# The Evolution of Institutions in India and its Relationship with Economic Growth

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## I. Introduction

The tepid-to-torrid transformation in India's economic growth since the early 1980s is one of the big stories of recent times. Whereas "Midnight's children" saw their standard of living double over forty years, Midnight's grandchildren—the "India Shining" generation—can expect a five- or six-fold improvement in their lifetimes. But how have India's public economic institutions fared over this period? And what is their relationship with this growth transformation? This paper represents a modest and preliminary attempt at answering these questions.

On the first, this paper presents some stylized facts and new empirical evidence on the evolution in selected public institutions in India. The main finding is that, at least based on the limited number of institutions explored in this paper—the bureaucracy and judiciary--there does not seem to be evidence of improvements in the average quality of institutions over time; if anything, the evidence leans in the other direction.

The second question that this paper addresses is the *two-way* relationship between economic growth and institutions in India. It does so in terms of two apparent paradoxes. First, why has growth taken-off despite institutional stagnation (see Aiyar, 2006)? And the second, which is the mirror image of the first, why despite nearly 30 years of rapid growth, has there been no perceptible improvement in India's institutions? The central message of this paper is the following.

India's founding fathers bequeathed a strong set of institutions, much stronger than for the average country. These institutions have played a key role in the turnaround in India's recent economic performance, a fact that has been overshadowed by, and because of, the more dramatic and necessary reduction in the ownership/regulatory functions of public institutions (a process that is usually described as policy reforms). Over time, though, it is not obvious that India's public institutions are keeping up with the demands of a rapidly evolving economy. Thus, contrary to the near-universal views that the binding constraints to sustained Chinese-style rates of growth are the need to finish the unfinished task of rolling back the frontiers of the state, giving full play to the energies of the private sector, this paper implies that a future reform agenda should focus equally on strengthening, or reversing the decline in, public institutions.

This paper is organized as follows. Section II describes briefly the role of institutions in a market economy. Section III presents empirical evidence that sheds some light on the evolution in Indian institutions over time and across states. In Section IV, we focus on the effects of institutions on India's growth performance. In Section V, we look at the impact (or lack thereof) of growth on institutions. Section VI offers some concluding remarks.

**II. The Role of Public Institutions**

Recent economic research gives center stage to the role of public institutions in promoting and sustaining long-run development (see North, 1990; Hall and Jones, 1999; Acemoglu et. al., 2001; and Rodrik et. al., 2004). Institutions perform a number of economic functions in a market system that affect efficiency and equity objectives.

First, institutions *create* markets. By protecting property rights, guaranteeing sanctity of contract, and providing law and order, they create an environment in which business and private investment can flourish. Thus, the judiciary, bureaucracy, and police are key institutions in facilitating the development of markets.

Second, institutions *regulate and/or substitute for* markets. The need for these functions arises from some kind of market failure and/or other social objectives such as income distribution that societies wish to fulfill. That is, markets do not deliver what is socially desirable. For example, banks and other financial institutions need to be regulated to ensure that they do not take on excessive risk, which can lead to socially costly bank runs or collapses. The private sector may not deliver education and water to the most needy because they cannot afford to pay for these services.

Third, institutions, such as the central banks or fiscal, *stabilize* markets by ensuring low inflation and macroeconomic stability and helping to avoid financial crises. Finally, institutions *legitimize* markets through mechanisms of social protection and insurance, and importantly, through mechanisms for redistribution and managing conflict. Democracy is, of course, the institution par excellence for legitimizing markets.

The most interesting evolution has been the market-regulating/ownership role of institutions. For much of the post-war period up to the 1980s, most countries sought to address market failures by the state substituting for markets: hence power, education, telecommunications, and water were provided by the public sector. In the case of India, the reach of the state was especially pervasive. Not only in these areas but in others, including the bulk of manufacturing, public sector ownership was the norm. And where the private sector was allowed, extensive restrictions of Kafkaesque proportions were placed on the terms it could operate under, including the scale of operation, what products could be produced, how much labor could be hired, where plants could be located etc. etc.

The great ideological revolution of the last few decades has, of course, been the recognition that the state should cede much of this ground—and not just the old "commanding heights"—to the private sector.[1] But even while ceding the function of providing these economic goods and services, the state still has an important regulatory function. And India too, albeit more slowly than most countries, has followed this path of less provision and more regulation, creating institutions such as the Securities and Exchange Board of India (SEBI),

[1] The distinction between policies and institutions is not always easy to draw. In the schema described above, policies can be seen as actions that affect the scope of the state as owner and (over) regulator, while institutions affect the market-creating functions and the more necessary regulatory functions.

Telecommunications Authority of India (TRAI), Insurance Regulatory and Development Authority (IRDA), Central Electricity Regulatory Commission (CERC) etc. to undertake the regulatory role.

In what follows, we shall be focusing on the first category of institutions—the bureaucracy and judiciary—that affect the creation and sustenance of markets.

**III. How are Indian institutions faring?**

While the popular perception in India is one of institutional decline, the verdict in the academic debate is understandably much more circumspect. The caution derives in part from the fact that India's size and heterogeneity resist easy attempts at generalization. Joan Robinson famously noted that everything and its opposite are almost statistically guaranteed to be true in India. Kapur and Mehta (2005) observe that: "Although an observer of contemporary India may be tempted to conclude that India's public institutions are severely stressed and weakening, in reality their performance has varied both across institutions and over time."

It is true that not all signs point to institutional decline. Kapur (2005) suggests that certain referee institutions, especially the Supreme Court, the Election Commission, and the Presidency have witnessed rejuvenation. The Election Commission, especially since the late 1980s, has fiercely safeguarded its independence, and presided over many difficult elections. In a country where everything else is so politicized, it is remarkable that election results are never contested. The other referee institution, the Supreme Court, has moved beyond the politicized appointments of the late 1970s that gave India a "committed" (Indianspeak for political bias) rather than an independent judiciary. In a landmark ruling in 1993, the Supreme Court effectively shut out the executive from appointments to the Supreme Court. Through minor tinkering and technological upgradation, the Supreme Court has also reduced the large backlog of undecided cases before it from 120,000 to 20,000 (Mehta, 2005). And, through public interest litigation, it has moved aggressively, behaving more like the executive than the judiciary, in resolving long-standing public policy issues; cleaning Delhi's atmospheric pollution being the best known, but not only, example. While purists balk at this overreach,[2] the Supreme Court appears to have gained rather than lost popular legitimacy because of the perception that such overreach is a necessary consequence of and response to an inefficient and weak executive.

Further, some of the new institutions such as the Telecommunications Regulatory Authority of India (TRAI), Securities and Exchange Board of India (SEBI), and Insurance Development Regulation Act (IDRA) have performed very respectably, especially considering the novelty of the terrain they have had to navigate. The Central Union Public

[2] The Supreme Court recently even decided on the fate of 300 rhesus monkeys held in captivity.

Service Commission still oversees a selection process that is fair and merit-based.[3] Greater decentralization and transparency have been introduced through the Panchayati Raj initiatives and the Right to Information (RTI) Act. And the introduction of computer-based technologies has improved efficiency in a number of areas, with railway users being the most visible beneficiaries of computerized bookings.

Moreover, the optimists might argue that lamentations of institutional decline are, like the Rashomon effect, largely self-serving. The lamenters are mostly the elites who see decline only because they no longer have monopoly control over the institutions. Hitherto disadvantaged groups, having acquired voice through the political process, are finally asserting themselves and demanding that public institutions serve their interests too, threatening the exclusive hold of the elites.

But the caution in pronouncing on institutional change over time also stems from the lack of serious attempts at quantifying institutional trends in India. Quantification has its pitfalls, but especially so in relation to institutions because: (i) distinguishing institutions from say policies is not always easy; (ii) there is a maddening variety and diversity of Indian institutions; and (iii) the measurement of their performance is much more difficult. But policy analysis and prescription require empirical/quantitative evidence and difficult though the terrain is, there is no choice but to try and build such evidence. In terms of the definition of institutions and its difference from policies, this paper adopts a very pragmatic approach. For example, in relation to trade, it assumes that tariffs, quantitative restrictions etc. are trade "policies" but how these are administered by customs as "institutions."

So what is the time-series evidence relating to market-creating institutions? We present below three types of evidence: first, relating to institutional outcomes; the second comprises subjective, perceptions-based measures of economic governance/institutions; and the third is a more detailed analysys of one particular institution which tries to isolate the effect of institutional quality. Each type of evidence has its own limitations which we discuss below. Moreover, only a few institutions are covered which may not be representative of the multiplicity of institutions in India. For this and other reasons, it should be stressed that the evidence presented below is meant to be illustrative and not by any means conclusive.

*A. Stylized facts on institutional outcomes*

First, we present some basic stylized facts on institutional *outcomes*. These relate to outcomes such as power-related losses, murders, conviction rates and evasion, and the institutions implicated in these outcomes are the bureaucracy, politics, and the judiciary. Of course, outcomes are determined by a number of factors, including the quality of institutions. So, it is difficult, if not impossible, to draw inferences about institutions and their evolution over time from outcomes, unless we can control for these other factors. For example, if

[3] This is not true of the *state* public service commissions, which have been scandal-prone.

disposal rates of judicial cases declines it could be due to inadequate resources (judges, lawyers etc); or to corruption; or to the fact that murder rates themselves are increasing for extraneous reasons (guns are more readily available, income leads to more crime and so on); or some combination of the above. Institutional decline, in this case, is a valid inference only in the former two instances. With this important caveat, we proceed to the evidence.

*1. Power losses*

In Kochhar et. al. (2006), we argued that generation and distribution losses in power (a euphemism for outright theft and/or non-payment) could be one proxy for the quality of institutions at the state level. They broadly reflect the quality of both state-level politics—losses arise in part from politicians turning a blind eye to power theft by their constituencies or politicians' unwillingness to enforce laws—as well as the state-level bureaucracy (the state electricity boards) which enforces the laws, including collecting user charges.

How does India fare relative to comparator countries around the world? Chart 1 shows the evolution in losses as a percentage of power output since 1971 for India and selected (broadly comparable) countries. In 1971, in India, losses were about 9 percent, lower than in Brazil, Mexico, and Indonesia and about the same as in Malaysia and China. By 2003, losses in India had increased three-fold to 27 percent, higher than in any of the other five countries and much higher than in China (6.5 percent) and Malaysia (4.6 percent). Of course, these numbers cannot be interpreted as reflecting just institutional quality, at least not in a cross-country context, because they could depend, for example, on the size of the informal sector, the level of poverty etc. But the striking performance over time relative to other comparator countries is still noteworthy.

Mirroring the cross-national development, is the development within the states in India. In Chart 2, we plot the average T&D losses in power for four successive 5-year periods beginning in 1980. We focus on the 18 largest states. The pattern of losses in the period 1981-85 appears anomalous. Since then, however, we see a rising trend in losses but also greater diversity in performance—i.e., the spread of losses widens, reflected in reduced bunching for the last period. The mean and standard deviation for losses were 17.7 and 4.8 for the period 1985-1990, which increased to 25 and 9.6, respectively during the period 1996-2000.[4] This is suggestive of decline in the average but also of divergence in institutional outcomes across states, consistent with the diverging economic performance across states (Rodrik and Subramanian, 2005).

*2. Disposal rates for murder-related cases*

"To describe the Indian civil justice system, especially at the level below the Supreme Court, as being in a perpetual state of crisis would be an understatement," (Mehta, 2005). What is

[4] The change in the mean and standard deviation of losses over time are as dramatic even when two apparent outliers—Delhi and Jammu and Kashmir—are excluded.

the evidence and more precisely, does it suggest one of stagnation in judicial institutions or actual decline?

We focus on outcomes related to murder given the widely accepted convention, which appears also to be true of India, that statistics related to murder are the least unreliable type of crime statistics (Levitt, 1998 and Verma, 2005).[5] Murder-related data are from the annual publications of the National Crime Records Bureau. Chart 2 illustrates the performance of state-level courts in terms of the disposal of murder-related cases that come before them. Since 1973, there has been a sharp reduction in the disposal of such cases, from 35 percent in 1973 to about 15 percent in 2005 (the disposal rate is measured as the number of murder-related cases on which the court gives a verdict divided by the total stock of outstanding murder-related cases). This chart merely confirms what is well-known in India, that the state-level judicial system is overwhelmed, and that the backlog of cases is mounting, resulting in a situation of justice being effectively denied by being indefinitely delayed. Again, a declining disposal rate does not mean that the court system is becoming more corrupt or even less efficient: a rising flow of cases coming before the courts could mechanically generate a decline in the disposal rate. What is undeniable is that, at the least, the personnel and resources are inadequate *relative* to the demands being made on the judicial system.

*3. Conviction rates for murder-related cases*

We can look at another measure of judicial performance—the conviction rates for murder and related crimes. The exact measure is the number of cases in which the defendant was convicted divided by the total number of murder cases decided. Hence this measure should be less affected by resources because it is scaled by the number of verdicts given. Chart 3A shows that there has been a steady decline in conviction rates for murder and culpable homicide at the aggregate level from close to 50 percent to about 32 percent.[6] At the same time, there was also a slight increase in the dispersion with the standard deviation of conviction rates increasing from 8.9 percent in 1970 to 13 percent in 2005.

To be sure, declines in conviction rates can signal a variety of developments, some negative and some even positive. Declines could arise from the well-documented politicization/corruption of the judiciary so that the perpetrators of crime are able to get away with it because they are politically powerful and can influence judicial outcomes. On the other hand, declines in conviction rates could also signal an improving judicial system, if the control of the judiciary has shifted from the hitherto powerful who have unfairly brought charges against the less powerful.

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[5] Misreporting is a common problem for most crimes but less so for murder-related ones.

[6] A similar decline in the conviction rate is also evident in cases handled by the Central Bureau of Investigation (CBI), from 17 percent in 1972 to 9 percent in 1999. Das (2005) characterizes this decline as arising from "wilfully incompetent investigation and prosecution by the CBI."

It is difficult to know which of these stories is correct but looking at the data for groups of states can shed some additional light. Based on the limited data available, we can disaggregate the picture in Chart 3A to compute developments in the conviction rate for the states. Chart 3B divides the large states into the BIMARU (Bihar, UP, Rajasthan, and Madhya Pradesh) and the peninsular states (Gujarat, Maharashtra, Karnataka, Kerala, Tamil Nadu, and Andhra Pradesh). Two features are worth noting: surprisingly, in terms of levels, the peninsular states fare marginally but consistently better than the BIMARU states; but, more significantly, the decline in conviction rates is evident for both category of states. The latter suggests that whatever changes are happening over time is common to all states. In Kerala and West Bengal, and even Tamil Nadu, which have not over this period seen any dramatic shift in political power toward disadvantaged groups (as has been the case say in Bihar and Uttar Pradesh) have witnessed a decline in conviction rates. The evidence is not inconsistent with increasing political influence over the judiciary.

*B. Perception-based measures of institutions*

Next, we present some subjective, perceptions-based measures of *economic* governance. These data are mainly compiled by the World Bank (Kaufmann et. al., 2006) and go back only to the mid-1990s. These measures suffer from at least one problem. Although they purport to measure how institutions themselves are performing, the problem is that they are subjective—based on perceptions of investors (who tend to be more foreign than domestic)—and vague (they attempt answers to questions such as "how strong is the rule of law?"). [7]

The data compiled by Kaufman, Kraay, and Zoido-Lobaton (2006) includes four measures of economic governance of which two—government effectiveness and and control of corruption—are relevant for us. These indicators are now available for the period 1996-2005. But we want to ascertain how economic governance, in particular, has evolved over a longer time span.

It turns out that similar subjective-measures of economic governance were compiled for the early 1960s by Adelman and Morris (1971). In Johnson, Ostry, and Subramanian (2007), we suggest that a reasonable measure of economic governance, paralleling those being compiled by the World Bank, is one called "degree of administrative efficiency." The three criteria that went into the construction of this indicator were in the authors' words: "degree of permanence and training of administrators (an indirect measure of whether recruitment is based upon qualifications for the job); the extent to which corruption, inefficiency, and incompetence seriously hamper government functioning; and the extent to which instability

[7] The World Bank has begun computing more objective indicators of governance (World Bank, 2006) but these are available only since 2002.

at higher levels of administration promotes inefficiency." (p. 77). The classification of individual countries was based upon judgments for the period 1957-62.

We compute the measures for economic governance for India for the 1960s from and for the 1996-2005 period from the Kaufman et. al. (2006). To facilitate comparisons over time, we standardize the variables within each time period. Implicitly, this transforms the rating for individual countries to a relative one. The score itself is then a measure of how far away from the mean (of zero by construction) a country is. A positive (negative) score implies that a country is above (below) the mean. Since the Adelman and Morris (1971) measure contains elements of effectiveness and corruption, we present for the later period, the World Bank's ranking for both these measures.

In 1960, India's rating was close to 1.5 standard deviations above the mean, a very high rating, placing it amongst the very top of the 74 countries surveyed by Adelman and Morris (1971). In the last decade, India's score has been close to zero, denoting an average rating.[8] If these measures are at all plausible, the picture they convey is one of decline—substantial decline—since the 1960s.

One feature of the Adelman and Morris (1971) indicators is that they are more plausible as ordinal (based on rankings) rather than cardinal measures. So, we convert all the data into ordinal form by representing each country in terms of their percentile ranking in the distribution. In the 1960s, India ranked around the 95$^{th}$ percentile, while it fell to about the 50$^{th}$-60$^{th}$ percentile in the last decade.[9]

How reliable are the Adelman and Morris (1971) data? It is always difficult to compare across surveys and especially when the information is subjective and spread across time. But one rough way of checking data quality is to compare their data on political institutions with the widely used Polity IV database that has become something of a standard for quantitative indicators of political institutions and that is also available for the same time period. For example, when we correlate the Adelman and Morris measure of "the strength of democratic institutions" and the Polity IV measure of constraint on the executive for 1960, the correlation is reassuringly high (0.69).

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[8] We computed the indicators for the sample in Adelman and Morris (74 countries); and also for a larger sample of 211 countries for which the World Bank has collected data. Over the last decade, Indian performance on government effectiveness has shown a slight improvement while that on corruption has remained flat. It is possible that perception-based measures, especially for a category as vague as "government effectiveness," are more influenced by the overall performance of the economy, and hence should be discounted more heavily.

[9] It is worth re-emphasizing that these are relative measures: at each point in time a country is assessed against other countries. If there has been a generalized upward drift in the quality of institutions, it is possible that the relative decline in Indian institutions portrayed might not represent an absolute decline.

*C. Isolating the effect of institutional quality: The case of Indian customs*

Although suggestive, the evidence presented thus far—which have been more in the nature of stylized facts or subjective perceptions--cannot be a basis for pronouncing on the quality of institutions. Can we isolate the effect of institutional performance per se over time? We present below a third piece of evidence relating to a particular government institution—the customs service. This is based on a more careful empirical exercise which tries to control for other factors affecting outcomes and thus to isolate the impact of institutional quality. The price of rigor, of course, is representativeness, or rather the lack of it. But we will make a case that this example could be typical of the broader set of institutions—including the judiciary and bureaucracy.

The quality of a bureaucracy has an important impact on public service delivery and on regulation and therefore on the environment for investment and growth. At least at the federal level, the civil service in India has been a prestigious institution, with recruitment based on merit, and attracting some of the most competent and talented people. But the popular perception is that the civil service too has become more politicized, and hence compromised and more corruptible. The concise verdict of Krishnan and Somanathan (2005) is that "the current state of the civil service leaves much to be desired."

How can we measure the performance of the bureaucracy? One institution that is amenable to "objective," quantifiable assessment is customs, which is entrusted with implementing trade and other commercial policies. The extent of evasion that takes place in regard to imports is one such quantifiable indicator of performance. Customs is also a good candidate to examine because it is a highly important and visible part of the bureaucracy. The Central Excise and Customs Department is considered to be one of the elite bureaucratic departments; it is a central rather than a state-level agency, which in general is deemed to be more corruptible and inefficient. Finally, customs has witnessed significant policy reform and technology upgradation through the introduction of computers (see for details). All these factors make customs a public institution that is more—indeed most—likely to have seen an improvement in its performance or at least less likely to have seen a significant worsening of performance.

In Mishra, Subramanian, and Topalova, 2007, we collected data on imports into India at the 6-digit level (approximately 5000 products) for a period of 15 years (from 1988-2002) from all its trading different partners (greater than 100). The WITS database not only provides this import data but also the value of the same imports recorded at the point of origin of these goods, i.e. it records the exports from these partner countries to India for the same time period and at the same level of disaggregation. We define the difference between the recorded exports at the origin and the recorded imports at the India end as a measure of evasion (because there is typically an incentive to under-record imports to reduce the duty and other tax obligations).

As Chart 4 illustrates, the extent of evasion has declined over time by about 20 percent. We tried to see to what extent this decline in evasion was due to an improvement in the quality of enforcement by customs administration as opposed simply to the reduction in and simplification of tariffs following the 1991 macroeconomic crisis. The latter would have led

to a reduction in the demand for evasion; we need to control for this to isolate or identify the supply effect, namely that of the quality of enforcement.

One way of assessing the quality of enforcement by customs is to see the change in the evasion *elasticity* over time. The evasion elasticity is the impact on evasion of a 1 percentage point change in the tariff rate. Over time and within a country, the impact of such a change in tariffs should have a similar impact in terms of the "demand for" (i.e. incentives for) evasion, so that changes in this evasion elasticity should broadly be attributable to changes in the effectiveness of enforcement.[10]

Empirically, Fisman and Wei (2004) suggest that the evasion elasticity can be interpreted as a measure of institutional quality (the lower the elasticity, the better the enforcement). In Mishra, Subramanian, and Topalova, 2007, we find that the evasion elasticity is invariant with respect to tariffs but does vary with measures of enforcement---for example, the evasion elasticity is significantly higher for more differentiated goods and for goods where uncertainty about price is greater. This suggests that where enforcement is "more difficult" because of some inherent characteristics, the elasticity is indeed higher. This is therefore consistent with interpreting the elasticity as a proxy for enforcement/institutions (as the paper shows, other measures for enforcement are consistent with this finding).

Having validated the interpretation of the evasion elasticity as a measure of enforcement, our key finding is that this evasion elasticity does not seem to have declined over time; in some selected instances we find evidence of an *increase* in the evasion elasticity (Chart 5). That is, a given increase in tariffs leads to no less evasion in the early 2000s than it did in the late 1980s/early 1990s. Overall, the evidence suggests no improvements in the quality of enforcement by customs administration, at least not enough to affect the marginal impact on evasion.[11] Even where we can identify pockets of better enforcement such as at airports, we fail to find evidence of improvements over time.

Although one cannot generalize from the experience of one institution, the fact that customs—which we argued earlier should have been the candidate most likely to have witnessed improvements—has not exhibited any improvement is itself noteworthy.

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[10] A clarification might be helpful here. Even if the elasticity of evasion with respect to tariffs is constant (i.e. invariant with respect to tariffs), in theory, this evasion elasticity can vary with enforcement (institutions/administration etc.). What this means is that if one draws a curve in evasion-tariffs space, the shift of the curve (when institutions change) is not necessarily parallel (Allingham and Sandmo, 1972; and Slemrod and Kopczuk, 2002).

[11] The basic specification involves regressing our measure of evasion which varies by time, partner country, and product on nominal tariffs, which vary by product and time. The specification is very general because it includes a full set of country-time, and country-product fixed effects, with standard errors clustered at the product level. Our core sample comprises more than 300,000 observations. Our key finding is that the coefficient on the tariff, which is significant and positive (as expected because higher tariffs should increase the incentives for evasion) does not change over time. For details see Mishra, Subramanian, and Topalova (2007).

This customs example as well as the stylized facts presented earlier on institutional outcomes and the subjective measures of perceptions all seem to be consistent with each other, in suggesting a picture of institutional stagnation. Particularly noteworthy for the similarity in developments over time is the evasion elasticity (Chart 5) and the World Bank's corruption measure for India for roughly the same period.

## IV. From institutions to growth

In this section, we look at institutions as the driving force and examine its impact on growth in two different contexts: India in the cross-section of countries; and regions (states and districts) within India.

*India in the cross-section: Explaining the puzzle of stagnant institutions, rising growth*

The most striking fact about India's growth has been the remarkable turnaround in nearly all measures of growth performance since 1980. Output per capita, output per worker, as well as total factor productivity accelerated sharply after 1980. For example, total factor productivity which grew at about 0.3 percent per annum during the period 1960-80, grew at close to 2 percent per annum in the following two decades. The question is why?

In fact, the puzzle can be posed starkly in two ways. First, it can be posed in an intertemporal (within India) context: why despite relatively limited reforms in the 1980s did growth accelerate so sharply during this period? There is an extensive debate on the possible explanations (see Rodrik and Subramanian, 2005). But for our purposes, the interesting point relates to what all sides *do* agree upon. To the extent that policy reforms were indeed an important contributing factor, all sides agree that the magnitude of reforms especially from the early 1980s till the mid-to-late-1990s, when growth was accelerating was limited. Ahluwalia (2002), one of the important players in the reform process, himself characterizes the Indian effort as one of "gradualism."

The second context for the puzzle is a cross-country one. India has implemented policy reforms since the early 1980s, and especially, the 1990s. But so too have countries in Latin America and sub-Saharan Africa, where reforms have sometimes been broader and deeper than those in India. An illustration of the relative pace of reform is provided by indicators of trade policy. The most commonly used measure is due to Sachs and Warner (1995) as updated by Warcziarg and Welch (2003). This is a binary measure which classifies country as either closed or open. Argentina, Brazil, and Mexico were deemed to have made the transition from closed to open in 1991, South Africa in 1991, and Uganda in 1991. In 2000, nearly *twenty years after* the growth turnaround, India was still classified as a closed economy from the point of view of trade and commercial policies. This picture of India as a closed economy well into the reform process is confirmed more formally using a gravity model of trade (see Rodrik and Subramanian, 2005). To be sure, not all reforms are alike but India as a policy laggard would be underscored if other measures of reform such as privatization were analyzed because, in part, structural reforms tend to be correlated. In fact,

Rodriguez and Rodrik (2000) argue that the Sachs and Warner (1995) measure is itself a broad indicator of macroeconomic stability and structural reforms.[12]

Yet the growth response in these other countries has not been close to that in India. Since 1985, Latin America and sub-Saharan Africa have grown by about 1 percent per capita per year, while India has grown at about 4 to 4.5 percent.[13]

So, if the reforms were not dissimilar, how does one explain the differential supply or growth response? One possible explanation could be that it is the quality of institutions. To understand this point, it is helpful to think of economic development as resulting from the interaction between triggers and fundamentals. Recent research suggests that in the long run, the quality of a country's public institutions are the key fundamentals of long-run growth. What was holding India back, prior to the 1980s, was a policy regime that was unfavorable to the private sector. Once that was changed through policy reforms, the economic landscape was transformed. The key point here is that even a small trigger–i.e., relatively modest reforms—was sufficient to engender a large growth response because of the considerable under-exploited potential provided by the quality of its institutions. India's institutions, built up through the decades preceding independence, allowed it to get a big bang for the relatively small buck of reforms (at least compared with other countries).

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 institutions (or production) possibility frontier. Chart 6, based on Rodrik, Subramanian and Trebbi, 2004, illustrates this under-achievement and its flip side, namely the potential created by India's institutional quality. It depicts, in the spirit of Acemoglu et. al., 2000 and Hall and Jones, 1998) the long run (in fact very long run) relationship between income per capita in 1980 against a measure of political institutions in 1980. The slope of the fitted line is exactly the slope of the coefficient of institutions on income, after controlling for other long-run ("deep") determinants, including openness and geography, and after controlling for the potential endogeneity of institutions and openness.[14]

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[12]Of course, a host of other possible factors determine growth outcomes, including initial conditions, human capital, inequality etc. etc. But in a standard Barro-type cross-country growth regression, India proves to be an outlier even after controlling for some of these determinants (see Table 4 in Rodrik and Subramanian, 2005).

[13] Latin America is, on average, richer than India, so convergence on its own would suggest higher growth rates in India. But the magnitude of the differential cannot all be explained by convergence dynamics alone.

[14] As in Rodrik et. al (2004), institutions and openness have been instrumented.

As can be seen, India is well below the regression line: that is, it is an outlier in this relationship. And it is a negative outlier, suggesting that given its level of institutions, its income should have been much greater in 1980, by a factor of 4 or so. That India was under-achieving relative to its institutions in 1980 is shown more formally in Rodrik and Subramanian (2005) for a variety of institutional measures (economic and political) and estimation procedures. India has thus created considerable growth potential by having done the really hard work of building institutions.

The effects of institutions in India can also be discerned at the level of the states. While the formal reforms at the center received tremendous publicity, perhaps less noticed was the growing decentralization of policy. The Congress party had held power without a break at the center since independence, but the aura of invincibility surrounding it started waning soon after Indira Gandhi lost the post-Emergency election in 1977. Also, even though the Congress party was returned to power at the center through much of the 1980s, a number of states were captured by the opposition, often by regional or even single-state parties.

The centrifugal forces created by this dispersion of political power in India also led to decentralization of economic power and hence policy. Greater economic decentralization meant states could differentiate themselves, not least in their ability to attract private sector investment. This was, of course, facilitated by the gradual dismantling of the industrial licensing system that used regional equity as one of the primary criterion guiding industrial investments.

If economic decentralization became important, states' economic performance should have be more closely tied to state-level institutions in the post-1980s period than before. After all, if the pre-1980s era was about the center deciding, for example, where and how much electricity capacity to install, there is little that the states could have done to affect economic performance within their borders. This is what the evidence suggests. For example, when we relate state-level growth to state-level institutions (which in line with the discussion above we proxy by the transmission and distribution losses (T&D losses) of state level electricity boards (as a fraction of generating capacity)), we find that the latter have no role in explaining growth prior to 1980 but a robust role in explaining post-1980s, especially post-1990s growth. Chart 7 depicts this relationship. It plots the annual average state level growth against a state's institutions (as proxied by the extent of T&D losses) in the 1990s. In other words, the slope of the line is the coefficient of a regression of state growth on institutions interacted with decadal dummies and after controlling for a number of other variables.[15] The

[15] Other controls include state and time fixed effects, the Besley-Burgess indicator of labor market reform interacted with decadal dummies, and initial income plus its interactions with decadal dummies. The relationship between state level growth and institutions is robust to alternative ways of measuring the quality of institutions (Kochhar et. al., 2006).

chart illustrates the strong positive relationship between institutions (the opposite of T&D losses) and growth after the 1990s.[16]

In sum, institutions have had an important role in India's growth turnaround, which is discernible in the cross-section of countries and across states within India. The focus on the policy reforms of the 1990s has tended to overshadow this fact.

**V. From growth to institutions: Disconnect between Growth and Institutions?**

Around the world as countries grow, political and economic institutions tend to improve. As people become richer, they demand more from their public institutions—better public services, more security and law and order, and greater political participation.

One of the more robust findings in the political science literature is that democratization follows incomes (see Lipset 1959, Barro 2006).[17] As countries become richer, they also, on average, become more democratic, granting greater political freedoms to their citizens. In much of east Asia, for example, rising incomes have led to greater political freedoms.

The same should also be true of income and economic institutions. Indeed, the paper by Acemoglu, Johnson, and Robinson (2000) on the impact of institutions on long-run growth is noteworthy precisely because it found a creative solution to the endogeneity problem, namely the widely accepted recognition that as incomes rise institutions improve. Rigobon and Rodrik (2004) find that the impact of income on institutional development is positive. As Korea got richer the costs of doing business for large and small firms declined.

In India, the last 25 years have seen a fourfold increase in the income of the average person. The evidence in Section III suggested that institutions have not improved. Prima facie this suggests that economic growth is not necessarily and automatically doing the job of improving institutions. Why is this the case?

*A. Public institutions: Rising demand*

First of all, it should be noted that the process by which rising incomes leads to better institutions is a two-stage one, involving first a greater demand for better institutions, followed by a process (with complicated economic and political economy influences) whereby this greater demand begets greater and better supply of institutions. The first part of this dynamic has certainly been at play and two examples illustrate this.

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[16] Banerjee and Iyer (2005) present strong empirical evidence that institutions, not just contemporary ones, but those created nearly two hundred years ago, have had lasting effects on contemporary economic performance in India. They show that variations in land tenure systems can explain the pattern of variation in agricultural investment and productivity, as well as in health and education indicators across districts in post-independence India. For example, the average yield of wheat is 23 percent higher and infant mortality about 40 percent lower in those districts that did not have a zamindari (landlord-based) tenure system compared with districts that did.

[17] Acemoglu et. al., (2005) argue, however, that this is a pure cross-sectional result and that the time series evidence is less conclusive.

*Example 1: Crime and income*
In relation to the judiciary, one can ask how growth affects the demands made of the judicial system. If rising incomes leads to a decline in crimes, ceteris paribus, institutional performance should be helped as the judiciary is less burdened. So we examine the simple relationship between serious crime (murder) and income. We compiled data on murders committed per capita in the Indian states for the period 1973-2003. We ran regressions of crime per capita on state-level income and included time and state fixed effects. The latter allows us to ask whether over time and within states there is an association between income and crime. The finding is that there seems to be a statistically positive relationship between income and crime: that is, rising income within a state tends to be associated with more crime. The relationship is depicted in Chart 8 for the 18 largest states.[18]

This simple relationship offers a clue for why judicial performance could be weakening over time: development places greater demands on it, and unless there is a commensurate improvement in resources and quality, outcomes could worsen. The data on declining disposal rates by the courts presented in Chart 2A is consistent with increasing burdens being placed on state-level courts. A similar dynamic, albeit with a different twist, is at work in the example that is described below.

*Example 2: Education and income*
Public institutions in the field of primary education—i.e. government-run schools—are characterized by rampant teacher absenteeism, ranging from 20 percent to over 50 percent in some states. It is not clear whether absenteeism has worsened over time but it would not be surprising if it had.

Based on a careful and detailed study of schools all over India, Kremer et. al. (2005) document a fascinating development, which is captured in Chart 9. The chart shows that states, where public educational institutions are worse (i.e. have greater teacher absenteeism), have seen greater entry of private schools. And this has happened in the last ten years, since the early 1990s. They also show that private schools outperform public ones on a wide number of outcomes.[19]

This study highlights one important aspect of the functioning of public institutions. As incomes have risen rapidly, so has the demand for primary education because the perceived returns to education are now seen as much higher. But public institutions have not been able

[18] The relationship is positive but statistically weaker when we include the smaller states and union territories.

[19] Student teacher ratios are better in private schools as is the problem of teacher absenteeism. Teacher salaries are about one-sixth that in public schools and teachers have greater contact with their students. Students in private schools have higher test scores and are taught English a grade earlier than in public schools. And accountability is much better too: the dismissal rate of teachers is 35/600 in private schools compared with 1/3000 in public schools.

to meet this increased demand reflected in the private sector has stepping in to fill in the gap left by unresponsive public institutions.[20] Viable alternatives to public institutions might be possible in some areas such as education, health, power, and water but they may not, and indeed cannot be, be available in relation to core functions that only a state monopoly can provide through institutions such as the judiciary, bureaucracy, police etc.

*B. Public institutions: Lagging supply?*

What these examples illustrate is that rising incomes are placing greater demands on public institutions but, if the evidence presented in Section III is at all plausible, namely that institutions and institutional outcomes have not improved, it appears to be the case that supply is lagging behind. Why this is so is an important and area of future research. Below we speculate on some possible explanations.

In some ways, the fact that supply lags demand is puzzling because over this period India has witnessed a number of developments that should have facilitated, even forced, institutional improvement.

First, Indian society, open and argumentative as it always was, has received a further, reinvigorating jolt of transparency: institutions have been exposed to the glare of public scrutiny thanks to the explosion in the quantity and quality of the media. From Godhra to Tehelka, it seems that not much can elude the prying eyes of the press or television. Greater transparency should have led to more accountable institutions.

Second, the license-quota-permit raj, a big source of corruption and patronage, with its deeply corrosive effect on public institutions, is being progressively dismantled. While it is true that the locus of rent-seeking may have shifted—from acquiring import and industrial licenses in the dirigiste policy regime of the past to acquiring land, which is now the priceless government-controlled asset in a booming economy—it would be surprising if there were not fewer rents in the aggregate and hence fewer rent-seekers in the system. Indeed, Chart 4 illustrates this point clearly. There has been a significant decline in evasion as tariffs have come down—fewer rents should have reduced rent-seeking.

Third, civil society has become a vibrantly assertive presence in India. Indian civil society has taken on at least two roles: a direct one, in delivering development outcomes, and an indirect one, striving to hold public institutions accountable. Civil society has scored many important successes—from the very visible one of getting Delhi's environment cleaned up

[20] Note that efficient private sector provision of essential services such as education does not eliminate an important role for the public sector: from an equity perspective, the fact that poor households have to pay for private education is a social cost. Luckily, this can be remedied by public *financing* of primary education, while allowing the private sector to continue to play a big role in provision.

through public interest litigation to phenomenal efforts in the field of education. Civil society can now be fairly described as the fifth pillar of the Indian polity.

Fourth, with greater decentralization of political and economic power, the healthy dynamic of competition between states has been unleashed. This allows for demonstration effects: citizens in Bihar can look at their counterparts in Maharashtra and question why they must be in darkness for longer periods without electricity, and why their children must suffer from rampant teacher absenteeism, condemning them to educational backwardness. In turn, this questioning and discontent should have led to a more active, demanding citizenry.

On the other hand, there have also been adverse effects on the supply of institutions. First, although growth has accelerated and poverty has declined substantially, divergences have increased too. Some regions and groups—for example, the adivasis constituting about 80 million people—have partaken minimally, if at all, of the fruits of economic growth. It is no coincidence that Naxalite activity is strongest in the tribal belt spread across central and eastern India, feeding on the fertile climate of alienation and disenfranchisement. A rising tide need not lift all boats uniformly but if important, identifiable ones are left grounded, that could be a recipe for disaffection, and eventually conflict.

Unequal growth also has subtler effects on institutions. Recall the dynamic of growth leading to a greater demand for better public institutions. But if growth is more concentrated at the upper ends of the income spectrum, there is the distinct possibility of what Albert Hirschman called "exit": the rich opt out of the public system, turning to the private sector to get essential services (for example, gated communities with private policing, private generators for power, private schools for their children's education, and so on). The normal pressures for improving the provision of public goods get attenuated. Indeed, Kapur (2006) shows that the well-connected and influential class in India may have less of a stake in higher education because an overwhelming proportion tend to send their children abroad for graduate education.[21]

The second major factor contributing to the decline of public institutions is its increasing inability to attract talent. This too has deeper causes, including the growing politicization of the bureaucracy, cynicism about its role, and the fading sense of public service. But clearly one of them is the very rise of the private sector which has simply made the public sector a less attractive place to work in. The allocation of talent has become skewed. With the staggering scale of remuneration that the new economy is showering on skilled people, the public sector does not stand a chance of competing with the private sector in attracting high

[21] Nandan Nilekani, Chairman of Infosys the IT giant, argues that roads are likely to get built in India relatively quickly because the burgeoning middle class, having acquired cars--the iconic symbol of wealth and status--needs "somewhere to go" to show them off.

quality people.[22] And, if institutions ultimately depend on the individuals manning them and the incentives they face, the prognosis is somewhat grim for public institutions.

## VI. Concluding Remarks

What do these two paradoxes imply for a future reform agenda? Scarcely a day passes without exhortations, from diverse sources, to Indian policy makers to refurbish India's creaking infrastructure, reform its stifling and antiquated labor laws, and lift barriers to foreign direct investment. Underlying these calls is the view that the public sector is the problem and the private sector the solution, and that the policy challenge ahead calls for merely rolling back the frontiers of the state and allowing greater freedom for the private sector. This view is understandable given India's dirigiste past; it is also constructive because it allows for new private-sector-based solutions to be explored and found in areas such as basic and higher education that have hitherto been seen as the public sector's exclusive responsibility; but it is also part-wrong or at least incomplete– and the pendulum could swing too far in the other direction, because it fails to recognize the limits to private sector action.

The two paradoxes highlighted here suggest that the core market-creating public institutions bequeathed by India's pre-independence leaders are key to India's long-run growth, but they may not have kept pace with Indian economic realities. The good news is that some of these institutions, especially those relating to regulation, need not be fatally decisive in terms of their growth impact because of private sector alternatives. But India may well be fast using up the slack from the legacy in relation to the core institutions: the Indian growth engine could sputter as much from weaknesses in the soft infrastructure of institutions as the hard one of roads, power plants, and ports.

Neglecting institutional reform is tempting because institutions are notoriously difficult to change. Where does one even start when thinking of reforming the Indian bureaucracy or police or judiciary? But in core areas, relying on growth and policy reforms to automatically lead to institutional improvement is hardly a serious option as some of the evidence presented above suggests. A starting point has to be the recognition that allowing institutional decline could well come back to haunt not just policy-makers but the private sector as well, whose fortunes depend crucially on strong and effective public institutions. Rehabilitating the institutions bequeathed by Mahatma Gandhi, Pandit Nehru and others, and not just finding creative ways of working around them, should consume the energies of Midnight's grandchildren. A rich and relatively unexplored research and policy agenda lies ahead.

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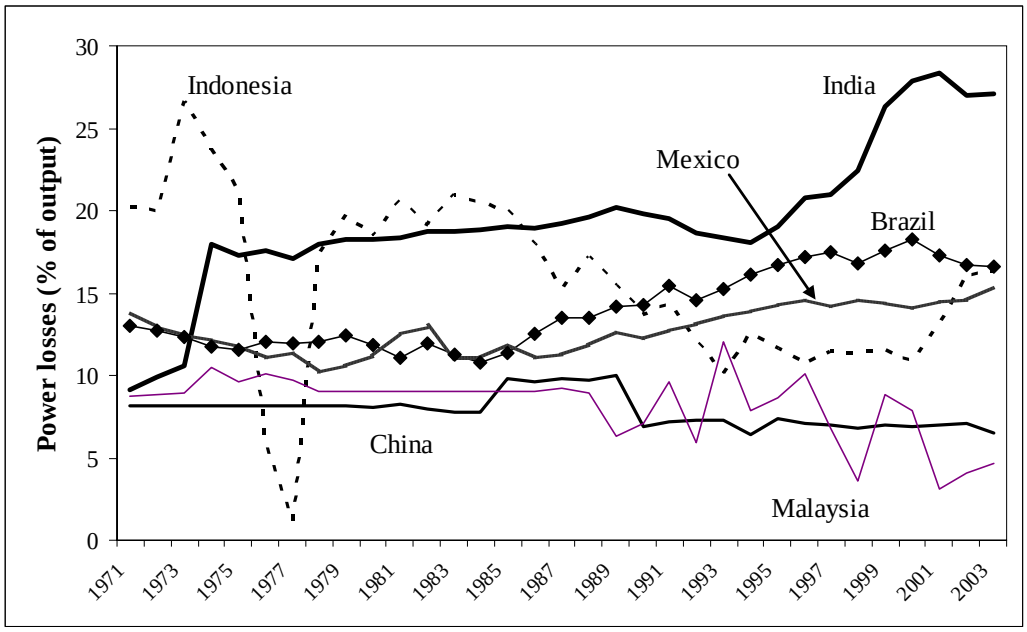
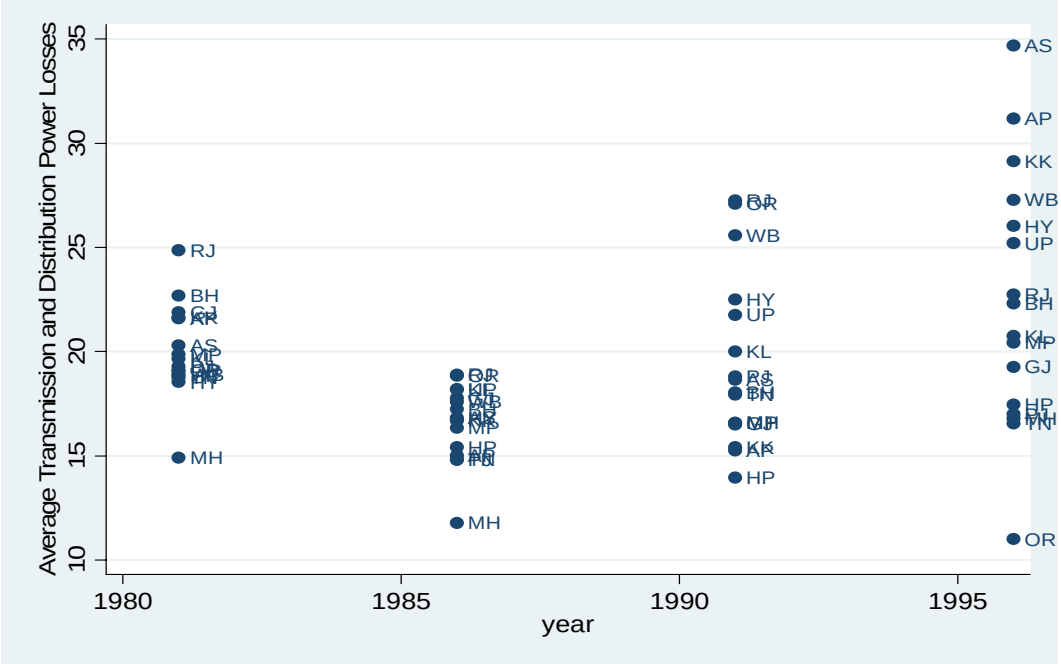
[22] In the study on customs evasion discussed earlier, we found that the average value of customs transactions handled by the typical customs officer in India is about Rs. 29 million per month. The monthly salary, on the other hand, for a customs inspector is Rs. 9000 per month.[22] In other words, even if, on average, corruption amounted to 0.1 percent of the value of transactions, the customs official would make an amount that is more than three times his monthly salary.

**Chart 1A: Power Generation and Distribution Losses, 1971-2003**



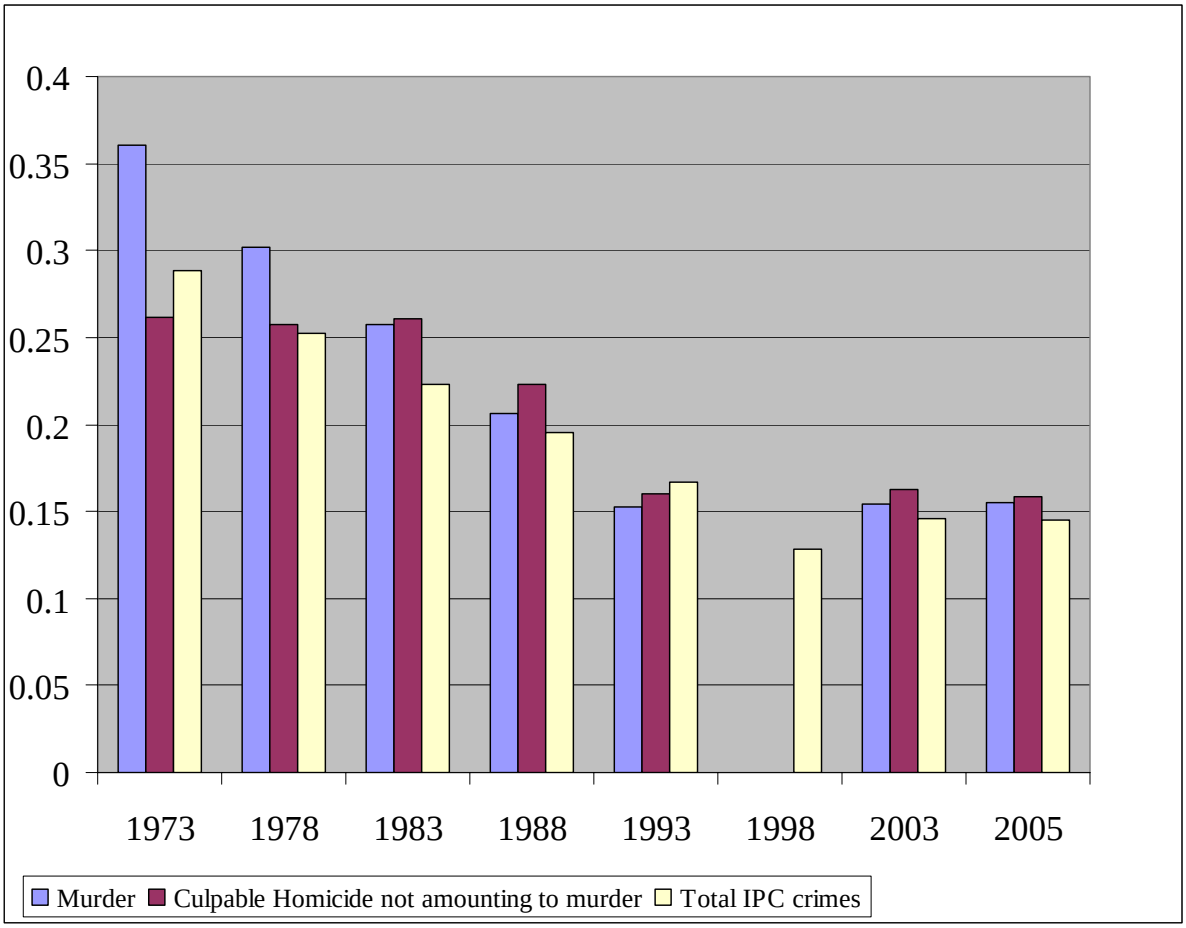

Source: World Bank's World Development Indicators.

**Chart 1B: Transmission and Distribution Power Losses Across Indian States**



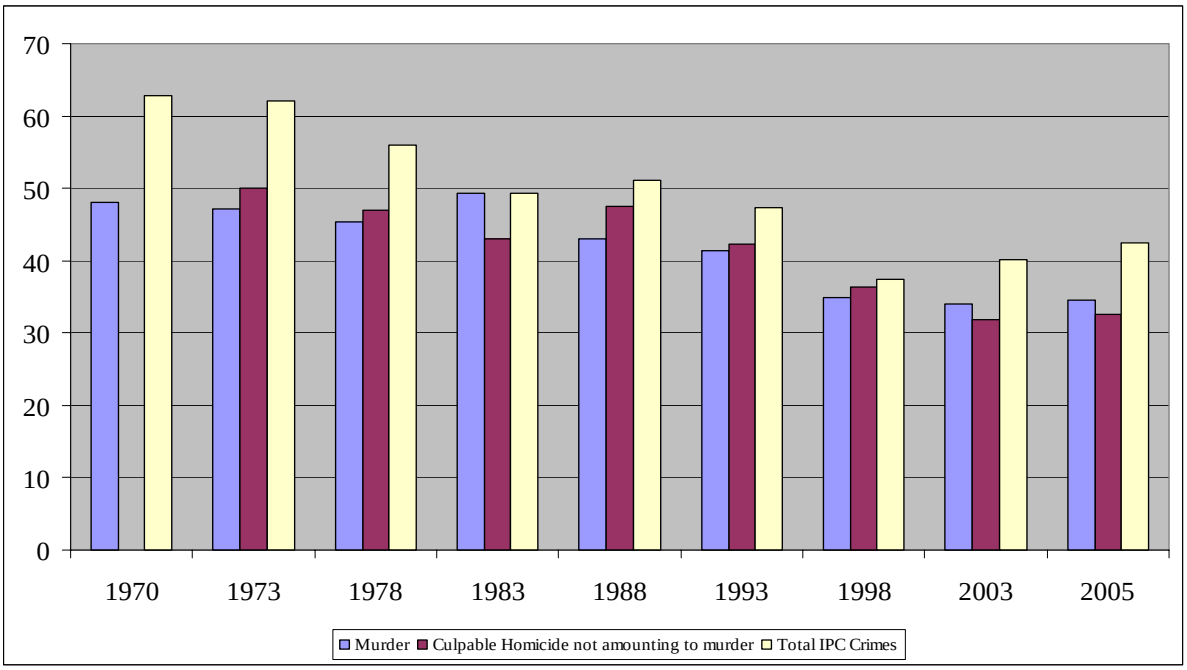

Losses are calculated as averages for four successive 5-year periods (1981-85, 1986-90, 1991-95, and 1996-2000). Losses are depicted for 16 large states. Delhi and Jammu and Kashmir are excluded for presentational reasons and including them does not alter the basic trend depicted.

**Chart 2A. Disposal Rates of Murder-Related Crimes by Courts, 1973-2005 (as a proportion of total outstanding cases)**



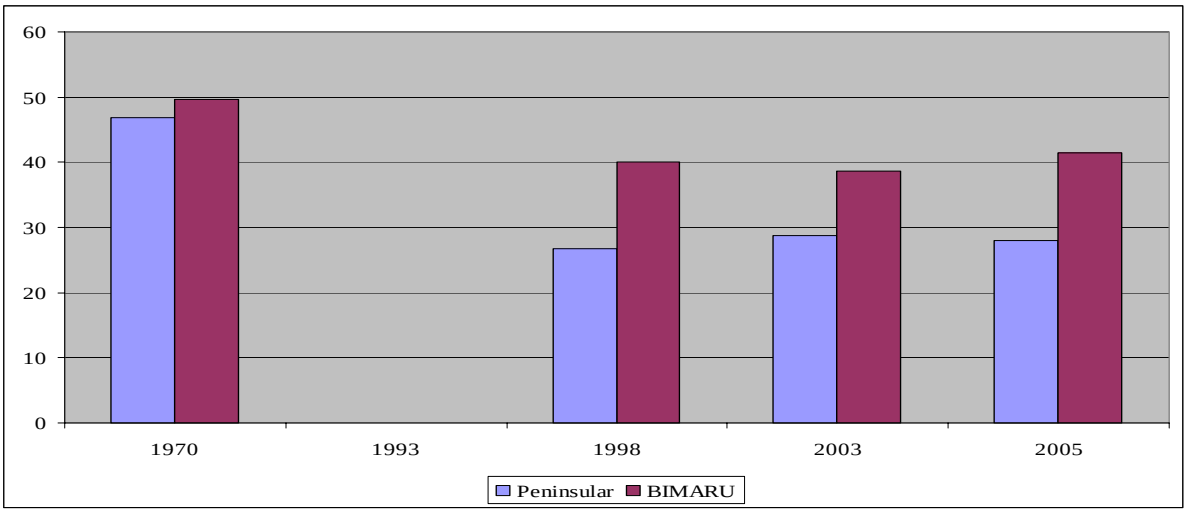

Source: Based on data from "Crime in India" a compendium of crime statistics published annually by National Crime Records Bureau (NCRB), Ministry of Home Affairs, India. Disposal rate is measured as the ratio of number of cases in which trials were completed during the year (comprising all cases that were convicted or acquitted/discharged) to the total number of cases for trial (sum of cases reported during the year and cases pending cases from the previous year)

**Chart 3A. Conviction Rates, 1970-2005**



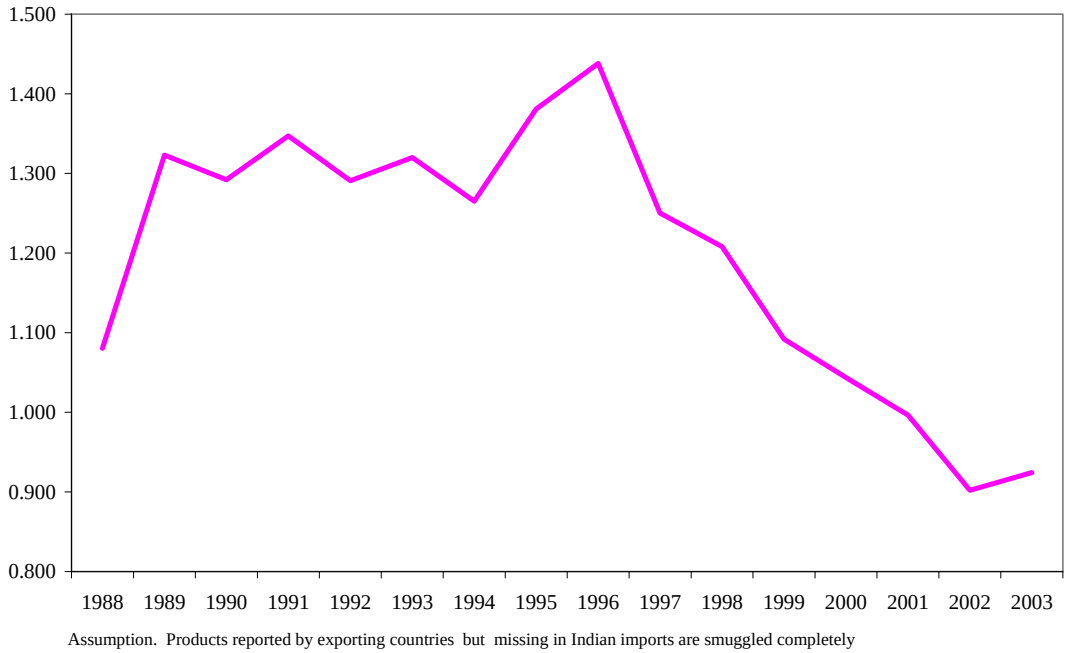

Conviction rates are presented for the 18 large states.

**Chart 3B. Conviction Rates for Murder in Peninsular and BIMARU States, 1970-2005**



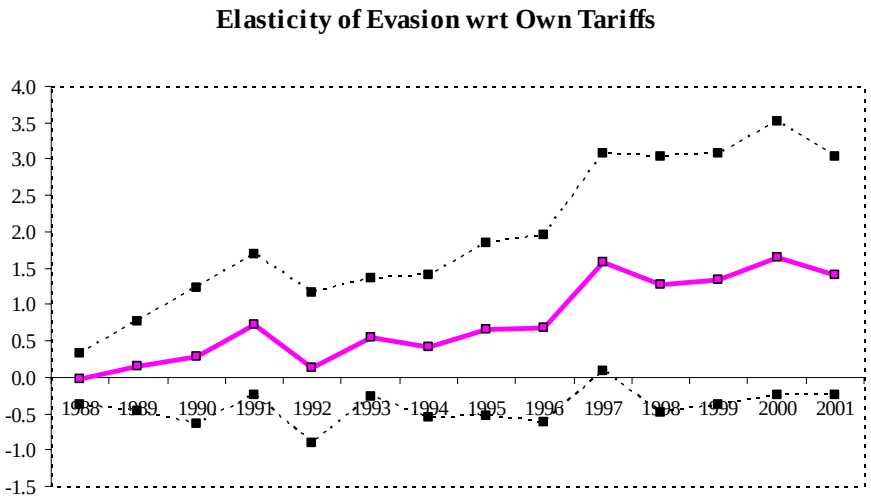

Source: Based on data from "Crime in India" a compendium of crime statistics published annually by National Crime Records Bureau (NCRB), Ministry of Home Affairs, India. Conviction rate is measured as the percentage of total completed trials during the year which were convicted (i.e., (number of convicted cases/ total number of completed trials)*100). Peninsular states comprise Gujarat, Maharashtra, Karnataka, Kerala, Tamil Nadu and Andhra Pradesh. BIMARU states comprise Bihar, Madhya Pradesh, Uttar Pradesh, and Rajasthan.

**Chart 4. Import Evasion, 1988-2002**



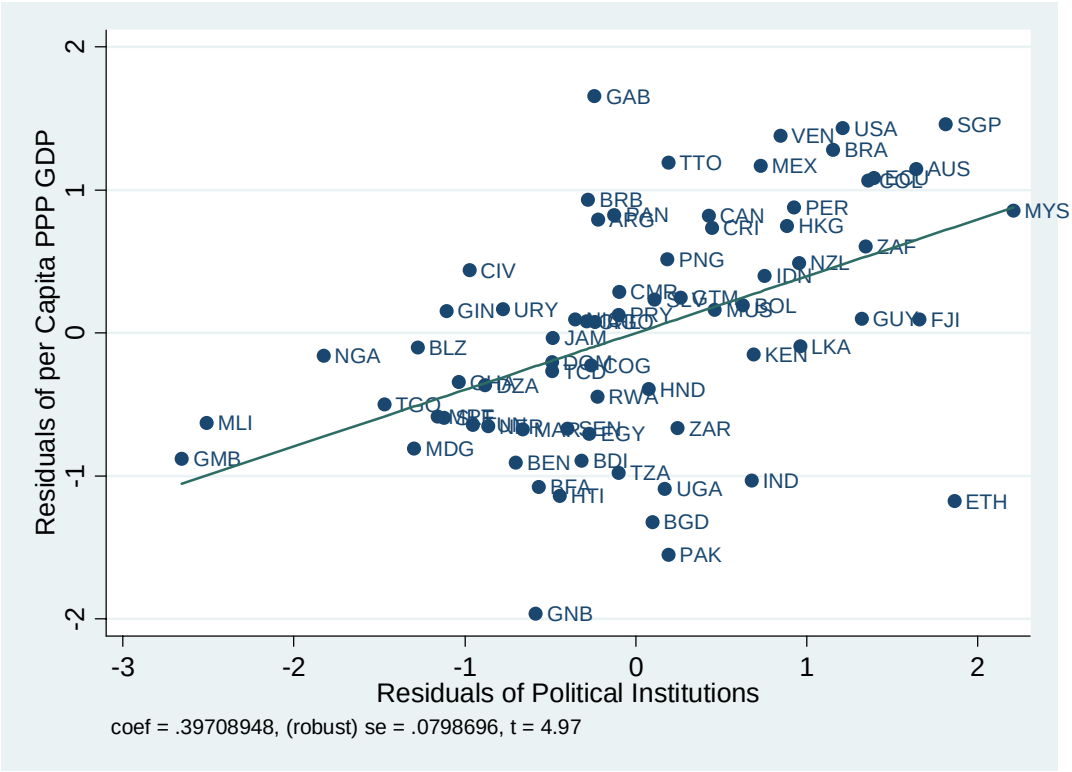

Source: Mishra, Subramanian, and Topalova (2007). Evasion is measured as: log(1+ recorded exports)-log(1+ recorded imports)

## Chart 5. Quality of Customs Administration, 1988-2001



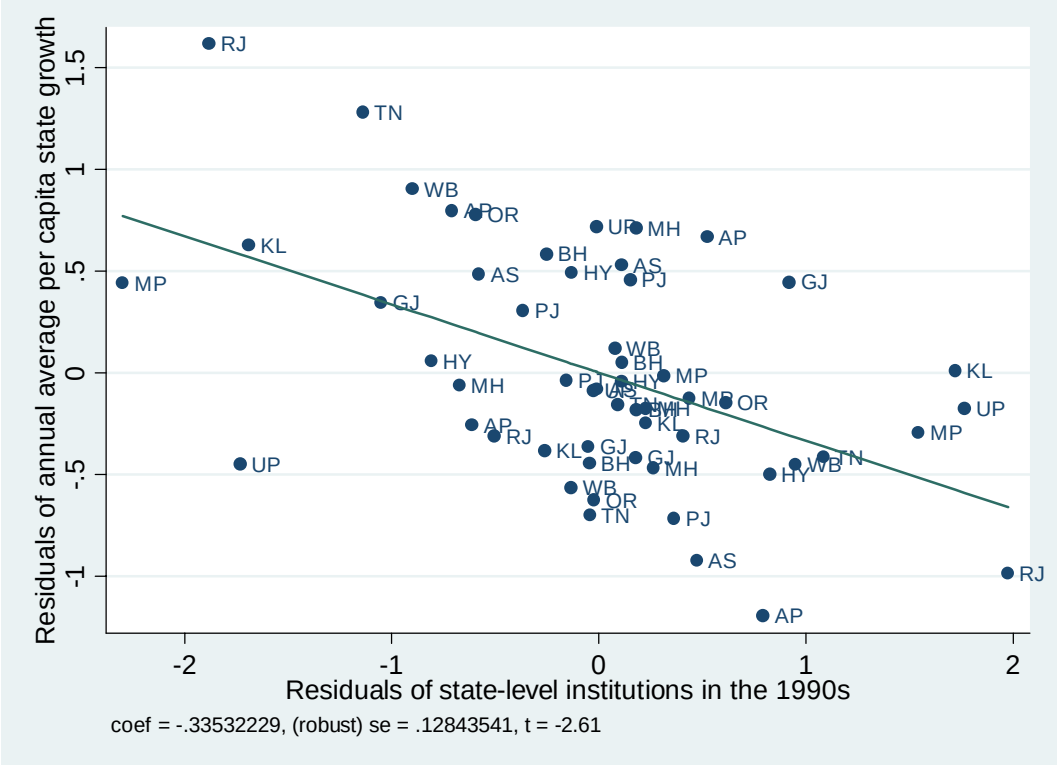

Source: Mishra, Subramanian, and Topalova (2007). The chart shows the estimated elasticity of evasion with respect to tariffs—a measure of the quality of customs administration—as well as the two standard error bands around it. An increasing elasticity denotes deteriorating customs administration.

**Chart 6: India in the Cross-Section: The Institutional Slack**



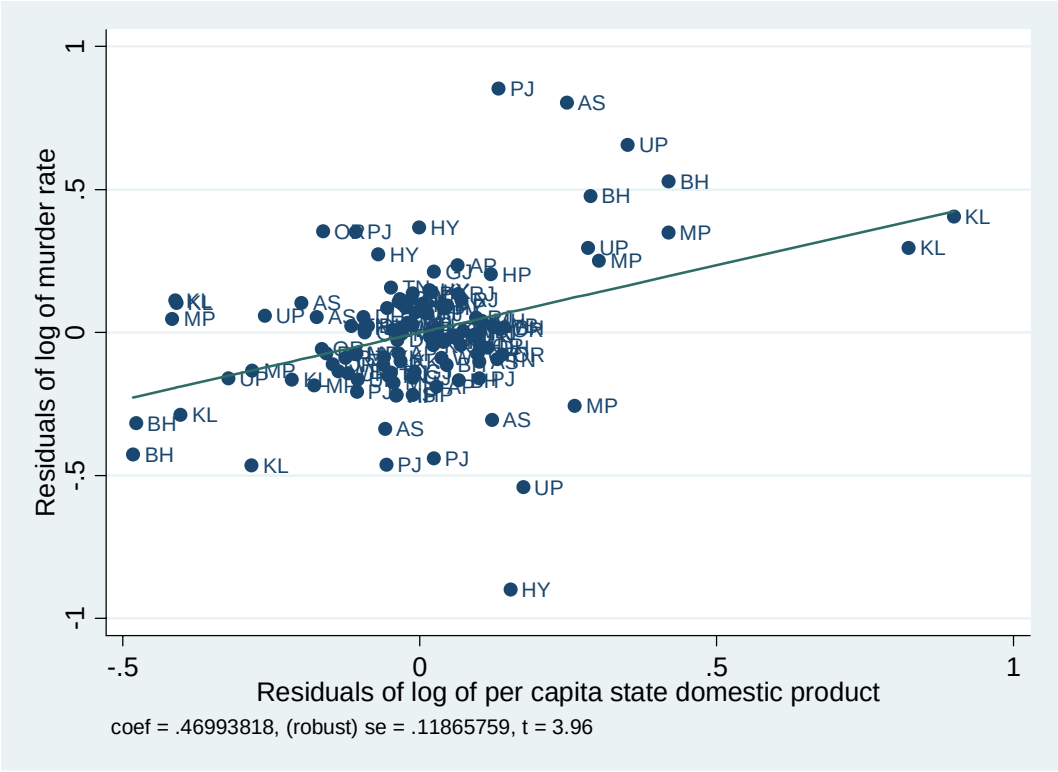

This chart plots the residuals of a regression of a country's per capita PPP GDP (in 1980) on its political institutions (measured as the constraint on the executive), its openness (as measured by the trade-to-GDP) ratio, and its geography (as measured by the distance from the equator). The slope of the line in the chart is exactly the coefficient on institutions in this regression. India is more than two standard errors away from the regression line. For details, see Rodrik and Subramanian (2005).

**Chart 7: The Importance of Institutions: State-level Evidence**



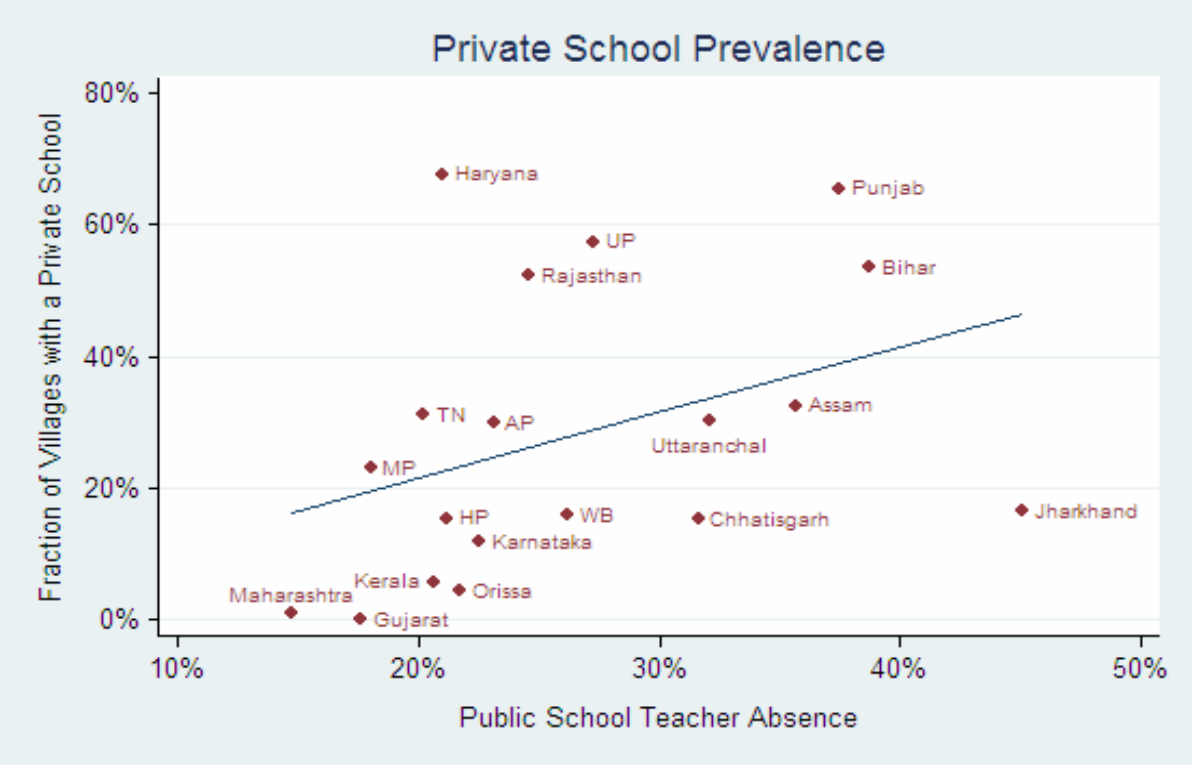

This chart plots the residuals of a regression of a state's decadal average per capita GDP growth on state-level institutions interacted with decadal dummies, state and time fixed effects, the Besley-Burgess indicator of labor market reform interacted with decadal dummies, and initial income plus its interactions with decadal dummies). The slope of the line is exactly the coefficient on institutions in the 1990s (i.e., the partial impact of institutions in the 1990s on average growth in the same period). The chart illustrates the strong positive relationship between institutions (the opposite of T&D losses). For details, see Kochhar et. al. (2006).

**Chart 8. Relationship Between Income and Murder, 1973-2003**




This charts plot the residuals of a (unbalanced) panel regression of average murders over seven successive five-year periods beginning in 1973 through 2003 on state per capita net domestic product, controlling for time and state fixed effects. The slope of the line in the chart is the coefficient on income in this regression. The sample includes 17 large states; Jammu and Kashmir is excluded because it appears to be an outlier but the results remain unchanged even if it is included.

**Chart 9. Public and Private Schools**




Source: Kremer et. al. (2005)

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