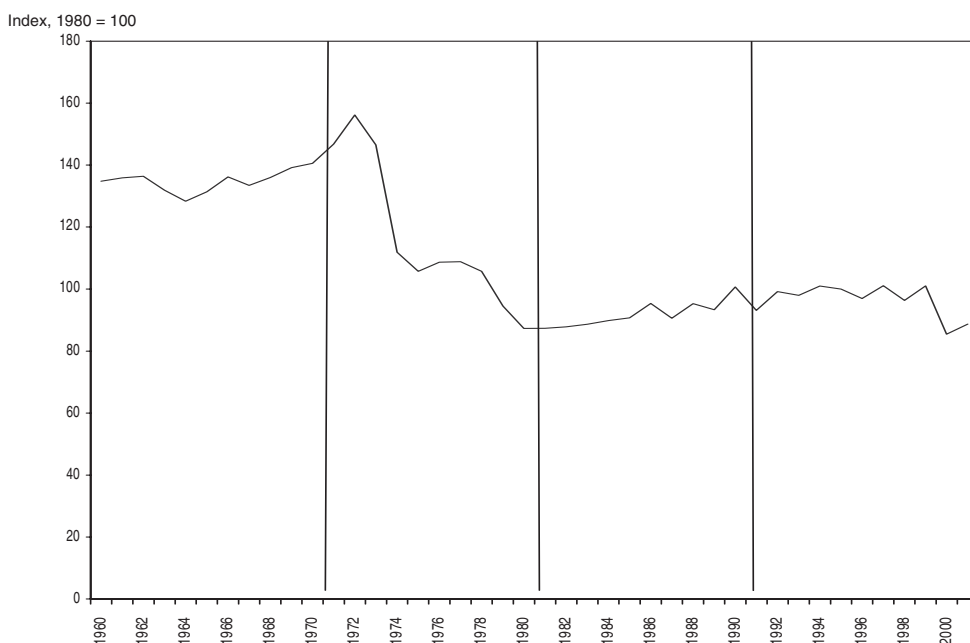
Fiscal expansion can lead to rising current account deficits, and hence to a buildup of external debt, which in the Indian case proved to be unsustainable, triggering the crisis of 1991. But the more this happens, that is, the more the fiscal expansion "leaks abroad" and leads to a debt buildup, the less is the demand 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

¹¹For 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.

¹²By the same token, the 1990s productivity performance looks less impressive.

¹³See also Chopra and others (1995).

Figure 3. India's External Terms of Trade, 1960–2000



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.¹⁴ Even on the strong assumption that all this change in

¹⁴Effectively, 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).

capacity is demand-induced, the turnaround in TFP growth between the 1970s and 1980s would remain substantial (2 to 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 in 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.

External Liberalization

Was the pickup in India's trend productivity growth in the 1980s caused by external liberalization? We present evidence below—relating to trade policies and trade outcomes—that paints a remarkably consistent picture of little, if any, liberalization taking place during the 1980s and 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 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

Table 6. India: Measures of Trade Protection, 1980–2000
(*In percent*)

	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).

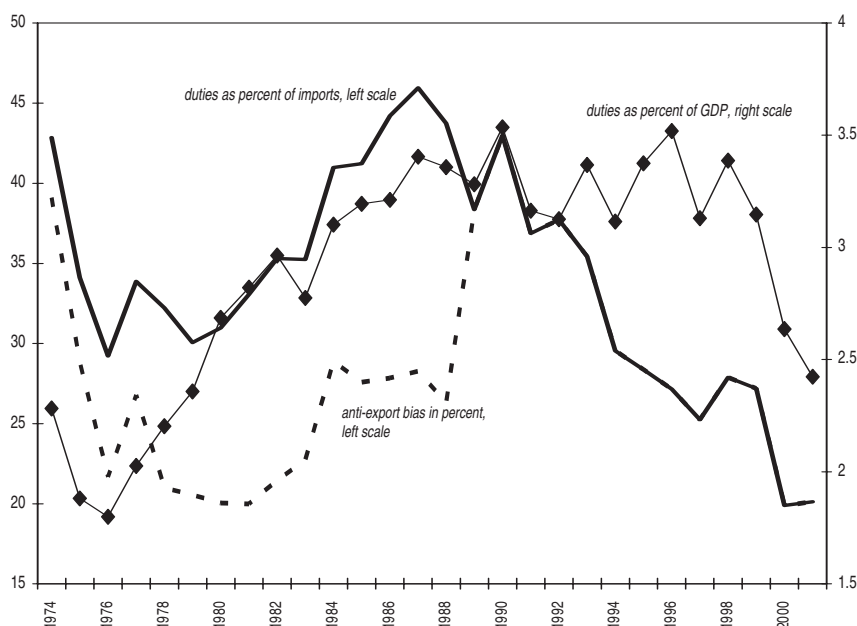
whole and for the different use-based sectors. It is important to note here that these numbers likely understate the increase in effective protection for final/consumer goods for much of the 1980s and 1990s stemming from the liberalization, albeit limited, of the capital goods sector.

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 more than 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. Figure 4 also computes a broader measure of trade protection—the antiexport 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 7).

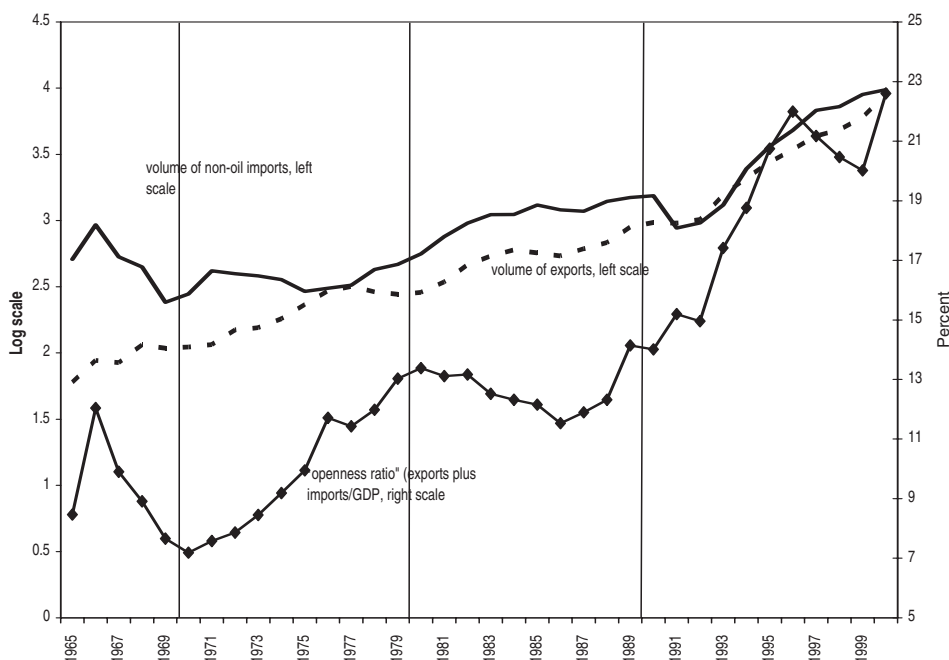
Crude outcome indicators such as the openness ratio tell a story of modest increases in openness during the 1970s and 1980s of 1.5 and 2.2 percentage points, respectively, over the preceding decades, followed by a more dramatic increase of

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



Sources: Duties (World Bank, World Development Indicators); Imports (IMF, *World Economic Outlook*), Export subsidies (Joshi and Little, 1994).

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



Source: IMF's *World Economic Outlook*.

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 8 presents the estimated coefficients for India and China dummies in gravity estimations for the period 1980 to 2000, based on the data set 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 become a normal trader only in

Table 7. Trade Outcomes
(In percent)

	1970s	1980s	1990s
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

Table 8. Gravity Model Results of Trade Outcome for India and China

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

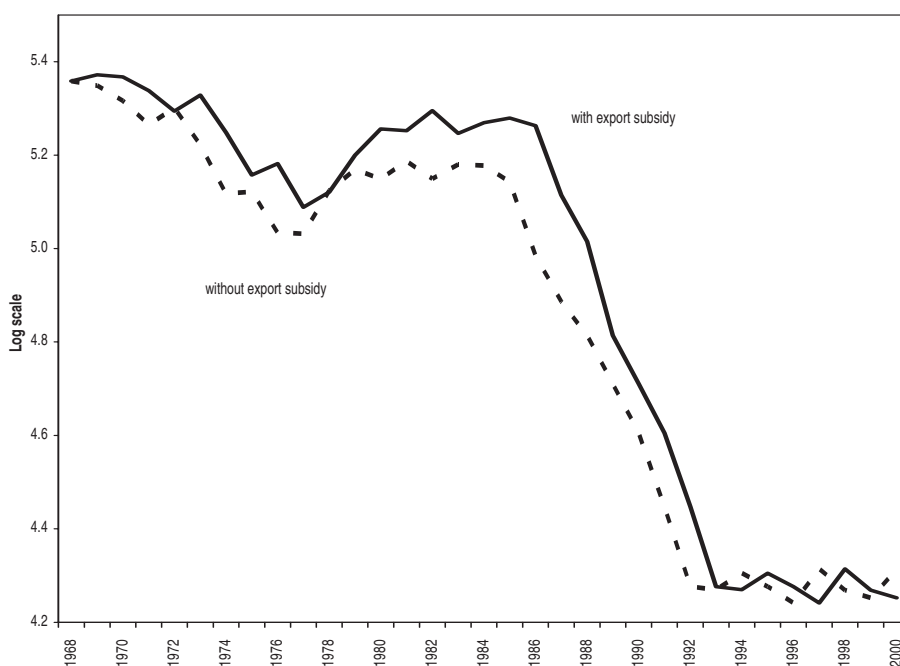
Source: Based on data in Subramanian and Wei (2003).

Note: Standard errors below coefficients. Coefficient estimates for the standard covariates not reported.

2000. In contrast, the China dummy is positive and significant for most of the 1980–2000 period.

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 1968. After remaining broadly unchanged during the first half of the 1980s, the rupee experienced a large real depreciation of more than 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 pickup in productivity

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



Source: IMF’s Information Notice System.

growth in the early 1980s. But could it have contributed to sustaining this spurt in the late 1980s?

We 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 economywide productivity increase. In India, the share of manufacturing in GDP is small, and, more important, the increase in this share in the aftermath of the real depreciation was too small to help explain overall productivity growth.¹⁵

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 (2004) 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.¹⁶ 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.

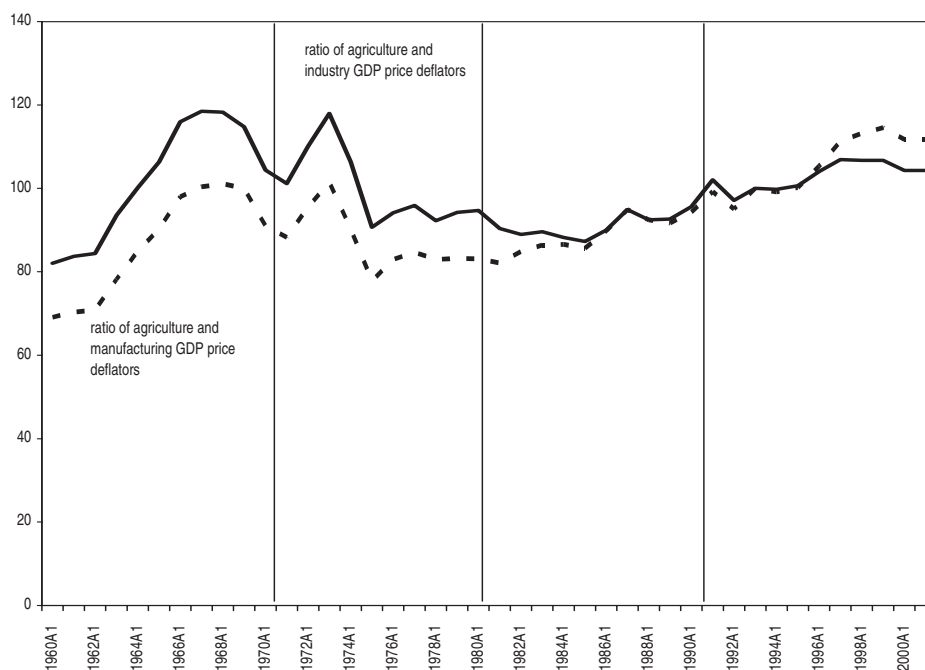
Was It Public Investment?

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

¹⁵ Between 1986 and 1992, the share of manufacturing in GDP remained unchanged at about 16 percent.

¹⁶ 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.

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 the section, “Aggregate Demand and Unsustainability of 1980s Growth” 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

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

where Y and K are expressed in per-worker terms. G is the flow of government services in infrastructure (that is, 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

$$y - k - a = \alpha / (1 - \alpha) (g/y), \tag{2}$$

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



Source: Reserve Bank of India.

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 9a and 9b. Under the assumption that the effects of public

Table 9a. India: Growth of Public Investment Ratio
(In percent)

	TFP growth	Rate of Growth of G/Y			
		Contemporaneous		Lagged five-years	
		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 9b. Estimates of Contribution of Public Capital to Total Factor Productivity Growth, 1960–2000

TFP Growth	Contribution of Public Capital to TFP Growth								
	Contemporaneous				Lagged five-years				
	Infr. ¹	Total Public ²	Infr. ¹	Total Public ²	Infr. ¹	Total Public ²	Infr. ¹	Total Public ²	
	Bosworth-Collins	Alpha=0.25	Alpha=0.15	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 *World Economic Outlook* for 1971–2000. Infr. = Infrastructure.

¹Government spending on infrastructure.

²Total public spending.

investment are contemporaneous or that only the infrastructure component of public investment enhances productivity, 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, five 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.

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 Kafkaesque 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 takeoff 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. 71–2) express this sentiment as follows:

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 describe these in greater detail below, but a rough idea 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.¹⁷ Thus, the magnitude of the reform effort not only seems modest, but it also lags behind the turnaround in the productivity surge.

III. Possible Explanation

So what explains the Indian growth takeoff in the early 1980s? In this section, we propose an alternative explanation and offer in support some econometric evidence. First, a few points on our data set and approach, which rely largely on exploiting variations in performance among 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 were compiled and recently released by the Economic and Political Weekly Research Foundation.

We created a panel data set with variables defined for four decades: the 1960s, 1970s, 1980s, and 1990s. Because 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/ElectionResults/ElectionResults_fs.htm) and supplemented by state-level sources.

Our explanation comprises four elements. First, 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 pro-business 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.

¹⁷The 60 percent estimate is from Chopra and others (1995, Table 7.6, p. 60), while the 80 percent estimate is from 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.

We posit that sometime in the early 1980s there was a significant attitudinal change toward the private sector on the part of the national government, led by Indira Gandhi's Congress Party. Congress went from being hostile to private business¹⁸ 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 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 Gandhi'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" (Kohli, 1989, p. 308). After 1980, Indira Gandhi dropped the first package in favor of the second. From our perspective, what is particularly important is that she 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 Gandhi's (and later Rajiv Gandhi's) efforts. These were aimed at gathering support from the business establishment rather than alienating them. Hence there was more action where business support existed (for example, in reducing taxes, easing access to imported capital inputs, and liberalizing capacity restrictions) than where it did not (for example, in external liberalization).

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 toward 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

¹⁸Basu (2003) describes the general attitude of mistrust toward 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.

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 10 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.¹⁹ 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.²⁰ Column 4 analyzes the difference between growth rates in registered and unregistered manufacturing, on the theory that an attitudinal shift toward business should have a larger impact on registered than unregistered businesses.²¹ Once again, we find this intuition confirmed: states that were allied with the national government experienced differentially higher growth rates in registered manufacturing.²²

In addition to the differential impact on formal manufacturing, another piece of evidence that suggests support for 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 toward corporate sector investment (and away from the household sector, comprising largely unincorporated enterprises).

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

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 11 illustrates this underachievement. It reports regressions of income on the deep

¹⁹This 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.

²⁰Column 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.

²¹The 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.

²²Interestingly, 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 10. India: Attitudinal Shift¹

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 2.53 0.000 0.01	0.009 1.92	0.027 1.40
State party allied with Centre 60	-0.006	0.015	-0.002
State party allied with Centre 70	-0.85	0.57	-0.08
State party allied with Centre 80	0.021	0.097	0.058
State party allied with Centre 90	2.68 0.027 2.48	3.07 0.004 0.10	2.09 -0.035 -1.17
Initial level of registered manufacturing			
Party share of registered manufacturing 60*		-0.077	-0.008
Party share of registered manufacturing 70*		-0.94	-1.98
Party share of registered manufacturing 80*		-0.151	
Party share of registered manufacturing 90*		-1.73	
		0.266	
		2.48	
		0.241	
		3.04	
R square	0.41	0.23	0.29
No. of observations	58	59	59

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

Note: 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 reported below coefficient estimate.

¹Asterisks indicate that the underlying variable has been interacted with the appropriate decadal dummy.

Table 11. 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
	<i>5.19</i>	<i>-1.51</i>	<i>2.74</i>	<i>-0.93</i>	<i>1.72</i>	<i>0.21</i>	<i>1.23</i>	<i>4.55</i>
Openness	0.27	-0.89	0.43	-0.54	-0.10	-0.54	-0.04	0.01
	<i>1.07</i>	<i>-1.18</i>	<i>0.66</i>	<i>-2.03</i>	<i>-0.28</i>	<i>-0.71</i>	<i>-0.17</i>	<i>0.03</i>
Economic institutions	0.51	2.60	1.53	1.47				
	<i>4.32</i>	<i>3.05</i>	<i>1.36</i>	<i>6.80</i>				
Political institutions					0.38	0.65	0.46	0.45
					<i>3.24</i>	<i>2.90</i>	<i>5.39</i>	<i>5.92</i>
India dummy	-1.36	-1.40	-1.06	-1.33	-2.61	-2.34	-2.61	-1.69
	<i>-4.61</i>	<i>-2.36</i>	<i>-1.28</i>	<i>-4.92</i>	<i>-4.59</i>	<i>-3.27</i>	<i>-6.82</i>	<i>-5.95</i>
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, Subramanian, and Trebbi (2002).

For 1980, economic institutions measured as the protection against expropriation in 1982 from ICRGE.

For 1999, economic institutions measured as in Rodrik, Subramanian, and Trebbi (2002).

Political institutions are measured as the constraint on the executive.

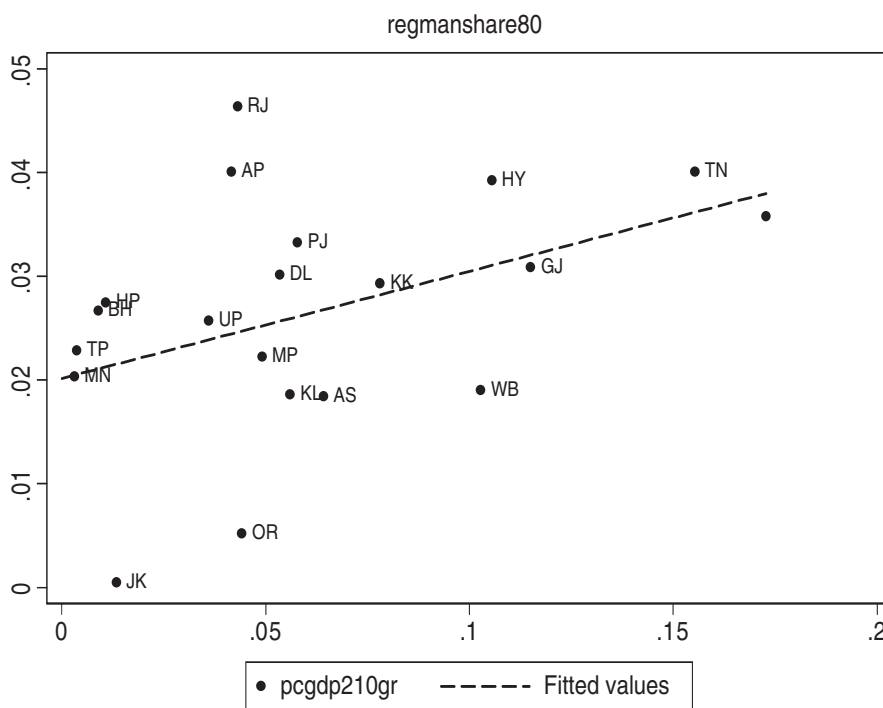
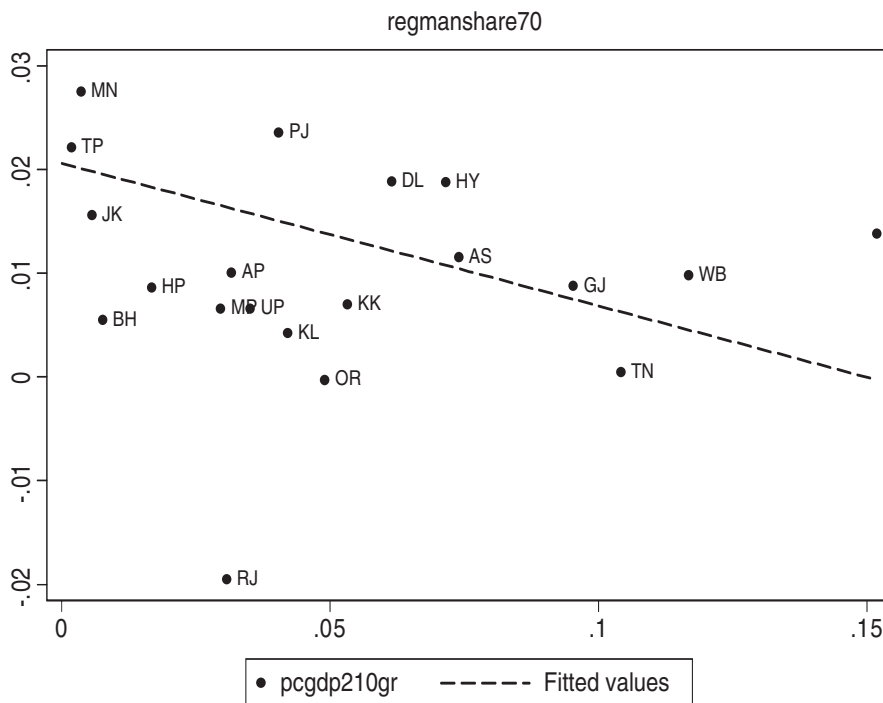
T-statistics reported below coefficient estimates.

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 one-fourth of what it should have been, given the strength of its economic institutions. On the other hand, if political institutions are the true long-run determinants of income, India's income is about 15 percent of what it should be. India has thus been a significant underachiever 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 12 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 the 1980s and 1990s highly positive and significant, but these variables can "knock out" the

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



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Table 12. Role of Manufacturing in Productivity Surge¹

Initial income	0.010	0.008	0.009	0.007	0.007	0.019	0.007
	<i>2.64</i>	<i>1.84</i>	<i>2.27</i>	<i>1.87</i>	<i>1.54</i>	<i>3.86</i>	<i>1.27</i>
1970s dummy	-0.003	-0.002					
	<i>-0.78</i>	<i>-0.30</i>					
1980s dummy	0.014	0.007					
	<i>3.85</i>	<i>1.14</i>					
1990s dummy	0.013	0.005					
	<i>2.61</i>	<i>0.51</i>					
Initial income 70				-0.001			
				<i>-0.37</i>			
Initial income 80				0.002			
				<i>0.94</i>			
Initial income 90				0.001			
				<i>0.51</i>			
Share of registered manufacturing 60		-0.046	-0.079	-0.050			-0.030
		<i>-0.73</i>	<i>-1.70</i>	<i>-0.73</i>			<i>-0.45</i>
Share of registered manufacturing 70		-0.050	-0.104	-0.044			-0.046
		<i>-0.94</i>	<i>-2.43</i>	<i>-0.81</i>			<i>-1.01</i>
Share of registered manufacturing 80		0.076	0.119	0.080			0.170
		<i>1.79</i>	<i>3.37</i>	<i>1.78</i>			<i>3.76</i>
Share of registered manufacturing 90		0.100	0.113	0.096			0.157
		<i>1.44</i>	<i>2.64</i>	<i>1.31</i>			<i>2.81</i>
Labor regulation 60						0.004	-0.001
						<i>0.73</i>	<i>-0.23</i>
Labor regulation 70						0.012	0.008
						<i>2.14</i>	<i>1.45</i>
Labor regulation 80						-0.008	-0.008
						<i>-2.21</i>	<i>-3.56</i>
Labor regulation 90						0.000	0.000
						<i>0.05</i>	<i>0.11</i>
R square	0.38	0.42	0.40	0.43	0.42	0.34	0.55
No. of observations	80	78	78	80	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).

Dependent variable is annual per capita growth of state net domestic product.

¹Suffixes indicate that the underlying variable has been interacted with the appropriate decadal dummy.

pure period dummies (see columns 1–2).²³ In other words, whatever happened in the early 1980s, it stimulated growth primarily in states with high levels 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 manufacturing shares). Column 4 shows that manufacturing shares are still significant

²³To minimize endogeneity-related problems, the beginning-period value of the share of registered manufacturing is used as the regressor.

in 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 13. 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 was affecting overall GDP growth was spillovers, for example, in the form of human and managerial capital built up in industry and 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 13, col. 3), suggesting that any spillover benefits from manufacturing are greater in the nonagricultural than in the agricultural sector.

What do these registered manufacturing shares capture about the nature of the change that occurred? We interpret these findings in the following way. It is reasonable to suppose that an antibusiness 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, and so on). 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 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 antibusiness) 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 12). This once again is consistent with our hypothesis that what made the difference in the 1980s was a shift toward 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 toward 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 lessons learned 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

**Table 13. Role of Manufacturing in Productivity Surge:
Robustness Checks¹**

Dependent Variable	Per Capita Growth			Per Capita Nonagricultural Growth			
Initial income	0.012 2.39	0.009 2.22	0.011 2.43	0.010 2.13	-0.003 -0.21	-0.003 -0.19	0.018 1.50
70s dummy		0.005 0.59		0.003 0.39			
80s dummy		0.020 2.06		0.016 2.22			
90s dummy		0.044 3.26		0.014 1.03			
Initial income 70						-0.003 -0.78	
Initial income 80						0.002 0.55	
Initial income 90						-0.001 -0.24	
Share of registered manufacturing 60					-0.096 -0.75	-0.122 -0.70	-0.010 -0.06
Share of registered manufacturing 70					-0.157 -1.31	-0.032 -0.20	-0.124 -0.99
Share of registered manufacturing 80					0.301 3.40	0.194 2.18	0.294 3.01
Share of registered manufacturing 90					0.150 1.28	0.180 1.01	0.128 0.80
Share of agriculture 60	-0.008 -0.62	0.020 1.14					
Share of agriculture 70	-0.016 -1.12	0.006 0.54					
Share of agriculture 80	0.019 1.27	0.010 0.58					
Share of agriculture 90	0.013 0.81	-0.061 -2.06					
Share of infrastructure 60 ²			-0.332 -1.44	0.083 0.27			
Share of infrastructure 70 ²			-0.518 -2.26	-0.244 -0.97			
Share of infrastructure 80 ²			0.288 1.75	0.110 0.73			
Share of infrastructure 90 ²			0.193 1.23	0.106 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).

¹Suffixes indicate that the underlying variable has been interacted with the appropriate decadal dummy.

²Infrastructure includes railways, electricity, gas and water supply, and communication.

countries, where post-transition growth was greatest in countries where the drag exerted by the previous state sector was smallest.²⁴

IV. Concluding Remarks

We believe that our findings raise a number of issues related to growth and, in particular, growth transitions. We 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 Washington Consensus reforms, because the transition occurred a full decade before such reforms were initiated. It appears 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, which arguably has less to do with their pace than with their manner and sequencing.

We 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 boosted 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

²⁴Sachs 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.

opening the domestic car market to all foreign producers, which is the normal liberalization strategy and the approach adopted in the 1990s.²⁵

This probusiness rather than promarket/procompetition orientation manifested itself in the greater focus on internal rather than external reforms. In addition, even the internal reforms that favored business were slanted more toward bolstering preexisting activities than facilitating new businesses (that is, facilitating entry by domestic firms).²⁶ 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, it was actually positive. This is reflected in the fact that the growth in 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, although they 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. Once the policy environment turned permissive, these firms were able to reap handsome benefits from India's prior public investment in higher education (the Indian Institutes of Technology in particular). 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 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 been in creating a strong base of manufacturing and productivity growth, it is hard not to draw the conclusion that the

²⁵ 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.

²⁶ 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 that were previously restricted by the Monopolies and Trade Restrictive Practices Act and Foreign Exchange Regulation Act, (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 facilitating the entry of new domestic firms and promoting competition. Even the limited reduction in protection of capital goods industries increased the effective protection of incumbents in final goods industries.

quick rebound was also rendered possible by the strength of the 1980s performance.²⁷ 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 the response to reforms 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 a 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 fascinating issues relating to the 1980s, which could be important in deriving broader lessons for growth transitions across the world.

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²⁷This is supported by cross-industry studies, which show that the positive impact of liberalization on productivity in the 1990s is small (Topalova, 2004).

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