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The Paradox of India's North-South Divide

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Abstract

This paper argues that the gap between the southern and northern states of India has widened significantly in recent years in terms of per capita income and poverty reduction. It examines the factors underlying this phenomenon and divides them into proximate and foundational factors. Analysis of the historical data for over four decades shows that the gap between the two regions was much smaller at the outset and that the north had a head start in some areas. A major finding is that though the south was somewhat better placed in terms of initial conditions for over two decades, it was only in the post-liberalization period that it could realize their potential and surge forward.

The Paradox of India's North- South Divide

Introduction

In recent years, several observers of the Indian scene have noted that the country's southern states have performed distinctly better than their northern counterparts. They have presented a range of evidence to show that the south has done better than the north in significant respects that matter to the people. Some authors have highlighted economic indicators to show that the south is ahead of the north in terms of development. Thus, the south's current per capita income is shown to be higher than the north's. South's human development indicators are claimed to be better than the north's. Others have mentioned less tangible aspects of social life or the functioning of government as areas in which the south is superior. There are two problems with generalizations based on a comparison of such current indicators. They do not shed light on whether this state of affairs has always existed, or it is a phenomenon of recent vintage. Nor do they tell us anything about the factors that may have caused the south to perform better on these counts. To find answers to the question of the divergence in performance between regions, one needs to undertake systematic investigations, including a study of past trends, and generate credible evidence that might explain the phenomenon. A search of the literature does not show that such careful studies have been attempted so far.

One reason why this subject is of much research interest is because, if true, it goes counter to the economic doctrine that over time the constituent parts of a country tend to converge in terms of development. The argument is that resources would flow to the less developed areas of the country, setting in motion the process of narrowing the gap between regions over time. Even if private resources fail to flow as predicted, public resources would flow and facilitate a move towards convergence. The reference here is largely to the convergence of economic outcomes, such as production of goods and services, employment and standards of living. No one has claimed so far that convergence might occur also on the public governance or cultural fronts. A plausible reason is that these are more complex outcomes that are difficult to measure, and are seldom dealt with by economic analysts.

A second reason why the subject is of interest is because just three decades ago, the popular perception about the north and south was exactly the opposite of what we hear today. In the first three decades since Independence, a significant number of people from the south went to the northern and western Indian cities in search of jobs. In many lower level jobs, in both private and public sectors, large numbers of southerners could be found in cities such as Mumbai, Kolkata and Delhi. There was no such migration from the north to the south. For many observers, it was a clear signal that the south had limited employment opportunities, and that its people had lower standards of living, forcing them to go out of their region to improve their lot. In fact, northerners used to look down upon the migrants

and consider them backward in many respects. Casual observations of this kind have led observers to conclude that the transformation of the south in development terms is a more recent phenomenon. Again, there is hardly any assessment available as yet of the precise dimensions of this transformation, if indeed it has occurred. But if turns out to be true, and credible evidence of the underlying factors can be assembled, it will certainly be of public interest and improve our understanding of how economic and social development works.

As noted above, the debate on the subject of north-south divergence has so far been based on journalistic accounts. Economists, on the other hand, have paid more attention to the broader problem of convergence of income and the reasons for income variations across all the states of India. To explain inter state variations, they have used cross section analyses of data based on which they have identified a plausible set of key variables. There is a consensus that the expected convergence trend is yet to happen in a significant way in the country.

Ramachandra Guha is one of the few authors to examine the north-south divergence phenomenon from a historical perspective[1]. After offering some evidence in support of the divergence, he goes on to argue that the south had certain historical advantages that may have aided its better performance.

[1] R. Guha, Southern Exceptionalism, Outlook.

He highlights the proximity to the sea coast that all the southern states enjoy and the trade links that have existed for centuries between them and many foreign countries. Indeed, these are important enabling conditions, and have had a significant influence on the course of south's history. However, these factors have remained constant through history, and cannot explain the paradox that the south was considered economically backward or at least not ahead of the north only three decades ago. The causal factors underlying the north-south divergence phenomenon, if true, must therefore be sought in other developments.

The purpose of this paper is to examine this phenomenon in depth, and to seek answers to several questions that it raises. Is the claim of south's better performance credible, and backed by robust evidence? In precisely what respects has the south performed better than the north? Was the south always on a higher performance plateau, or is its better performance the result of a recent turnaround in the south? Is there a set of credible factors that can explain this phenomenon? What lessons and policy implications can we glean from this experience about how development comes about?

Before proceeding to answer these questions, it is necessary to clarify a few definitional matters. Foremost among these is the definition of the north and the south. The south refers to the four major states of Tamil Nadu (TN), Karnataka (Kar), Andhra Pradesh (AP), and Kerala (Ker). The north consists of Uttar Pradesh (UP), Bihar (Bih), Madhya Pradesh (MP), and Rajasthan

(Raj) (also known as BIMARU states). These represent the north in our study mainly because they are the largest states and account for the bulk of the northern population. The exclusion of other northern states such as Punjab and Haryana does not pose a problem as they are examples of the few northern states, along with Delhi (a city state) that have performed well in economic terms. In fact, Punjab, Haryana, and the western states of Gujarat and Maharashtra have been high on the economic performance scale ever since Independence. But the debate has never focused on their performance vis-à-vis the four large northern states mentioned above. In the course of the study, we propose to examine the reasons behind this paradox.

A second issue concerns the nature of the historical evidence used in this study. Since we are concerned here with the trends and patterns of developments over long periods, it is essential that we gather as much past data as possible. However, data availability is a problem in that the time series for some of the variables that we need for analysis simply do not exist. The states included in the study have also undergone changes due to reorganization since Independence, making comparisons over time difficult. We have no option but to live with these data limitations, much like a detective who has to solve the crime, using whatever bits of evidence he or she can gather, despite their partial nature.

A final comment is a word of caution. Our reference to the better performance of the south should not be taken to mean that its development

outcomes are of the highest order. No writer has made such a claim in the literature. The reference here is only to the relative positions of the regions involved in terms of development. It is not an invitation to the southern states to be complacent, and assume that they have reached the top of the development ladder. India still remains a developing country, and even our better performing states are yet to reach a "middle income country status".

I. Has the South Performed Better than the North?

In the first phase of our study, we undertook a detailed historical analysis of the performance of one selected southern state and one northern state. It not only made the initial exploration more manageable, but also helped us to test our hypotheses and to experiment with different types of data. The states selected for this exercise were Tamil Nadu (TN) in the south and Uttar Pradesh (UP) in the north. This selection was influenced by the fact that both were metropolitan regions of two large presidencies (Madras and United Provinces) of the British colonial era, and partly because it was easier to track and understand specific developments and policy changes at the level of an individual state rather than at the level of a region consisting of several states. Both of these states would have had common administrative systems, traditions and policies inherited from the British colonial past. Performance variations arising out of differences on this count are therefore likely to be minimal. Similarly, in explaining changes in performance by reference to

certain policies or other actions taken in the past, the relevant accounts, data and insights are more likely to be available at the state level.

Once an analytical framework was designed, tested and fine tuned based on the data from TN and UP, the same framework was applied to the southern and northern regions as defined in the study. The purpose of the second phase was to see whether the same pattern holds good when the relevant states are aggregated and a regional comparison is attempted. If the findings are significantly different, it is clear that generalizations could not be made on a regional basis. At best, the patterns may be similar for some states of the north and south, but not for all. On the other hand, if the patterns and findings reinforce those of the TN-UP comparison, it would lend credibility to our approach and the analytical framework of the present study.

How did we define performance for the TN-UP comparison? We have briefly referred above to the claims of some authors that the south is ahead of the north on several counts. Since there was no clear analytical framework or data in these writings, it is essential that we begin with a discussion of the framework, criteria, and data that we propose to use in order to compare the performance of the selected states. First of all, we recognize that there are many dimensions of development that are pertinent to a comparison of the performance of our states and regions. There are, for example, economic, social, political and cultural dimensions of development, all of which could be relevant to determining how well a state has performed. While all of them

need to be identified and measured if we wish to be comprehensive in our approach, it has to be said that not all of these dimensions lend themselves to precise definition and measurement. Cultural features are a case in point. Reasonable people may well disagree on the criteria for measuring cultural progress. Accomplishments in art forms, for example, are often unique and difficult to measure and compare. Our framework, therefore, will consider only those dimensions that can be defined, identified and measured in a manner that can make comparisons fair and credible.

Second, comparisons will be difficult when the required data do not exist or are incomplete. Hence some dimensions may have to be left out not because of any difficulty in identifying or measuring them, but simply because of a lack of adequate data. For instance, criteria for judging social progress or political development may exist, but the indicators to be used may be partial or the required data may not exist. And the problem may be rendered more difficult as historical data may be incomplete. These limitations have forced us to focus exclusively on the economic dimensions of performance for which credible indicators are available, measurement is feasible, and historical data exist. It is important to add that the economic indicators used may in turn reflect social or political factors and developments as we shall demonstrate below. Hence our inability to directly measure non-economic phenomena need not imply a complete lack of attention to such factors in the present study.

Based on this approach, we examined the economic performance of TN and UP over the past nearly four decades, using two widely accepted criteria for economic evaluation, viz., measures of per capita income and poverty. Per capita income is a measure of the economic well being and standard of living of the people.[2] The proportion of population below the poverty line tells us, at least in part, how fairly income is distributed within a given society.[3] Taken together, these two measures provide us a succinct and balanced assessment of the economic progress of the two states. The availability of official data on these two performance outcomes for a long period enables us to see how the development of the two states has evolved over time. It can tell us, for example, whether the performance gap between the two states has narrowed or widened over time.

A comparison of the rates of growth of the net state domestic product (NSDP) of the two states from 1960-61 to 2004-05 yielded a surprising result. Over this long period, the growth rates of the two states did not differ much at all. Until the 1980s, growth was slow in both states. Growth rates increased subsequently, but at about the same pace (105% over a 15 year period). UP, with its larger size and population, had a much larger NSDP (see chart 1).

A superficial reading of this finding may lead one to conclude that there was no real difference between the two states as far as overall

[2] The time series used for analysis of per capita income is 1960-61 to 2004-05.
[3] The time series used for analyzing poverty is 1973-74 to 2004-05.

economic growth performance is concerned. A comparison of NSDP, however, does not take into account the changes in the population growth rates that have taken place in the two states. Changes in the size of the labour force and its productivity are determinants of NSDP. Per capita NSDP is the performance measure that takes into account these factors. We present the trends in per capita NSDP in UP and TN in Chart 2.

Chart 1: NSDP, TN and UP, in Constant (1999-2000) Prices (in crores)

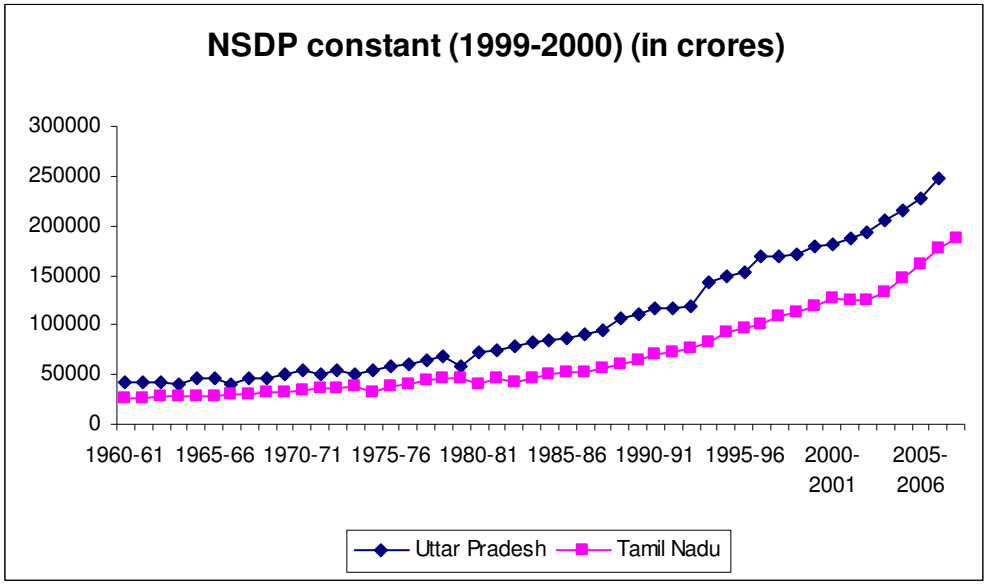
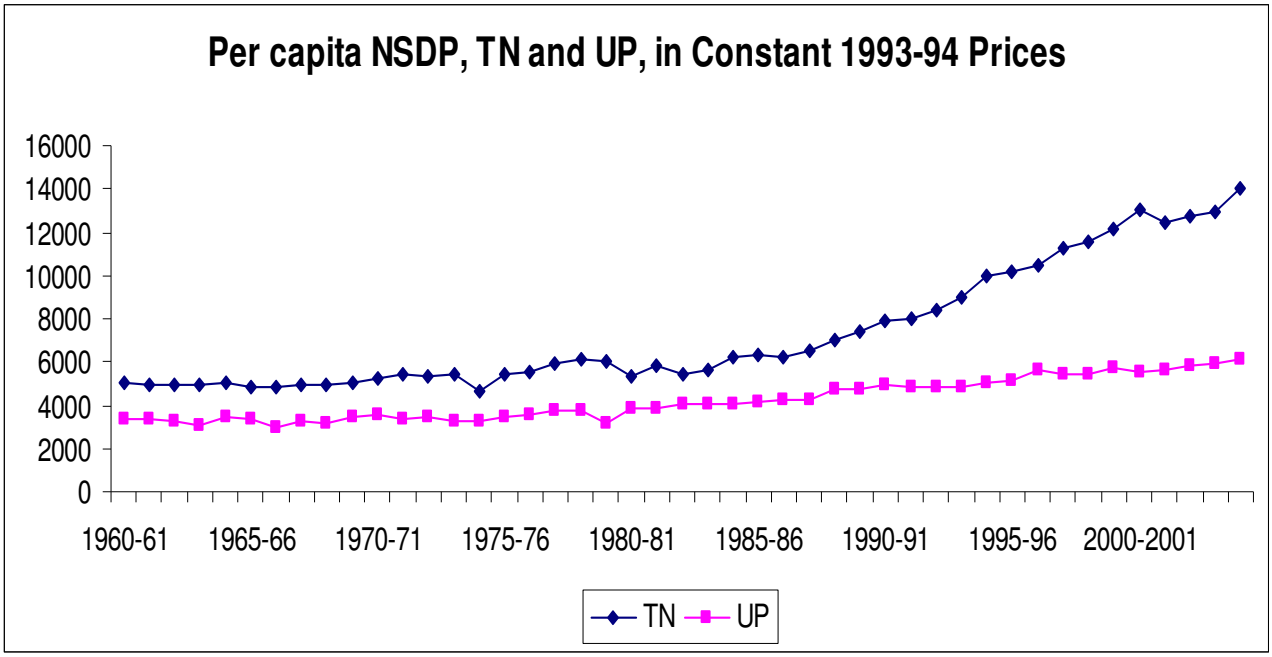


Chart 2 presents the historical trends in TN and UP with respect to per capita income. Chart 2 shows that in 1960-61, TN had a per capita income of Rs.5,053 while UP had a per capita income of Rs.3,338. TN was ahead on this score by 51%. In the early 1980s, this gap had narrowed to 39 %. By 2005-06, however, the gap between the two states in terms of per capita income had widened significantly to 128%. Chart 2 also tells us that the

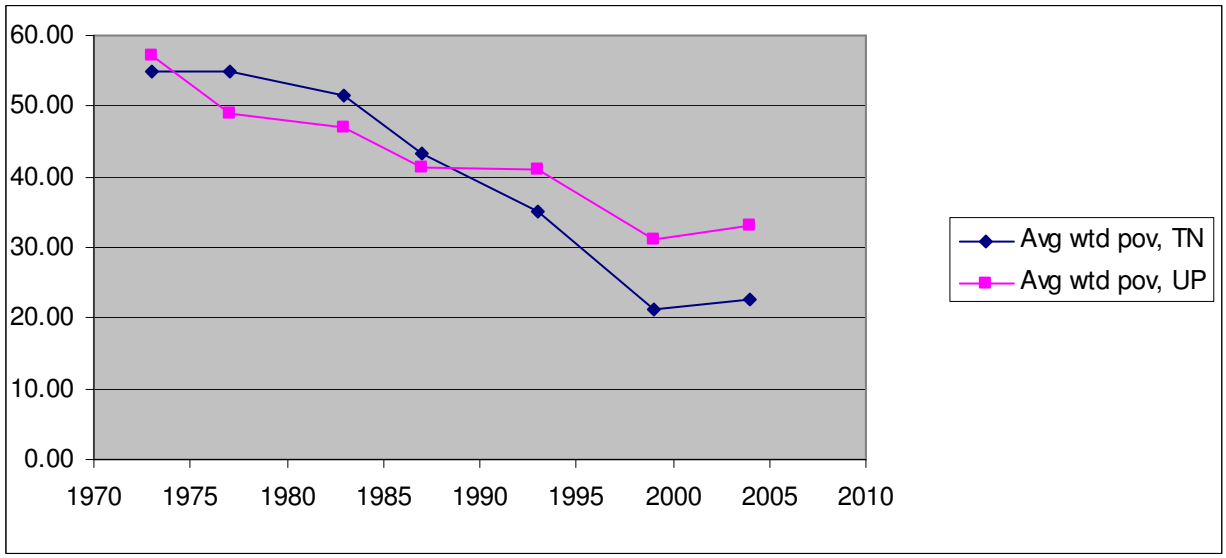
widening of the gap began after the mid-1980s, and became more pronounced since 1992-93. Based on this analysis, we conclude that judged by per capita income, TN was always ahead of UP by a modest margin, but that TN had moved far ahead of UP by 2005 (50% vs 128%). The economic gap between the two states has thus widened significantly in recent years. The divergence began in 1987-88 and accelerated from 1992-93.

Chart 2: Per capita NSDP, TN and UP, in Constant 1993-94 Prices



The poverty ratios depicted in Chart 3[4] shed light on another equally important facet of economic performance. A comparison of the two states on this score shows that during the 1970s and until about 1985, TN was actually about the same as or perhaps worse than UP as far as the extent of poverty is concerned. In fact, Datt and Ravallion (1998) report nearly 70 percent rural poverty for Tamil Nadu in 1960 compared with only about 48 percent rural poverty rate for Uttar Pradesh in 1960. This suggests that economic deprivation and inequality were much higher in TN earlier on, but that it made a surge in terms of reducing them rapidly at some point.

Chart 3: Poverty Ratios for TN and UP



[4] It should be noted that the poverty rates depicted in Chart 2 are weighted total poverty rates – based on the rural and urban poverty rates that were obtained from the Planning Commission. We are aware of the problems with the reliability and methodology of official data and the ongoing debate on poverty ratios. However, for lack of a better data source, we use these readily available estimates.

The rural and urban poverty rates were weighted with rural and urban populations for the states and respective years to arrive at the total poverty estimate for each year and state. In fairness to UP, for 2004, the poverty (both rural and urban) data for Uttaranchal has been accounted for, in the interests of comparison with earlier years when UP was undivided.

The combination of a higher level of income and more widespread poverty that is found in TN compared to that in UP signals a more unequal distribution of income in the former early on. But by the 1990s, a significant change in this combination seems to have occurred in TN. By 2005, not only did TN's per capita income exceed that of UP by a wider margin than before, but its poverty ratio also had declined well below that of UP. In other words, TN's rising per capita income has been accompanied by a significant reduction in the extent of poverty in the state.

We can now state our finding from this analysis of two important performance outcomes, namely, per capita income and poverty, with respect to TN and UP over the period 1960-61 to 2004-05. The two states were not far apart at the beginning of this period. In fact, TN was worse off in respect of poverty than UP though its per capita income level was somewhat higher than that of UP. By 2005, however, TN had stolen a march over UP on both counts. Its per capita income was higher by 128%, as discussed earlier, and its poverty ratio had fallen by 59% compared to the corresponding outcomes (reduction of 42%) for UP. It is this dramatic improvement in terms of economic performance that has put the spotlight on the emerging North-South divide in India.

It is instructive to examine which sector/s led the surge in per capita NSDP that we observe in TN. Charts 4-6 show the trend in the composition of NSDP by sector (respectively agriculture, industry and services) in the two states.

While as far as the share of agriculture goes, UP is always above that of TN, in the share of industry, TN scores well over UP for all the years except the last couple of years. It did seem that during the last few years, the share of the industrial sector in UP caught up with that in TN and surpassed it. The service sector is an interesting one. Until 1980-81, the two states were more or less identical as far as the service sector share is concerned. However post-1981, the service sector in UP declined in its share in NSDP when compared with that in TN where there was a constant increase. So there are grounds to believe that the service sector led the surge in per capita incomes in TN. This is consistent with the national growth story.

Chart 4: Share of Agriculture in NSDP, TN and UP

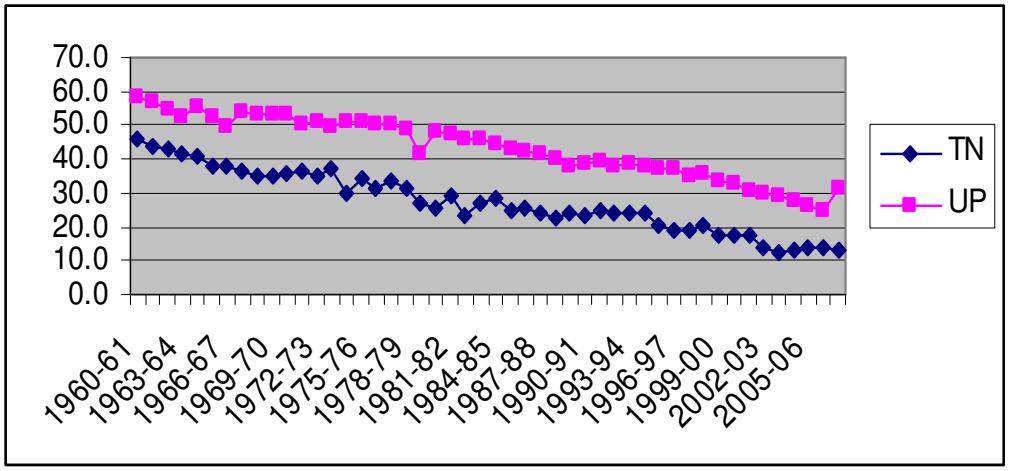


Chart 5: Share of Industry in NSDP, TN and UP

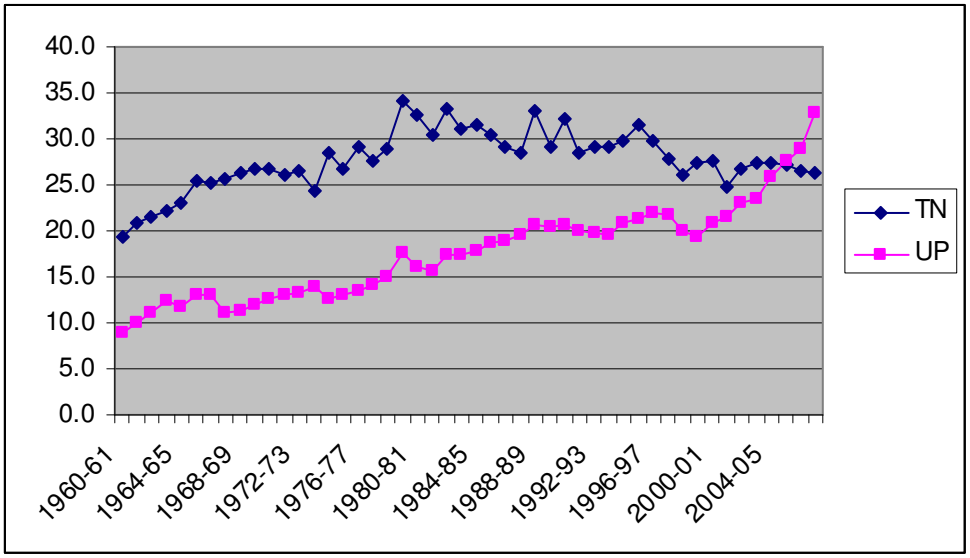
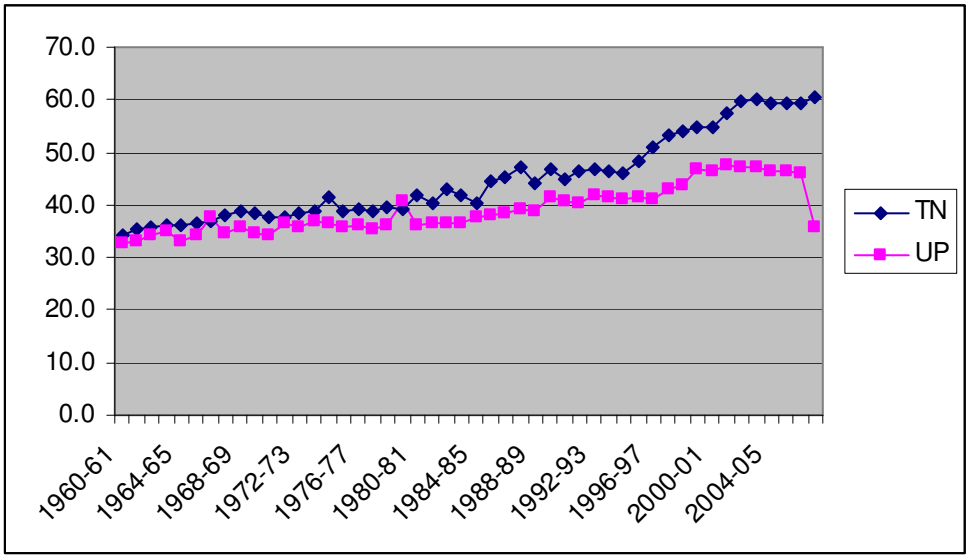


Chart 6: Share of Services in NSDP, TN and UP



Did a similar transformation occur over time in other states? An analysis of the per capita income levels and poverty ratios of other high performers such

as Punjab, Haryana, Gujarat and Maharashtra shows that they were always much better off than UP. For instance, in 1980-81, their per capita incomes were respectively Rs.8,442, Rs.7,506, Rs.6,455 and Rs.7,102 compared with only Rs.3,825 for UP. Not only were their income levels higher, but their poverty ratios were much lower than that of UP. That these high performing states continued to do better in 2005 is not newsworthy. But TN's surge forward is indeed news because it was not in the same league as these high performing states some forty years ago. A deeper probe into this phenomenon is clearly in order. The big question is, what accounts for this dramatic transformation.

Experts have offered a wide range of hypotheses to explain the phenomenon of the economic transformation of countries. Their early models focused primarily on the role of capital as the proximate factor that led to economic growth. The post-World War II experience with the reconstruction of Europe via the Marshall Plan convinced many observers that the injection of capital would lead to the revival and acceleration of economic growth. Some experts even specified the rate of investment necessary for countries to reach the "take off" stage of development.[5] But the experience of many developing countries that followed this approach pretty soon demonstrated that investment of capital does not automatically lead to the desired rate of a country's economic growth. In fact, a number of empirical studies showed

[5] Walt Rostow, the MIT economic historian, wrote an entire book on this theme.

that investment of capital explains only a part of the growth differentials between countries. The unexplained "residual" was often attributed to "technical progress", a mix of factors that included technology and other influences that tended to enhance productivity, but were difficult to untangle and measure. In more recent years, measures of human resource development (HRD), the stock of different types of infrastructure, etc., have been brought in as explanatory factors, thus giving greater specificity to the unexplained "residual". Human resources such as skilled labour are complementary inputs that work with physical capital to produce goods and services. Infrastructure such as power and roads are essential factors without which capital will not be attracted to countries. Even if capital is invested, infrastructure gaps tend to reduce the productivity of capital. There is also a growing realization that non-economic factors such as the quality of public governance that obtains in a country have an influence on economic growth, although studies that have incorporated such variables are very few. It is governments that generate public goods and create an enabling environment for the productive use of both capital and labour. If a country's government provides greater political stability, investors are likely to consider its policies to be more stable and predictable, and hence to respond more positively to the country as an investment destination. Similarly, if law and order, and dispute resolution are better in a country, it tends to create a more enabling environment for economic activities. If a government is seen to be more efficient in the creation of public goods such as infrastructure, the

chances are that the incentives to invest in the country will be stronger. In brief, there is a greater awareness today that economic growth and progress of countries depend on both economic and non-economic factors that provide the triggers and an enabling environment for the growth process to be sustained.

The incorporation of all these factors into explanatory models of growth, however, has not been easy. And this limitation applies not only to models explaining macroeconomic growth at the national level but also at the sub-national level. In general, explanatory studies have remained partial in their scope mainly because the trend in the literature has been to use variables that are easier to identify and measure, and to ignore factors that are qualitative and difficult to quantify. Thus, much attention may be given to familiar factors such as the financial system's stability, but not to the stability and functioning of the governance system. In the context of our study, this point assumes a special significance. In a federal system, policies affecting financial stability, inflation, etc., will be common to all states. The factors that set apart one state from another will be governance and related features that are state specific. Skilled labour and technology can be imported. Substitutes can be found to make up for infrastructure gaps. Power shortage can be relieved through the use of generators or of a national grid. Railways may make up when roads fail. But political regime change is not an option for investors! If political instability or law and order problems are more severe in one state, all that economic actors can do is to plan to invest or operate in

another state that has better governance. They have no option in the short run but to live with the quality of governance available in the state once they decide to invest there. Viewed thus, governance system and practices are the least mobile of the factors considered here.

While our understanding of the factors that contribute to or cause changes in economic growth has improved somewhat, the same cannot be said about the progress being made in specifying and measuring these factors. Comprehensive measures of the factors are not easy to craft. Human resource development and infrastructure, for example, have different components and facets. Literacy, higher education, institutional quality, etc., are all pertinent to human resource development. But data pertaining to all of them may not exist or may be difficult to combine in order to get a comprehensive measure. Governance tends to be ignored mainly because it has multiple dimensions the quantification of which is extremely difficult. Analysts therefore end up using proxies and partial measures of the basic variables involved. Often they have no option but to make use of only factors for which the required data are available.

There is a hierarchy of factors that impact on economic performance. We propose to divide these factors into two categories: proximate and foundational. Proximate factors include those that are believed to have a close and immediate influence on the outcome, namely, economic performance. Literacy, health, public spending, infrastructure, etc., are

examples of proximate factors. Foundational factors are broader factors that create an enabling environment for improved performance. The multiple dimensions of governance, rule of law, etc., are foundational in nature. The long run movement of proximate factors can be impacted by foundational factors. A country or state with oil wealth or foreign aid, for example, may expand its infrastructure significantly. Its ability to effectively use the infrastructure, however, may still be determined by the quality of the state's governance. In the short run, proximate factors could act as important determinants of performance, but their influence could be diminished in the long run if and when foundational factors fail to reinforce them. It is for this reason that most investors tend to assess both sets of factors in the context of their long term planning and strategic decisions. In the present study, we propose to take into account both proximate and foundational factors pertinent to long term performance.

India's growth experience has also been the subject of an impressive number of studies in recent years. Though none of them has explored the North-South divide theme that is the subject of our study, we present a brief overview of a few of the studies that have some relevance to our subject in Annexure A.4.

II. What Explains the North-South Divide?

As noted above, a study of the growth performance of TN and UP over the past four decades shows that significant divergence between them in terms of per capita income and poverty incidence occurred only in the recent past. A perusal of Chart 2 points to 1987-88 as the period when a noticeable upward shift in per capita income took place. A review of charts 4-6 shows that the beginning of the 1980s was about the time when the service sector in TN surged when compared with that in UP. It is during the same decade that poverty incidence of TN fell below that of UP (Chart 3). If we can identify the factors underlying this shift that began in 1987-88, we are likely to find the explanation of the North-South divide phenomenon. But first, we need to establish the facts of the case.

The primary focus of our analysis will be on the changes in trends in per capita income, both because it is a widely accepted summary measure of economic performance, and because we have a longer and more reliable time series for this variable. These trends may have changed over time for two reasons: first, the initial state of the contributory or causal factors may have been at different levels for the two states. Second, changes over time in these factors may have occurred at different rates in the two states.

We start by listing the categories of factors which may have created the initial conditions for the observed income divergence between the two states:

1. Human resource capabilities;
2. Urbanization;
3. Infrastructure, which enables economic growth to occur;
4. Resource utilization indicators reflecting developmental expenditure of the states and the efficiency of resource use;
5. Governance including political stability, law and order.

The components of human resource capabilities, in our measurement, are: literacy rate, infant mortality rate, proportion of graduates and technical manpower in the states.

1. Human capabilities and skills: Literacy rate

Literacy rate can be expected to positively affect economic growth and per capita income in the states primarily because it is treated as a proxy for the knowledge and awareness of the population. Our assumption is that a higher literacy rate prepares the ground for higher skills, the ability to deal with higher technology, and the ability to make rational choices.[6] Hence the population is able to use their skills productively to generate more output and income.

[6] Literacy rate might be a crude measure of the population's ability to read and write. A more precise measure to this may have been to substitute literacy with those with primary level education. We found that trends in this variable also follow a similar trend as we find with the literacy rate.

Chart 7 compares the literacy rate between TN and UP over a reasonably long period of time, during 1961-2001. Phenomena like the literacy rate are stable over short periods of time. Chart 7 shows that TN's literacy rate has always been at a higher level when compared with that of UP.

We reviewed the trends in the female literacy rate for the two states and the results are identical. TN started off with a much higher female literacy rate (21.27%) in 1961 increasing to nearly 65% in 2001, when compared with that for UP (only 8.43% in 1961) which increased to 43% in 2001.

Despite their remarkable stability, we surmise that the literacy rate and the female literacy rate may have been some of the pre-conditions that laid the foundation for TN's economic growth to accelerate in later years.

Human capabilities and skills: Infant Mortality Rate

Next we review the relative health related human capabilities of the population in TN and UP. Good health and population control can enhance the productivity of the people. We examine a selected indicator of human capabilities – the infant mortality rate. While there are multiple indicators of health, the reason why we choose infant mortality rate is because it can indicate the low level of health care services, morbidity, ignorance of good health practices, poor maternal health as well as poor family health overall.

Time and again, empirical studies have brought out the finding that hospitalization is one of the most important reasons for indebtedness and abject poverty especially so in rural areas (see George 2009). Hence we assume that states which have lower infant mortality rates are more healthy. A healthy population thus is capable of producing more output and income. However Ashraf et al (2008) find that the effects of health improvements on income per capita are substantially lower than that quoted by policy-makers and may not emerge at all for 3 decades or more after the initial improvement in health.

Chart 7: Literacy Rate, TN and UP

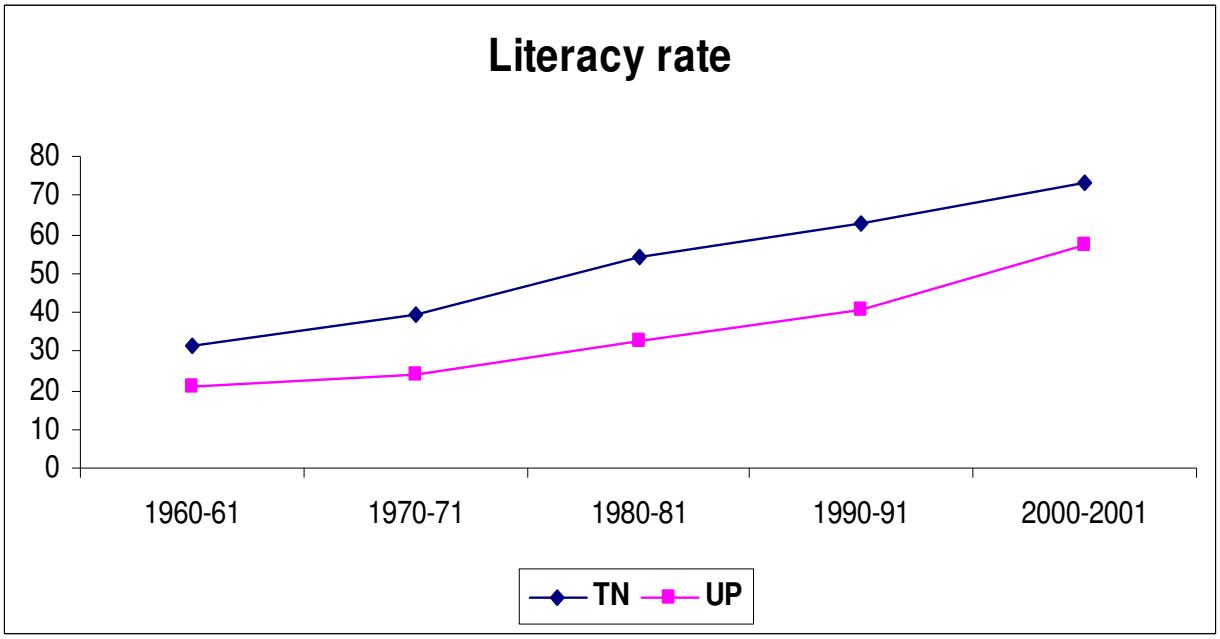
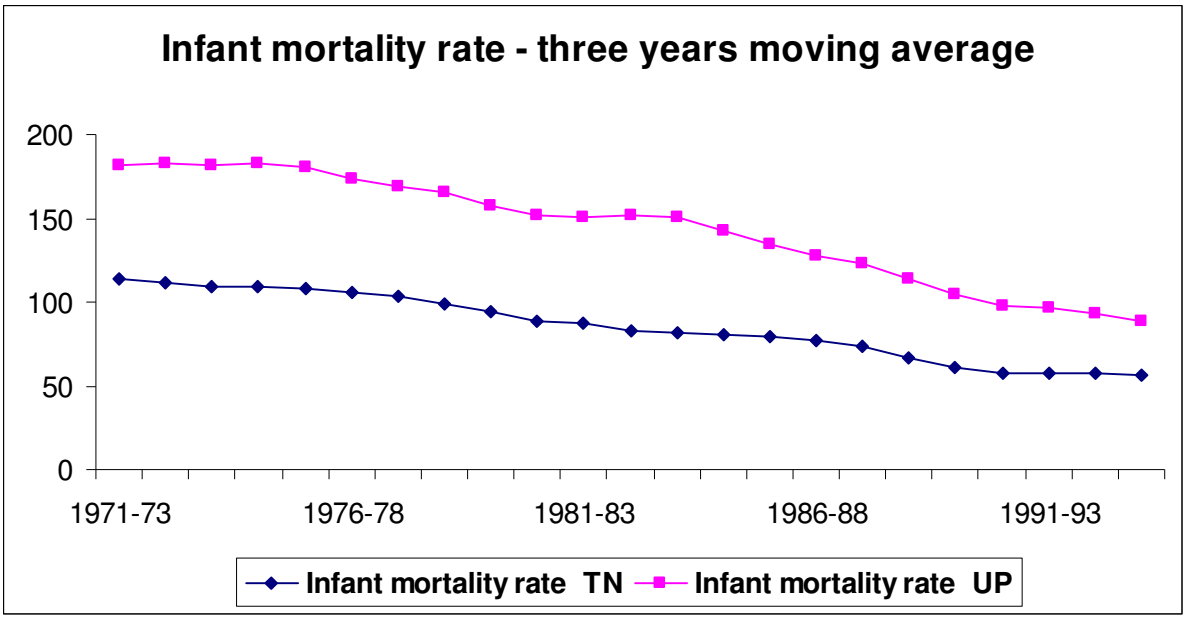


Chart 8 summarizes the three years' moving average infant mortality rate (IMR) of population in TN and UP during 1971-73 to 1993-95. It shows that

TN's IMR has always been lower than that of UP, although the disparity in this factor has been slowly reducing since the late 1980s/early 1990s. This implies that TN had one more precondition ready for its economic growth to take off, having a healthy population enjoying lower infant death rates, conducive for promoting economic growth because of the reasons discussed above.

Chart 8: Infant Mortality Rate, TN and UP



Human capabilities and skills: Total fertility rate

It is instructive to examine the total fertility rate (TFR) (both rural and urban combined) for TN and UP to examine if TN's fertility rate has been lower than that of UP. Why is it that a lower TFR is good for economic growth? It is because of its effect on age distribution giving rise to the "demographic

dividend". As fertility declines, the proportion of children in the population declines and the proportion of population in young working ages increase. As a result the child dependency decreases and the number of young workers increases. Both these trends are highly conducive to economic growth as it results in decrease in consumption and increase in production. China is reaping the demographic dividend right now. Kerala and Tamil Nadu have just begun to reap this dividend. It will be some years before UP could reap demographic dividend. But it will in another 20 years.

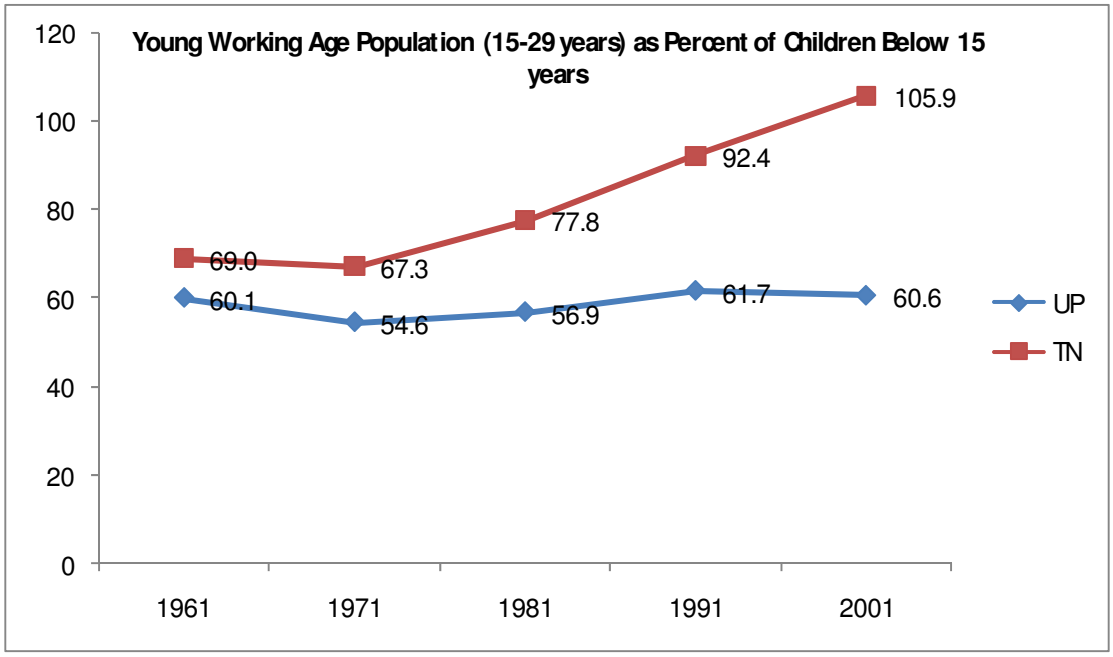
We suggest that the better performance of Tamil Nadu in economic growth is partly due its earlier start-up in demographic transition. TN had a very effective family planning programme for quite some years. Its fertility rate started declining very much earlier than in UP, being much lower than that in UP.

We examined the fertility rates of the population for TN and UP over time during 1971-97. These data indeed lend credibility to the fact that TN's fertility rate and natural growth rate of population were both always lower than that of UP during this entire period, which testifies to the successful adoption of family planning methods by TN. While lower population growth implies less human resources to produce output, if TN's per capita income grew rapidly despite the slowdown in its growth rate of population, then it

must have been the case that the TN population's productivity was higher, possibly reflecting the impact of its rising literacy and associated skills.

The proportion of children in TN is also much lower than that in UP. The proportion of population in the 15-34 ages in TN is much higher than that in UP. We made some calculations for TN and UP for the young working age population (15-29 years) as percent of children below 15 years. The results are summarized in Chart 9.

Chart 9: Young Working Age Population (15-29 years) as a Percent of Children Below 15 Years



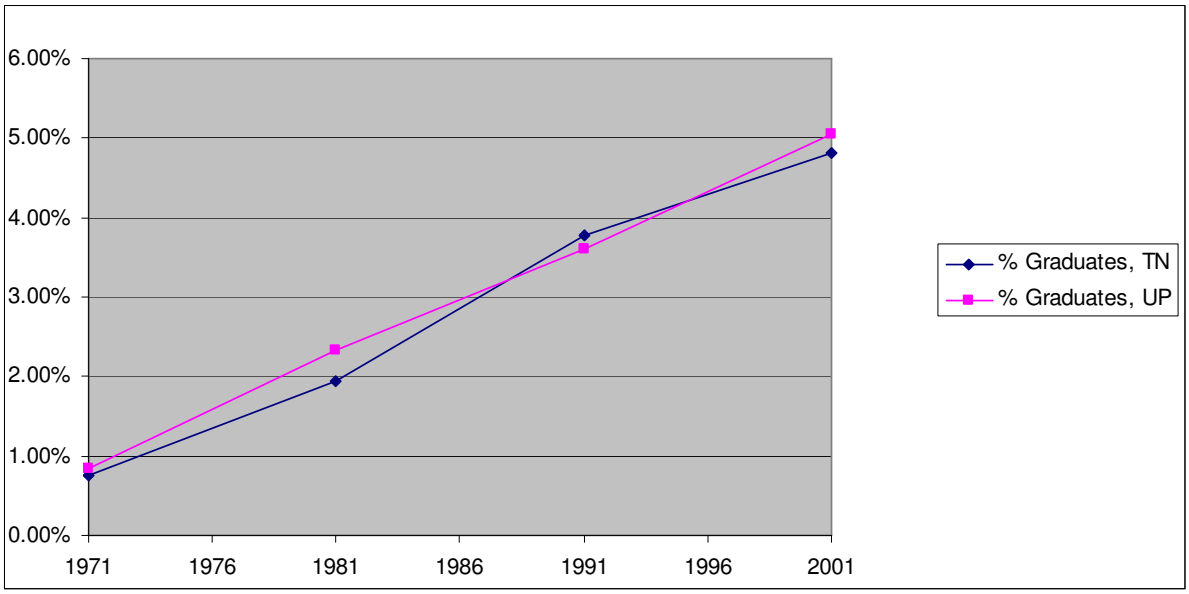
But everything said and done, we need to remember that demographic dividend is a passing phase which is not permanent. While TN is having it now, UP will experience the dividend later.

Human capabilities and skills: Proportion of graduates

The proportion of graduates is expected to affect economic growth and per capita income positively. The proportion of graduates reflects the percentage of population that has attained a certain threshold level of education which equips them with certain skills used in specific kinds of economic activity. Hence an increase in the proportion of graduates can enable them to contribute to increased output and income.

Chart 10 summarizes the proportion of graduates for TN and UP during 1971-2001. While, on the other indicators of human capabilities—literacy rate and infant mortality rate, TN is ahead of UP, chart 9 shows that there is no specific advantage that TN has over UP as far as the proportion of graduates is concerned. In fact, UP had a higher proportion of graduates at the beginning and end of the period. This shows that TN was not always superior to UP with respect to all the factors indicating human capabilities. However, despite this, we observe rising per capita incomes in TN especially (as shown by Chart 2). This is the phenomenon we try to explain with the help of other factors below.

Chart 10: Proportion of Graduates for TN and UP



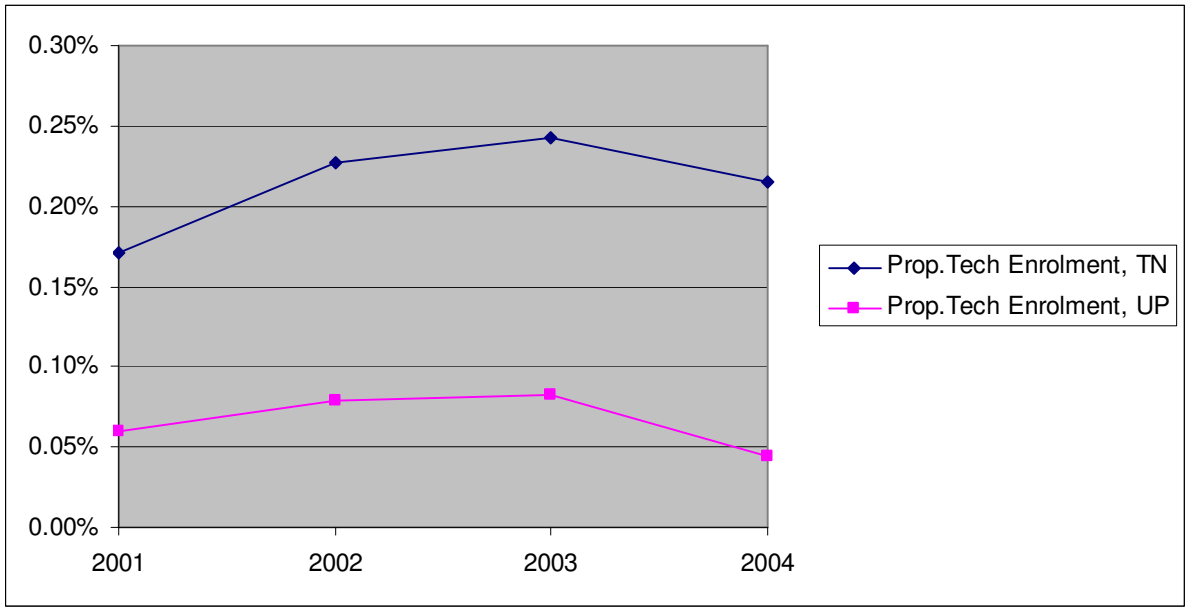
Human capabilities and skills: Enrolment in technical courses

Over and above general graduates, we made an attempt to examine the proportion of technical manpower in the two states. The proportion of technical manpower can bring about growth and has the potential to increase incomes since investors are usually attracted to a preexisting pool of manpower with certain skills.

We examined the proportion of those enrolled in technical courses such as B.E./B.Sc. (Engg/B.Arch.), Medicine, Dentistry, Nursing, Pharmacy, Ayurvedic & Unani, B.Ed. & B.T. as a proportion of population in the relevant age group (above 15 years) to examine if TN had an edge in this regard compared with UP. It can be considered a proxy for the output of technical

manpower in the state. Chart 11 summarizes for some recent years the proportion of technical student enrolment for TN and UP. We find from Chart 11 that though in terms of the proportion of graduates, TN does not have an edge over UP, in terms of technical enrolment, TN is well above UP for the recent years for which we had this data (though it is declining for the most recent year in the case of both the states). This certainly lends credence to the fact that technical manpower has increased significantly in TN mainly because the state has encouraged the setting up of engineering and other technical colleges in a big way in recent years. It would have been instructive to have this data for earlier time periods covering the 1980s, but it was not available.

Chart 11: Proportion of Technical Student Enrolment for TN and UP



2. Urbanization

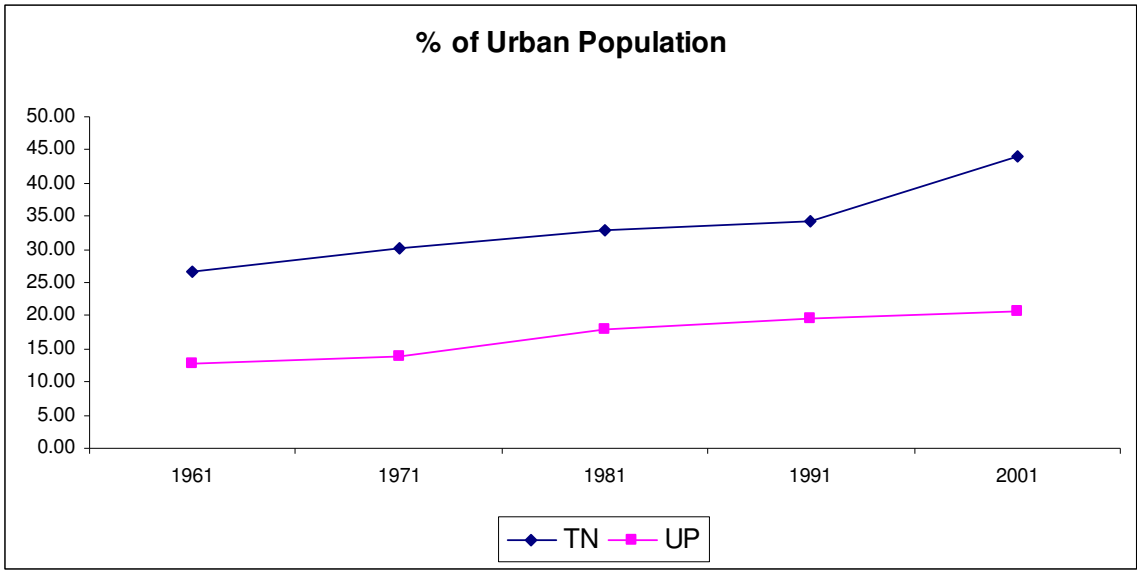
There is a lengthy literature that attempts to explain the relationship between urbanization and economic growth. The reason why we expect urbanization to positively affect per capita incomes is that there are agglomeration, scale economies and increased productivity which accrue to firms in cities.

Thus while urbanization in general has a positive impact on economic growth, we do observe that urbanization has now been occurring more rapidly in countries that have relatively lower levels of per capita income. Cohen (2004) attributes this to the reason that urban change is now more closely related to changes in the global economy than ever before. Hence the causation between urbanization and per capita income is not a simple one-way relationship. Higher per capita income also promotes higher urbanization because of the population's desire to enjoy higher standards of living and better quality of public services.

While the above discussion highlights that there is a more complex relationship between urbanization and per capita income, we reviewed the urbanization levels of TN and UP over a long period of time to understand the trends. Chart 12 summarizes the trends in urbanization for TN and UP during 1961-2001. The finding from this chart comes as no surprise since we observe TN has always been ahead of UP as far as urbanization is concerned. Moreover since 1991, TN's urbanization has taken off at a rate greater than that of UP's, with a marked upward shift occurring only in the

1990s. This strongly implies that its higher level of urbanization to begin with, must have been a contributing factor to TN's higher per capita incomes, which in turn led to increased urbanization, for various reasons discussed above.

Chart 12: Percentage of Urban Population, TN and UP



3. Infrastructure

Good infrastructure is necessary not only for increasing the quality of living, but also crucial for increasing productivity, output and increasing incomes. We review measures of critical infrastructure such as installed capacity (for electricity) and tele-density for the states to compare their preparedness for achieving economic growth.

While *electricity consumption* is concomitant with growth and may be expected to increase monotonically with growth, *installed capacity* is a precondition for growth. Installed capacity is critical for manufacturing processes and is necessary to increase output and raising per capita incomes.

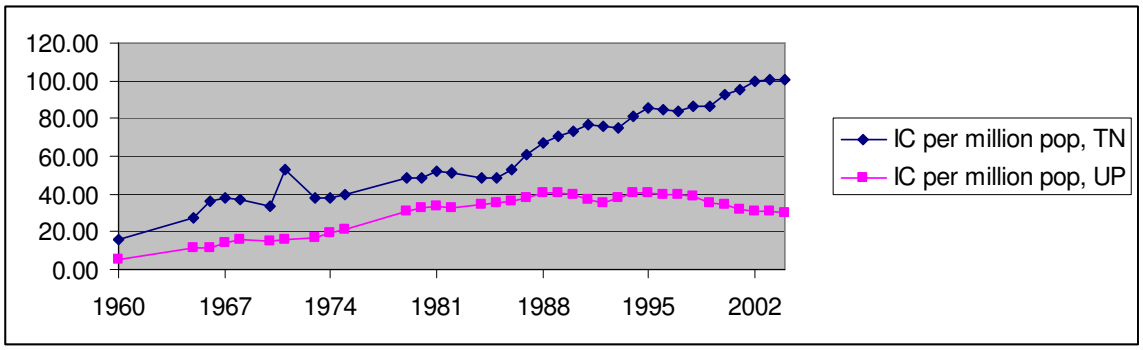
Similarly, telephones and communication infrastructure are inevitable for reducing transaction costs, and for increasing organizational efficiencies, output and per capita incomes. The literature conclusively shows that tele-density has positive impacts on growth. A number of researchers have hypothesized that telecommunication infrastructure lowers both the fixed costs of acquiring information and the variable costs of participating in markets (Norton, 1992). They point out that as such infrastructure improves, transaction costs decline, and output increases for firms in various sectors of the economy. Sridhar and Sridhar (2007) found positive impacts of mobile and landline phones on national output, when controlled for the effects of capital and labor.

Chart 13 compares the installed capacity (for generating electricity) per million population for TN and UP for a long period of time (1960 to 2004) to examine their preparedness for economic growth to take off.[7] We find TN's installed capacity started a much higher level in the 1960s than that of UP's. Further, beginning from the late 1980s onwards, TN's installed capacity

[7] For the years 2001-04, we have taken into account the data for Uttaranchal to make the data for undivided UP comparable to that during the pre-2000 period.

generation took off while UP's declined. This lends credence to the fact that TN had many preconditions necessary for economic growth to take place, which were absent in UP.

Chart 13: Installed Generating Capacity (per million population), TN and UP



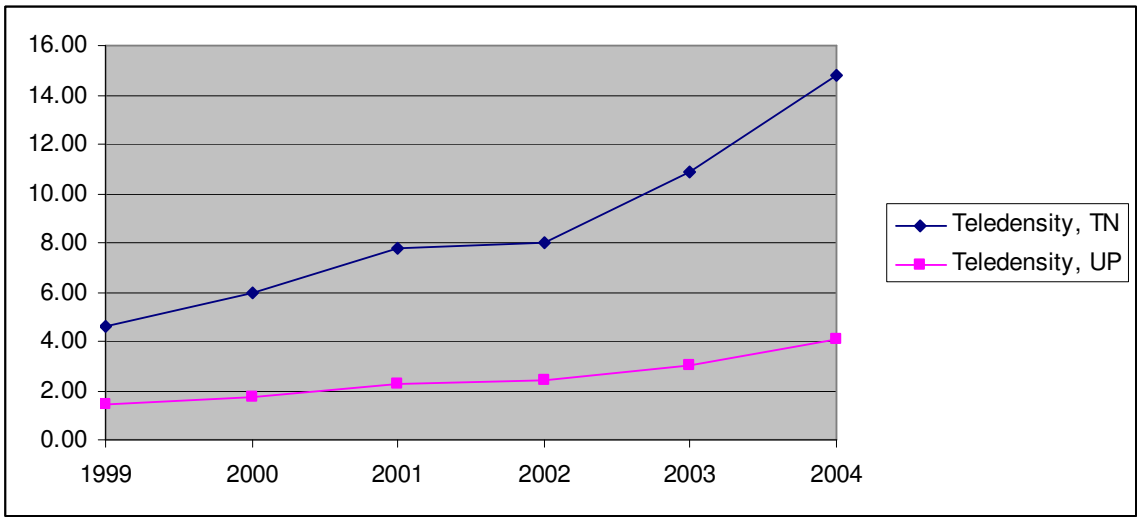
Next we take the case of telephone infrastructure, also critical for economic growth to take off.

Chart 14 compares the telephone penetration (consisting of both landline and mobile phones) for TN and UP for the period for which the data were readily available, 1999-2004.[8] Even for this relatively recent period, TN's telephone penetration is higher than that of UP. It is possible that historically also (if we had had the data) UP scored over TN as far as telephone penetration is concerned (quite unlikely). Even if this were to be the case, more recently, it

[8] We found that the telephone data for UP did not change post-2000 even after the creation of Uttaranchal because it continued to operate as UP-West circle, while the rest of UP operated as UP-East.

is evident from Chart 14 that TN has taken over. Unfortunately we do not have the data from the 1990s to see what would have been the case.

Chart 14: Tele-density, TN and UP



Thus, in terms of all the infrastructure indicators, many of the preconditions were absent in UP with the result that economic growth failed to take off in the same way as it did in TN.

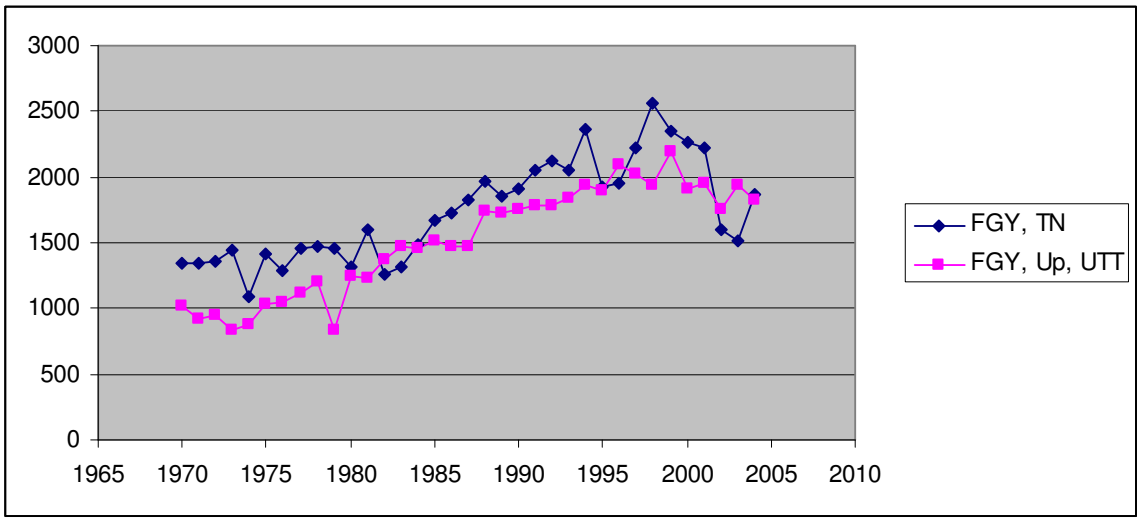
4. Resource utilization and efficiency of resource use

We examined several measures of resource utilization which show to what extent the states have been able to utilize their resources. One measure we choose is the disparities in food grain yields across the two states. Food grain yields demonstrate the utilization of land, water and plant resources of the states by the private sector (farmers). The assumption is that the higher the utilization of these resources, the greater the impacts on economic

growth, output and income. In fact, Datt and Ravallion (1998) attribute rural poverty reduction among Indian states to differing growth rates of farm yield per acre.

Chart 15 presents the differences in food grain yields between TN and UP over a reasonably long period of time, 1970-2004.[9]

Chart 15: Food Grain Yields, TN and UP



We note the surprising finding that there is not much of a disparity across the two states as far as food grain yield per hectare is concerned.[10] The reason why UP experienced higher food grain yields is because the green revolution spilled over from the prosperous agricultural areas of Punjab to western UP. While TN has greater food grain yields when compared with UP for many

[9] For the post-2000 period, we have added the corresponding data for Uttaranchal to UP to make the state-level comparison valid pre- and post-2000.

[10] We examined the trends in per capita agricultural NSDP for the two states, and they look quite similar. Clearly then, the agricultural sector did not underlie the rapid surge in per capita incomes we observe in the case of TN.

years, UP scores over TN for many recent years. So we find that this cannot be a factor which explains rising per capita incomes in TN.

Another measure of resource utilization we choose is developmental spending of the states. The assumption is that whenever states utilize their resources, they create assets and increase their output and incomes. The foremost among these measures we summarize is the per capita developmental spending of states. Developmental spending refers to investment made in the creation of durable assets such as roads, bridges, or higher installed capacity, or resulting in outcomes such as higher enrolment in education or better infant mortality rates or lower birth or death rates.

We examine per capita developmental expenditure in the two states to review if there are disparities across TN and UP. Chart 16 summarizes these differences over time, during 1980-2003. Chart 16 conclusively shows that while the gap between per capita developmental expenditure of TN and UP was within a narrow band until 1990, after 1990, TN's per capita developmental expenditure grew by leaps and bounds, while UP's per capita developmental expenditure stagnated or even declined (post-1999).[11] While this may have been rather the result of rising per capita incomes, the data are testimony to the fact that TN attempted to utilize its resources through its

[11] The data for UP include that for Uttaranchal post-2000 to make the pre-2000 and post-2000 UP data comparable.

higher developmental spending to create higher levels of output and income than did UP.

Efficiency of resource use

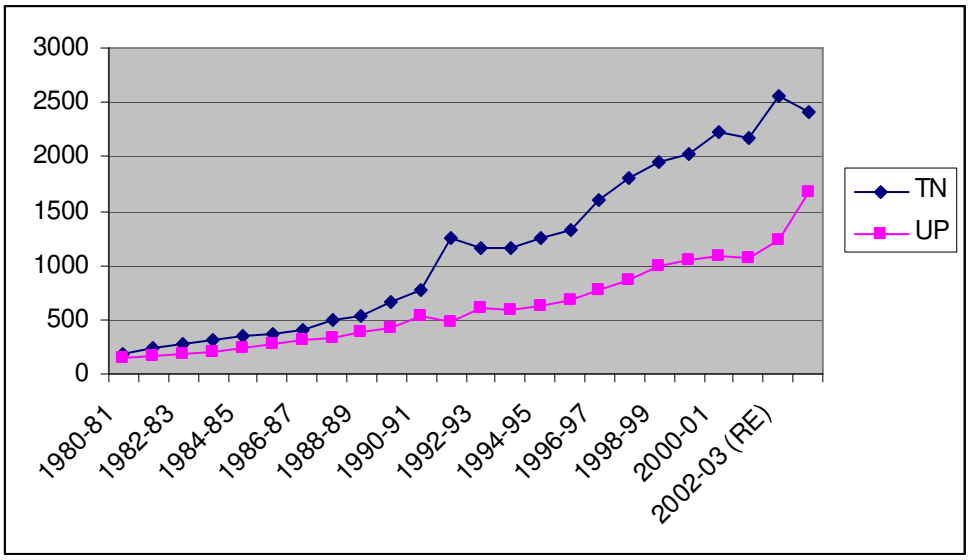
The efficiency with which resources are utilized has impacts on economic growth. If resources are used in a manner which maximizes the useful goods and services derived from those resources, then we may expect greater economic growth to occur. The 'doing more with less' slogan indicates the focus on *more* outputs with *fewer* inputs (fewer resources). While we focus on outputs with fewer resources, we are unable to examine other resource utilization impacts on equity related aspects such as the wellbeing of the poor, due to data limitations.

In order to examine the efficiency of resource use, we examined expenditures on various sectors (such as roads) which are inputs, and that on respective outcomes such as the change in road length. We understand that outcomes manifest themselves only with a lag after the initial expenditure/investment has been made.

In the case of roads, we used the 1980-85 period for examining expenditure and with a 5-year lag, for observing 1985-90 for the outcome, i.e., road length, since there is a time lag for the spending to produce tangible outcomes.

We found that TN spent a total of Rs.92,483 during 1980-85 for creating every additional KM of road during 1985-90, whereas UP spent 3.5 times more than that of TN, Rs.328,788 over 1980-85 to create an additional KM of road during 1985-90.[12]

Chart 16: Per Capita Developmental Expenditure, TN and UP



Therefore, in the case of roads, given their relative record of spending, TN's outcomes are better than those of UP. We surmise that this could be largely because of either TN's better governance or because it is more efficient in spending on roads.

[12] We recognize that the mix of roads (for e.g., rural roads, national and state highways), land terrain, etc., could make a difference to the cost of roads per km. Nevertheless, these factors may account for only a part of the cost differential noted above.

We took another example from the social sector (primary education) to demonstrate the efficiency of resource use in the case of the two states. Two surveys done by the Public Report on Basic Education in India (PROBE) team in the Hindi-speaking states (in 1996 and 2006), showed that despite the fact that schooling infrastructure had expanded rapidly, classroom activity levels had not improved during the decade. For instance, there was an impressive increase in the number of primary schools between 1996 and 2006, with one out of every four government schools being set up during this decade. Further, the proportion of schools in UP with at least two pucca rooms went up from 26 percent in 1996 to 84 percent in 2006. Next, in 1996, free uniforms and textbooks were provided respectively only in 10 percent and less than half of schools, which increased to more than half of the schools and nearly 99 percent of schools in 2006. Let us compare this to outcomes. In rural north India, in 1996, about half of the time, there was no teaching going on in primary schools. However, despite all the increases in resources and inputs during 1996-2006 reported above, a resurvey conducted in 2006 found that nothing had changed with respect to educational outcomes – half of the government schools still had no teaching activity when the investigators arrived (see Annexure A.3 on education in UP which quotes from TSR Subramanian (2004)).

While we did not have such comparable data on classroom activity for the southern states, we found that the Annual Status of Education Reports (ASER) of Pratham, tracks the status of selected educational indicators for all

states in the country. We found in 2006, for instance, that the percentage of children out of school in TN was 4.9 in the age group 7-16, 3.6 in the age group 11-14 and 15.8 in the age group 15-16 (both boys and girls), compared with 8.9, 8.9 and 22.6 respectively for UP during that year. Similarly, the proportion of children not going to any government, private school, balwadi or anganwadi, was 57.7 percent in UP for children in the age group 3, whereas it was only 13.1 for TN. We found a similar trend for children not going anywhere in the 4, 5 and 6 age groups in TN vis-à-vis UP. This is despite the fact that TN's proportion of spending on elementary education during the period 1994-95/2009-10 was a meager 1.67% of the total spending on education.

We found evidence from TN's Human Development Report (HDR) that TN had several important historical developments in the field of elementary education including those from the colonial era, and that its surge in primary education was not an overnight development. For instance, the earliest developments in the field of education in TN were brought on by the advent of the Christian missionaries as early as the beginning of the eighteenth century. Some interesting highlights on the status of girls' education in TN reported by TN's HDR revealed that the proportion of boys to girls in elementary schools changed from 4:1 in 1911–12 to 3:1 in 1926–27. The need to open more girls' schools so as to ensure access for girls was thus recognized. Annexure A.1 contains a detailed description of initiatives on the history of elementary education in TN, which are excerpts from its HDR.

We were unable to find any such material on the history of elementary or primary education in UP, which itself testifies to the fact that there were probably no important developments in this area in the state which was worth documenting.

Thus we find that poor efficiency in the deployment/utilization of resources, along with other factors, also may have led to economic growth not quite taking off in the same way in UP as in TN.

5. Quality of Governance

It is widely believed that the quality of public governance contributes a great deal to the economic and social progress and development of a country. Governance refers to the functioning of governments and public institutions that impact on economic activities and the lives of citizens. When the processes of public decision making and implementation of policies are carried out with credibility, transparency and accountability, governance is considered good. Given its complex nature and scope, however, it is far more difficult to define and measure governance than all the other factors discussed above. Per capita income is a summary measure of the economic performance of a society. Literacy rates can be a proxy for some aspects of human capabilities. But there is no such summary measure that reflects the multiple dimensions of governance. Nor is it easy to obtain the necessary data to quantify and measure the relevant dimensions of governance. It is a

major reason why most explanatory models of growth and development ignore governance, or merely pay lip service to its importance.

Nevertheless, it is not difficult to see that governance can impact both the supply and demand sides of development. Credible and stable policy regimes, efficient and equitable allocation and utilization of scarce resources, and reliable law and order systems are factors that strengthen the supply side of development. Basic services that citizens and entrepreneurs require are likely to be more efficiently provided under these conditions. Infrastructure will be better built and maintained when these conditions are met. But a good governance regime has a positive impact on the demand side too. Prospective investors, domestic and foreign, are more likely to invest or expand in a state with better governance that is likely to more stable and reliable. In this sense, governance is valued not merely because public functions will be better delivered, but also because it instills longer term confidence in prospective investors to make durable commitments. Reputation and public image of the host matter to them. Governance thus impacts the demand side of development through its influence on the psychology of investors.

As noted above, there are limits to the extent of information we can put together on the quality of governance. Time series data on governance are especially difficult to obtain. After a careful assessment of the core elements that constitute governance and the feasibility of obtaining the necessary

information on them, we have narrowed down our choice to three indicators of the quality of governance, though they are by no means comprehensive measures.

1. Political stability: The tenure of chief ministers

Political stability is central to any system of governance. Frequent changes in government are known to create uncertainty about policies and key public decisions in the minds of economic actors, thus adversely affecting economic performance and social progress. When policy making, implementation of projects and related actions become unpredictable, resources are unlikely to flow into such states or to be utilized efficiently. Though it is difficult to measure all aspects of stability, it is reasonable to assume that the tenure of a chief minister can act as a proxy for the stability factor. The stability in the sense of direction and style of functioning he or she brings provides the setting in which key economic actors will take long term decisions. The longer a chief minister's term, the greater are the chances that stability and continuity of policies and follow up actions will prevail, and greater the probability that continuity of the officials in charge of key departments and programmes or projects will exist. A new chief minister will most likely change his ministers and officials, thus creating further instability. Viewed thus, the tenure of the chief minister can confirm whether a key pre-condition for proper governance is in place. This is not to say that tenure is a sufficient condition for good governance. It is an enabling condition that permits those

in authority to craft and implement the right policies and programmes. A full and stable five year term, for example, will permit a CM to plan and monitor his or her policies and their implementation without being distracted by political uncertainties and challenges. She/he will be able to take corrective actions and pursue the goals and outcomes promised by the government. Needless to say, a long tenure can also be misused or end up with poor outcomes. If a longer term did not result in positive economic outcomes, it could well be that the CM's policies and actions were flawed. More detailed probes into what happened in such cases will need to be carried out before a firm conclusion can be drawn.

2. Law and order: police firings as a proxy

It is well known that basic law and order conditions are essential for both economic and social progress. Even if law and order has improved, but the public image of a place is that it is disorderly, it can negatively impact on investment decisions and retention of a skilled workforce. Though there are multiple measures of law and order, we have selected a more visible indicator, namely police firings per million population, because it reflects at once key aspects of the peace that prevails in a state. It can signal the intensity and extent of inter-group conflicts in a society, the inability of the regime to bring them under control or a combination of both. Because firings are widely reported, and add to uncertainty and fear in the minds of people, they can adversely impact on the smooth functioning of a society, and its economic enterprises. Being more visible to the public eye, police firings are

also less likely to be misreported or manipulated in official records. This cannot be said for other types of crime like murders, domestic violence or property related crimes where suppression of facts is more likely to happen. There is also data available with the NCRB regarding crimes such as murders, suicides, property related crimes which can lead to insecurity in the minds of the citizens and investors regarding the nature of governance. There could be some problems with the way in which these crime data are reported. For instance, only when a FIR (first information report) is filed that instances of murders, thefts are recorded. But there is evidence that it is difficult to register an FIR. In events when no FIR is filed, those crime data go unrecorded. However, police firing incidents are reported in a standardized manner at the state level, hence we place more faith in this as a measure of law and order.

3. **Functioning of the Judiciary: Pending cases in court**

A fair and efficient justice system is a key determinant of the quality of public governance in a state. A rise in pending cases may reflect growing numbers of disputes in society or the judiciary's failure to deal with them efficiently. Potential investors will view this as a negative factor. Barriers to dispute settlement and the resolution of legal problems can slow down growth and development simply because they add to the costs of engaging in economic and social activities, and reduce public confidence in the larger legal governance system. Once faith in key public institutions is shaken, it is

difficult to attract investors and other development actors who need to allocate, augment and manage resources in the state.

These indicators capture three essential ingredients of governance: political stability, law and order, and the dispensation of justice. As noted above, there are other dimensions of governance that also deserve to be considered. Indeed, a comprehensive assessment of governance will call for a review of all public institutions. But precise measurement and quantification of their attributes are by no means easy. Nor is it essential as our three indicators constitute the foundation that enable other institutions, both public and private, to function. Our surmise is that many other aspects of governance will be indirectly captured by the measures discussed above.

One such dimension is corruption, a phenomenon that has received much attention in the literature on growth and governance. The argument is that corruption can adversely affect the quality of governance and the pace of economic growth as it adds to the transaction costs of doing business and weakens the rule of law. There are multiple manifestations of corruption that make it difficult to measure and quantify its extent and impact. Corruption can take the form of monetary bribes, improper use of public power, nepotism, and other non-monetary forms. The nature of corruption is such that reliable evidence on its prevalence is nearly impossible to get. It is possible, however, that the influence of corruption is reflected in the other indicators of governance that we have discussed above. We know, for example, that when

political stability declines, the scope and opportunities for corruption tends to increase. When law and order break down, citizens may be forced to resort to corruption to solve their problems and to obtain essential public services. Poor or disorderly governance and corruption may thus go together, one reinforcing the other. In the present study, we have not attempted to incorporate corruption as a separate governance factor for these diverse reasons.

We now turn to a comparison of TN and UP with respect to the four governance indicators. Table 1 summarizes the average tenure of chief ministers of the two states as a measure of political stability. The average tenure of chief ministers in TN and UP was not too different in the first period displayed in the table. In fact, UP was slightly ahead with an average tenure of 1748 days for the chief minister, in contrast to TN's average tenure of 1692 days. Thereafter, however, the average tenure declined in both states.

Table 1: Average tenure of chief ministers (Number of Days), TN and UP

Period	TN	UP
1949-50 to 67-68	1692	1748
1967-68 to 84-85	1393	297
1984-85 to 08-09	1058	390

But the decline was much steeper in UP, possibly causing a noticeable fall in terms of political stability. Between 1967 and 1985, UP saw 18 chief ministers and periods of President's Rule. In contrast, chief ministers changed only three times in TN. Since 1986, there has been an increase in the average tenure of chief ministers in UP, while a decline is seen in TN. However, a clear divergence has persisted all these years between the two states, with the average tenure in UP being substantially below that of TN even during the latter period. Consequent to the changes in the leadership at the top, 420 out of the 500 IAS officers in UP are also reported to have been transferred annually since 1992.[13] In fact, in a personal account of his tenure as Chief Secretary, UP, TSR Subramanian states:

"…In the 1990s in UP, the average tenure of a collector in a district was nine months. I was to see, as Cabinet Secretary, that the average tenure of a collector all over India was about thirteen months…In circumstances that are not conducive for the pride of satisfaction in work, how can one expect meaningful results? No wonder we have reached the state in which we are in today…In the current state of affairs, few officers have the thought of contributing anything. An officer merely wishes to extract as much as he can for himself and his family in every successive assignment.."[14]

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[13] See, Howes, et. Al, State Level Reforms in India, MacMillan, Delhi, 2003.

[14] See T.S.R.Subramanian, Journeys Through Babudom and Netaland: Governance in India, Rupa and Co., 2004, pp.281-282.

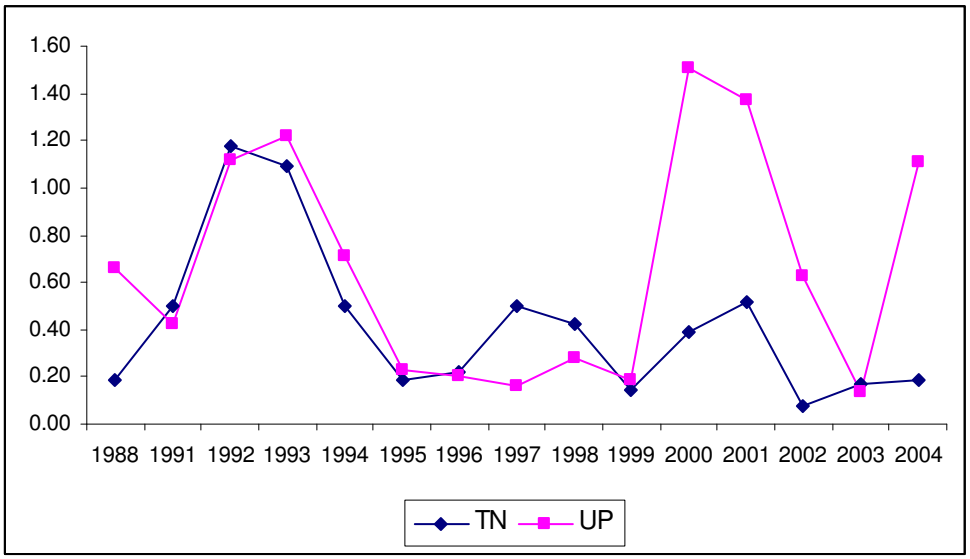
Judged by the trends in the average tenure of chief ministers, the political stability in TN was significantly greater than in UP, except in the immediate period after Independence. Attention to policy making, control of administration and public expenditure, and public services would have suffered far more in UP than in TN as a result of the frequent changes in the chief minister's post. TN's achievement in terms of family planning is a case in point. Greater political stability and political support to this programme were key to its successful implementation. Such an enabling environment did not exist in UP where the frequent changes of chief ministers meant less attention to the programme and its implementation.

With respect to the second indicator, there is a marked difference between the two states, though our data cover a much shorter period than the chief minister's tenure. Police firings per million population have been significantly higher in UP for this period than in TN (see chart 17). Furthermore, in TN, there is a substantial decline in this indicator over time, while in UP police firing incidence is on the rise. Here we have clear evidence of a law and order indicator that signals a worse initial condition to begin with in UP, compared to TN, and deteriorates even more in the subsequent period.

The third governance indicator also reinforces the same trend. The percentage of pending cases in the courts in UP is much higher than that in TN. As Chart 18 shows, the initial condition is worse in UP and the

deterioration continues over the period for which data are available. In TN, there is a marginal reduction in the percentage of pending cases (-0.29%) while the same has increased in UP by 0.75% per year. In other words, the functioning of the judiciary has worsened in UP while it has improved somewhat in TN.

Chart 17: Police Firing Incidents Per Million Population, TN and UP



A final governance indicator we choose relates to the proportion of civil to total police (consisting of civil and armed police). The proportion of civil to total police force is an indication of the peaceful conditions prevalent in a state;[15] only when disturbed conditions exist in a state that para-military forces are called from the centre. Hence the greater the proportion of civil to total police force, the greater the extent of peace, law and order prevailing in the state. Lower the proportion of civil police to total police force, the greater the extent of agitation and disturbed conditions prevailing in the state.

[15] We thank Dr.Ajay Kumar Singh for these insights.

Chart 18: Percentage of Court Cases Pending Investigation at End of Year

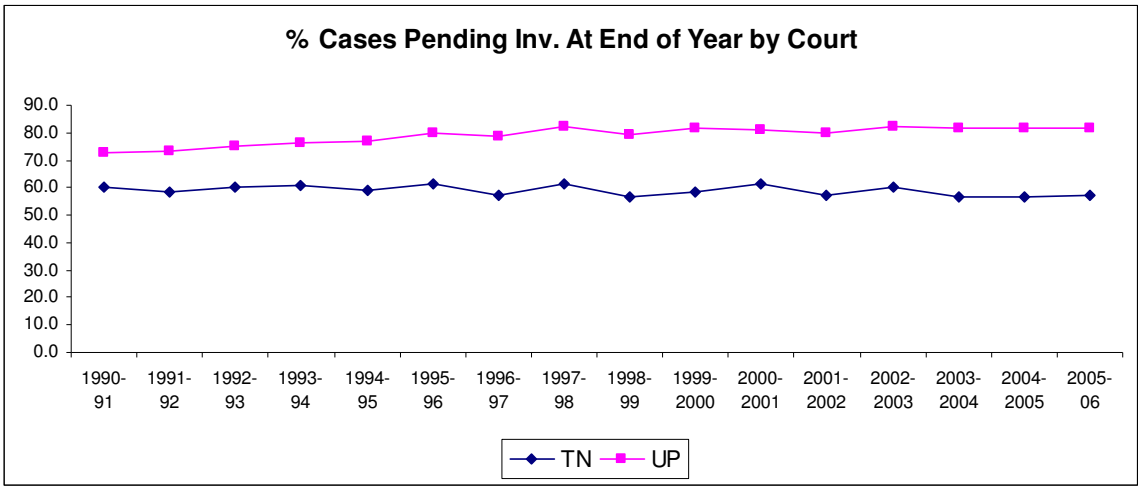
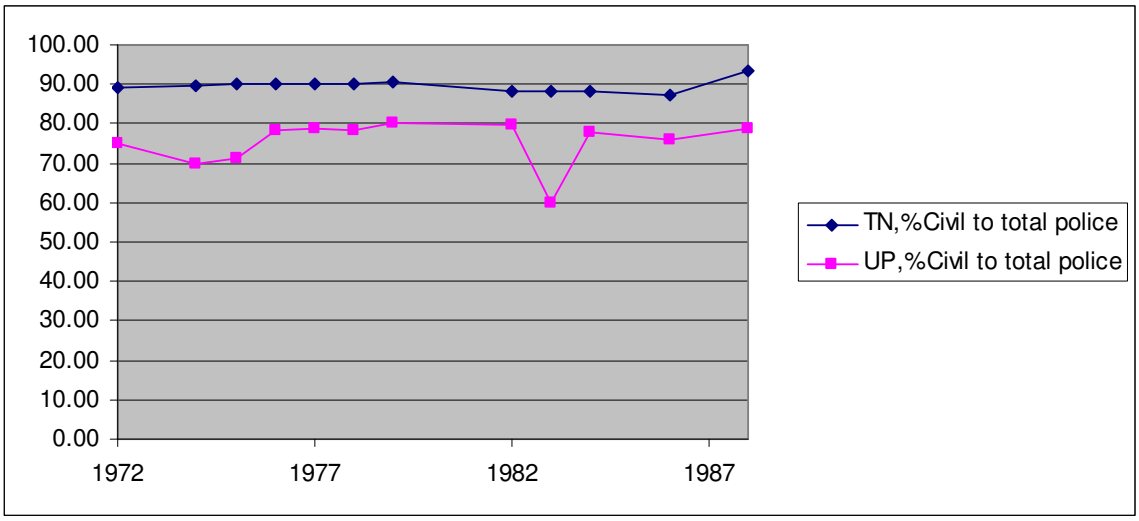


Chart 19 summarizes the proportion over time of civil to total police (consisting of civil and armed police) in TN and UP. It shows that TN's civil police strength has been historically much higher than that of UP (where it is around 80 percent and dropping to 60 percent in 1983), hovering around 90 percent of its total police force, testifying to the relatively more stable law and order conditions over there.

The foregoing analysis confirms what many observers have intuitively surmised; that UP's governance track record remains well below that of TN (see Annexure A.2 on governance in UP, which quotes from Subramanian (2004)). Our evidence further shows that at least in respect of three indicators, UP has continued to deteriorate over the period under review. The lack of progress noted in other factors in UP (discussed above) too could be attributed at least in part to the state's governance record. Poor governance can adversely impact on the mobilization and utilization of resources for

education, health, infrastructure and other public goods, and result in their suboptimal outcomes, slowing down development in the process.

Chart 19: Proportion of Civil Police to Total Police, TN and UP



Summarizing, in Table 2, we present the initial levels of per capita income in 1960-61 and the rates of growth of per capita income for TN and UP for the two periods, 1960-61 to 1987-88, and 1987-88 and 2004-05. Alongside this, we give the initial levels and the growth rates for a number of factors that could have influenced this growth pattern and the shift observed from 1987-88. Some points are worth noting from Table 2. It shows that it is not the case that TN was always doing better than UP. In fact, UP was better than TN in some respects to begin with (e.g., proportion of graduates and police firing), and that TN's surge is recent (e.g., per capita NSDP, urbanization, electricity installed capacity, police firing and percentage of cases pending investigation). Our hypothesis is that both the initial conditions and the rates

of change in the selected factors could have led to the divergence observed between the two states.

Table 2: Initial values and Compound Growth Rates for Selected Indicators: Tamil Nadu and Uttar Pradesh

Indicator	Initial values		Tamil Nadu		Uttar Pradesh	
	Tamil Nadu	Uttar Pradesh	1960-61 to 1987-88 (I period)	1987-88 to 2004-05 (II period)	1960-61 to 1987-88 (I period)	1987-88 to 2004-05 (II period)
Per capita net state domestic product *	5053	3338	0.98	4.52	1.0	1.75
Natural growth rate **	17	24.8	-0.78	-1.65	0.61	-0.76
Literacy rate ***	31.4	20.9	2.63	1.58	2.42	3.29
Per capita development expenditure @	263	179	11.25	10.52	11.37	8.65
% of urban population *	26.7	12.8	0.9	2.23	1.71	0.61
Electricity installed capacity per 1000 population *	15.5	5.4	3.26	2.61	6.55	-2.39
Proportion of graduates #	0.75	0.85	5.66	3.1	8.25	3.61
Food grain yield **	1342	1015	1.4	-0.12	3.46	1.66
Police firing incidences for 10 lakh population &	0.5 (II period)	0.44 (II period)	NA	-11.34	NA	2.29
% cases pending investigation in courts at the end of year &	60.4 (II period)	73 (II period)	NA	-0.29	NA	0.75

Note: * refers to the periods 60-61 to 87-88 and 87-88 to 04-05
** refers to the periods 70-71 to 87-88 and 87-88 to 04-05
*** refers to the periods 60-61 to 87-88 and 87-88 to 00-01
# refers to the period 70-71 to 87-88 and 87-88 to 00-01
@ refers to the periods 80-81 87-88 and 87-88 to 04-05
& refers to the period 87-88 to 05-06

III. Interpretation of the Evidence

Let us now see whether the evidence on the different factors presented above sheds any light on the divergent paths of per capita income growth observed in UP and TN. The puzzle to be explained is why TN's per capita income began to shift upwards markedly compared to that of UP since the mid 1980s. Till this period, per capita incomes were growing in the two states at about the same slow rate. We present below our interpretation of the factors that may have led to this divergence. Differences in the initial conditions with respect to the different factors in the two states could at least in part account for the divergence. Divergent growth rates of the factors over the period we have studied could be another explanation. Furthermore, residual factors that we have not taken into account in the study also could have contributed to the outcome.

1. With respect to most of the factors, TN had higher initial levels than UP. Indicators such as literacy, infant mortality rate (reflecting health status), urbanization, food crop yields per acre, electricity, and roads, TN's initial conditions were better in human capabilities, urbanization, infrastructure, and resource efficiency, though the degree of superiority varied between the factors. But initial conditions in UP in terms of the stock of graduates, and political stability as measured by chief minister's average tenure, were about the same or even slightly better than those in TN. With respect to per capita development

spending, TN's initial condition was only slightly better than UP's. We conclude that while TN had an edge with regard to the initial conditions of several factors that we have highlighted, it did not have an initial advantage in all of them.

2. The rates of growth of these factors over the period of study were similar in both states for most of the factors. The main exceptions were electricity, development spending, and the chief minister's average tenure. The first two accelerated by the mid 1980s in TN while the last indicator declined markedly in UP since 1967. With regard to the stock of graduates, a component that reflects technical manpower (engineers) grew much faster in TN than in UP since the late 1980s. There were thus some notable differences in the growth rates of the factors the implications of which need to be considered.

3. A closer look at these two factors is revealing. Technical manpower signals a critical resource that modern industries and the service sector need. Electricity is an essential sector for most economic activities, especially, manufacturing. Both of them have long gestation periods of five years or more before the output comes on stream. A perusal of the data clearly shows that TN had encouraged investment in these two critical sectors much before per capita income had begun to climb. Organizing the supply of these factors well ahead may have played a key role in the transformation that TN experienced from the mid 1980s.

It is reported that TN has a total of over 540 engineering colleges in 2008 compared to 11 colleges in the 1970s. UP, on the other hand, has less than half this number though it had a headstart in this arena in the 19th century. Better governance, strategic thinking, a proactive industrial policy or a combination of these factors may well have contributed to what TN managed to achieve in this arena.

4. We can only speculate on the reasons why TN performed better on these counts. There is historical evidence to support the thesis that education in TN had benefited from the helping hand of the British colonial government in the 19th century. TN led the country in the reservation policy in education that others emulated in later periods. More importantly, the social movements that dominated TN politics and public discourse in the early part of the 20th century created a much greater awareness among the lower castes that constituted the majority of the population about their rights and the need for collective action to claim their entitlements. Scholars who have documented social movements across India have pointed out that similar movements did not occur in UP or other northern states.[16] In both regions, there were movements that protested caste abuses and brahminical dominance. But the distinguishing feature of the TN social movements was their focus on gaining access to education and economic opportunities such as jobs in government. These movements

[16] Ganshyam Shah (ed), Social Movements in India, Sage, New Delhi, 2004, Chapter 5.

not only created greater awareness among the backward classes about the need for collective struggles to achieve their ends, but also increased their sense of solidarity and mutual trust among the members, and helped them create vast new networks to mobilize resources and launch collective political and social action to achieve common ends. It was thus that large numbers of schools, colleges, and in recent years engineering colleges were set up by caste and community supported leaders and groups. A similar trend has been noted in the industry sector of TN where again, impressive numbers of small and medium enterprises have been set up by entrepreneurs, who took advantage of their caste and community networks. The governments in power facilitated this process, resulting in a groundswell of private sector development. Among the political leaders who promoted this process were K. Kamaraj, R. Venkataraman, Annadorai and C. Subramaniam. Developments of this kind do not seem to have occurred in UP. The importance of these historical factors, especially social movements, in laying the foundation for strengthening both the demand and supply sides of development in TN cannot be overemphasized.

5. A surprising finding is that despite the edge that TN had in terms of the initial conditions, the growth rate of per capita income in both the states remained sluggish during a major period of our study. Between 1961 and 1985, per capita income grew at a mere one per cent per year in

TN and UP. It tells us that an edge in terms of initial conditions need not automatically result in faster growth for a country or a state. They may have been necessary conditions, but do not fully explain what triggered the take off of the TN economy. At best, we can conclude that the potential for economic growth existed more in TN than in UP for the reasons set out above, but that the potential was not exploited for some reason.

6. For an explanation of the puzzle, we need to turn to the policy shifts that occurred in the Indian economy since the mid 1980s. It was during Rajiv Gandhi's regime that the first steps towards decontrol and liberalization occurred in India. Delicensing of industries and more liberal policies towards foreign investment were adopted during this period. In 1991, Prime Minister Narasimha Rao and Finance Minister Manmohan Singh further opened up the Indian economy and created favourable conditions for private sector investment, both domestic and foreign. It also happened to be the period when the winds of liberalization were blowing across the globe, facilitating capital and technology flows into developing countries. Needless to add, the policy shift was national, with all the states free to take advantage of the opportunities it offered.

7. The marked upward shift in per capita income and the subsequent reduction in poverty that TN experienced since the mid 1980s can be

attributed to the flow of substantial investments into the state. Though investment data are not available for the entire period of our study, we find that during 2000-06, TN attracted foreign investment proposals worth Rs. 8500 crores while UP received a mere Rs.15 crores. In fact, TN took the third place in the country in FDI, after Delhi –Haryana, and Maharashtra. Per capita development spending also moved up much faster in TN than in UP, though the uptrend began only after TN's per capita income growth had accelerated. The poorer performance of UP on both counts could well have been due also to the weaknesses in the foundational factors and the resultant inability to stem its relative decline in terms of political stability and other law and order indicators.

In summary, we have demonstrated that though for a long period, the per capita income levels of TN and UP were not far apart, a marked upward shift in per capita income and a reduction in poverty levels occurred in TN relative to UP since the mid 1980s. We have offered an explanation of the underlying factors behind this striking divergence between the two states. We have concluded that the upward shift in per capita income and downward trend in poverty reduction that occurred in TN relative to UP could be explained only in part by the advantage the former had in terms of human capabilities, infrastructure, and internal resources. These were reinforced by TN's better showing in terms of political stability and law and order, a reflection of its relatively better governance than in UP. Surprisingly, despite these advantages, for nearly 25 years, TN's growth record was no better than

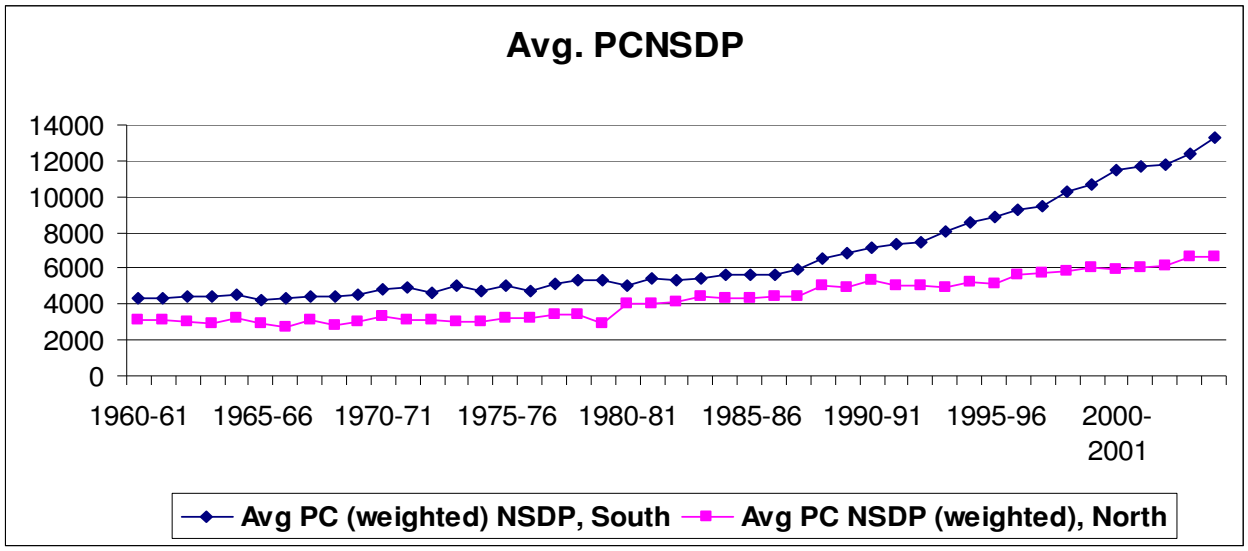
that of UP, mainly because the national policy regime was restrictive and limited the scope for potential investors to take advantage of the differential conditions prevailing in our states. The potential for faster growth these pre-conditions created were exploited more fully and effectively only when major policy shifts occurred at the national and global levels, facilitating the massive flow of investment resources into the state.

IV. Southern Region Vs. Northern Region

We now make an attempt to extend the two-state analysis to the two regions and ask whether India's southern region is pulling ahead of the north. To answer this question, we have aggregated the performance data of the states in the two regions for purposes of comparison. If we find that the resulting pattern is similar to what our comparison of TN and UP showed, we may conclude that the southern region has indeed pulled ahead, leaving the northern region behind. Charts 20 and 21 show how the two regions have performed with respect to per capita income and poverty reduction respectively over a forty and thirty-year period (respectively 1960-61 to 2004-05 and 1973-74 to 2004-05).

A perusal of the charts affirms the pattern of change that we have already seen in our comparison of TN and UP. The two regions differed only by 39% in terms of per capita income in 1960-61 while the gap has widened to 101% by 2004-05. The southern per capita income seems to have risen faster since 1992-93 compared to that of the north.

Chart 20: Per Capita NSDP, Southern and Northern States, 1960-2005, 1993-94 Constant Prices

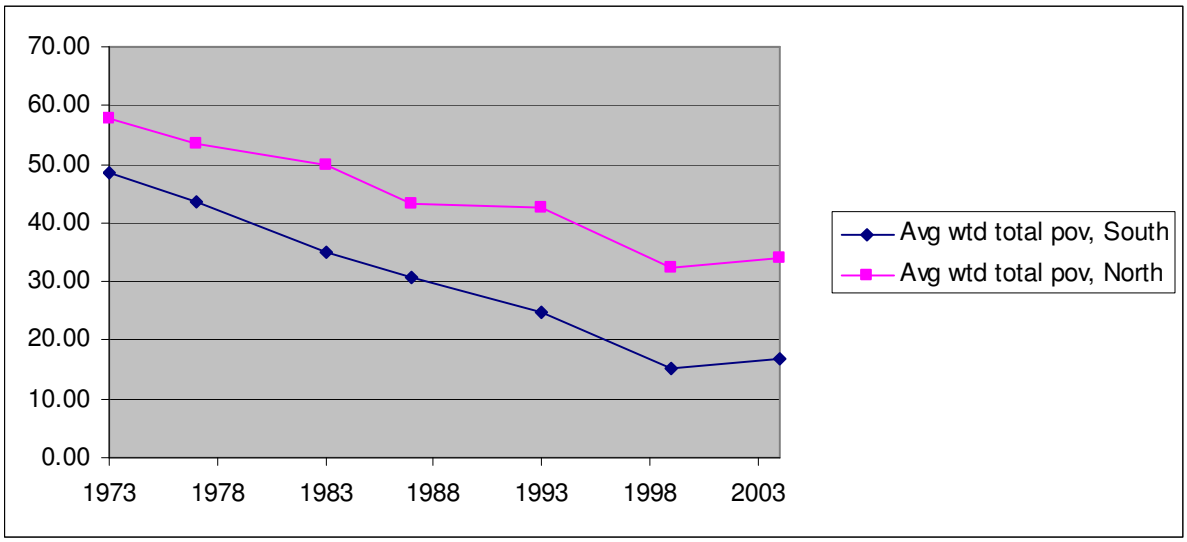


But prior to this period, the annual per capita income growth rates of the two regions was low and similar (average growth rate of 1.78% for the south and 2.20% for the northern states during 1960-91). The economic surge of the south is thus a recent phenomenon. Similarly, on the poverty front, some of the northern states were better off compared to their southern counterparts. In fact, in 1960-61, three out of the four northern states had lower rural poverty levels compared to the southern states. But by 2004-05, the southern states' poverty levels had fallen well below those of the northern states.[17] Judged by the criteria of per capita income growth and poverty reduction, the

[17] Datt, Gaurav and Martin Ravallion (1998) Why Have Some Indian States Done Better than Others at Reducing Rural Poverty? Economica (1998) 65, 17-38.

north-south divide in India is a significant phenomenon that has emerged in the past decade and a half.

Chart 21: Total Poverty Rates, Southern and Northern States, 1973-2003



Are the factors associated with the north-south divide similar to what we found in our analysis of TN and UP? Our hypothesis is that the same factors may have been at work here too, though the specific historical factors and sequences may not have been the same. We turn to an analysis of these factors in the following section.

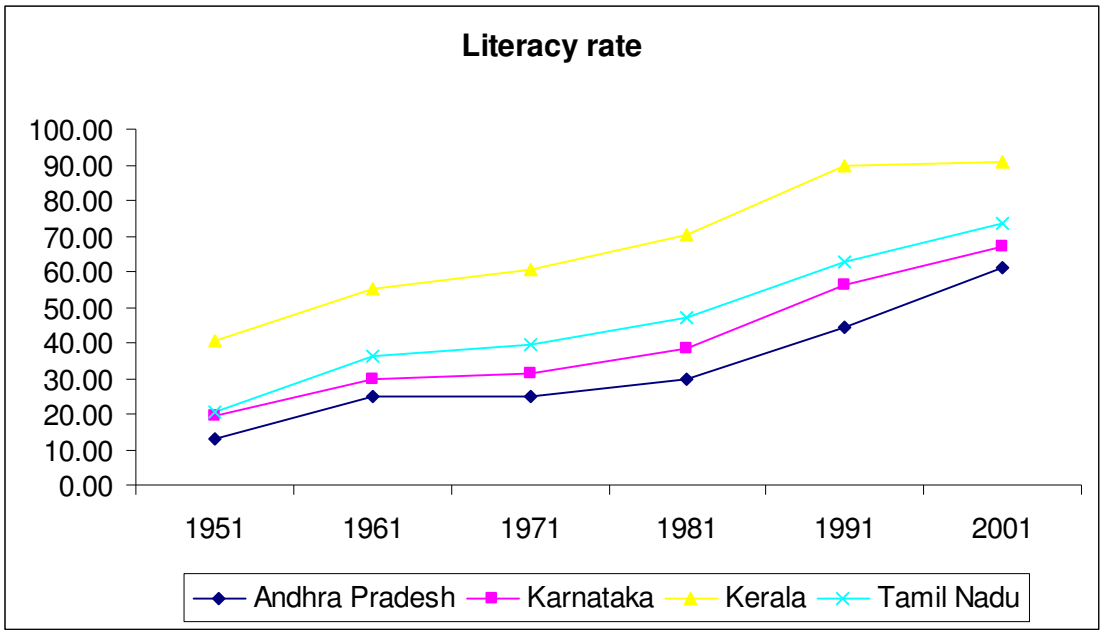
Human Capabilities, Skills and Awareness

Similar to our analysis in the TN-UP section, we choose the literacy rate, and the proportion of graduates in the southern and northern states as indicators

of education. We choose the infant mortality rate of population as our measure of health.

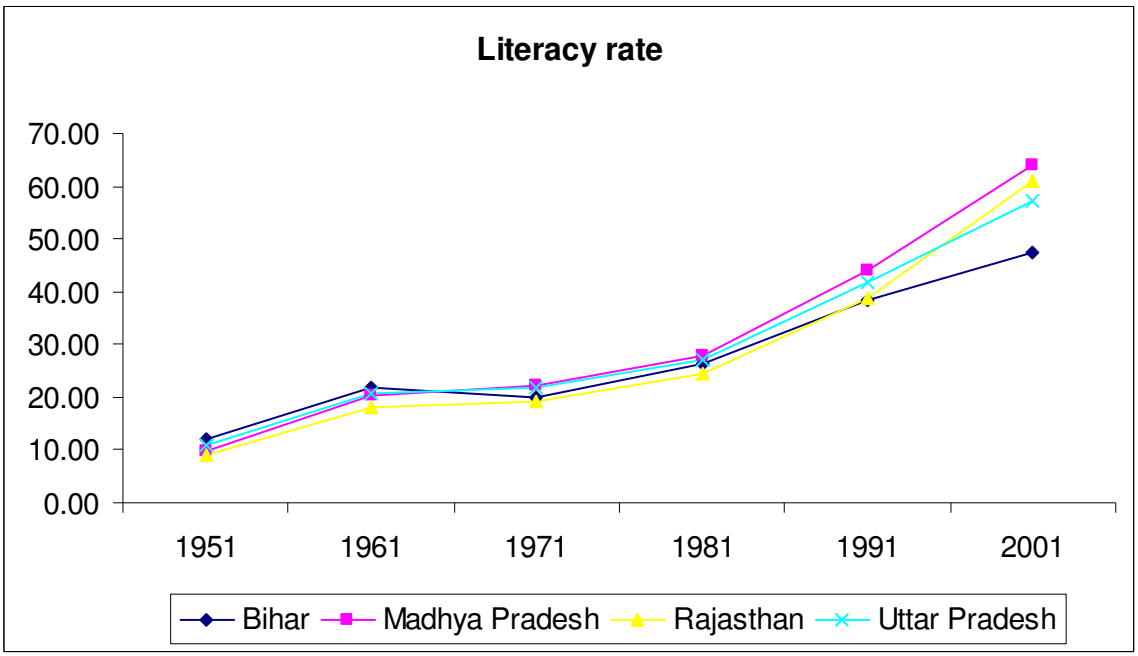
The reasons why we may expect the literacy rate to affect the economic growth have been explained in the earlier section. Charts 22 and 23 summarize the literacy rate historically since 1951 respectively for the southern and northern states. While the literacy rate in the northern states increased from only 10% (most of the states) in 1951 to a little above 60% in 2001 (Madhya Pradesh), it increased from 40% in 1951 (Kerala) to nearly 90% (Kerala). Apart from Kerala which is an outlier with respect to the literacy rate, the other southern states also made a leap forward from only 13.2% literacy in 1951 to nearly 61% literacy in 2001. Overall, the weighted average literacy rate in the southern states increased from 23.5% in 1951 to nearly 70% in 2001, recording a threefold increase. In the northern states, the weighted literacy rate increased from only 10.4% in 1951 to 59% in 2001, registering a five fold increase. Since this is consistent with the trends in that for TN and UP (presented in Chart 7), we surmise that the literacy rate may have been one of the pre-conditions necessary for economic growth to have taken off in the southern states as a whole, similar to that in TN.

Chart 22: Literacy Rate, Southern States, 1951-2001



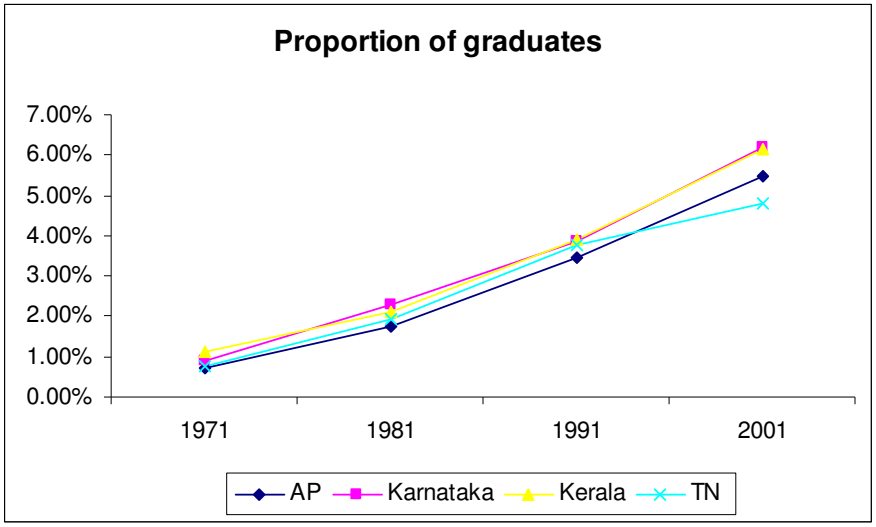
Next, we review trends in the proportion of graduates in the south and the northern states. We have discussed the expected impacts of the proportion of graduates on per capita incomes and their rationale in the context of the TN-UP analysis, and hence require no repetition. It is sufficient to note that the proportion of graduates indicates those in the population with a threshold level of education with specific set of skills, required for certain firms or industries.

Chart 23: Literacy Rate, Northern States, 1951-2001



Charts 24-25 summarize the trends in the proportion of graduates in the south and northern states respectively. While the individual state TN does not have a distinct edge over UP in terms of the proportion of graduates (see Chart 5), the other southern states seem to be a little ahead of the northern states on this account. In fact, TN is the laggard among the southern states as far as the proportion of graduates is concerned. In fact, both Karnataka and Kerala have more than 6 percent of their population above 15 years, as graduates, while AP have 5.5% and TN has only 4.8% graduates as of 2001. If we take the weighted proportion of graduates in all southern states, it increased from 0.83% in 1971 to 5.5% in 2001, registering 7 times growth.

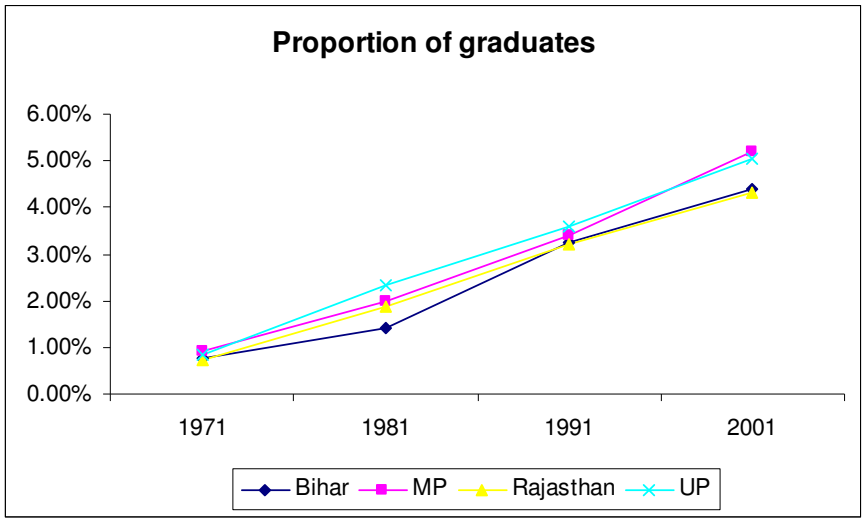
Chart 24: Proportion of Graduates, Southern States, 1971-2001



As far as the northern states are concerned, the maximum proportion of graduates are in MP at 5.2% followed by UP at 5.1%; Rajasthan and Bihar are laggards at 4.3% and 4.4% of graduates respectively as of 2001. The weighted average proportion of graduates in all the northern states increased from 0.83% in 1971 (the starting point for both the regions in terms of the proportion of graduates was the same) to only 4.9% in 2001, registering a six fold increase. Given that there is not much difference in the growth of the proportion graduates in the two group of states, it is plausible that an explanation of the southern growth story lies elsewhere -- in the presence of a larger labor force with technical skills in the southern region when compared with those in the northern states. In fact, the current evidence is that intake into engineering colleges in the four southern states account for

nearly 53 percent of all intake into engineering colleges in the country while the north has a mere 16 per cent.[18]

Chart 25: Proportion of Graduates, Northern States, 1971-2001



Infant Mortality Rate of Population

The infant mortality rate (IMR) is chosen as a measure of the health of the population for reasons discussed in the earlier section. Just as we did in the case of the TN-UP analysis, we compared the IMR of population across the southern and northern states. Charts 26-27 summarize this respectively for the southern and northern states. The weighted average IMR of population in the southern states declined from 98.2 in 1971 to 50.5 in 1997, registering a fall of 47.6 percentage points. In the northern states, on the other hand, the weighted average IMR fell from 156.7 in 1971 to 83.4 in 1997, recording a reduction of nearly 73.4 percentage points, much higher than that in the

[18] See Banerji and Muley (2007).

southern states. Hence the southern states did not have an advantage in this factor compared with the northern states, and hence differences in this across the two regions may not have been a factor influencing economic growth in the two regions.

Chart 26: Infant Mortality Rate of Population, Southern States, 1971-1997

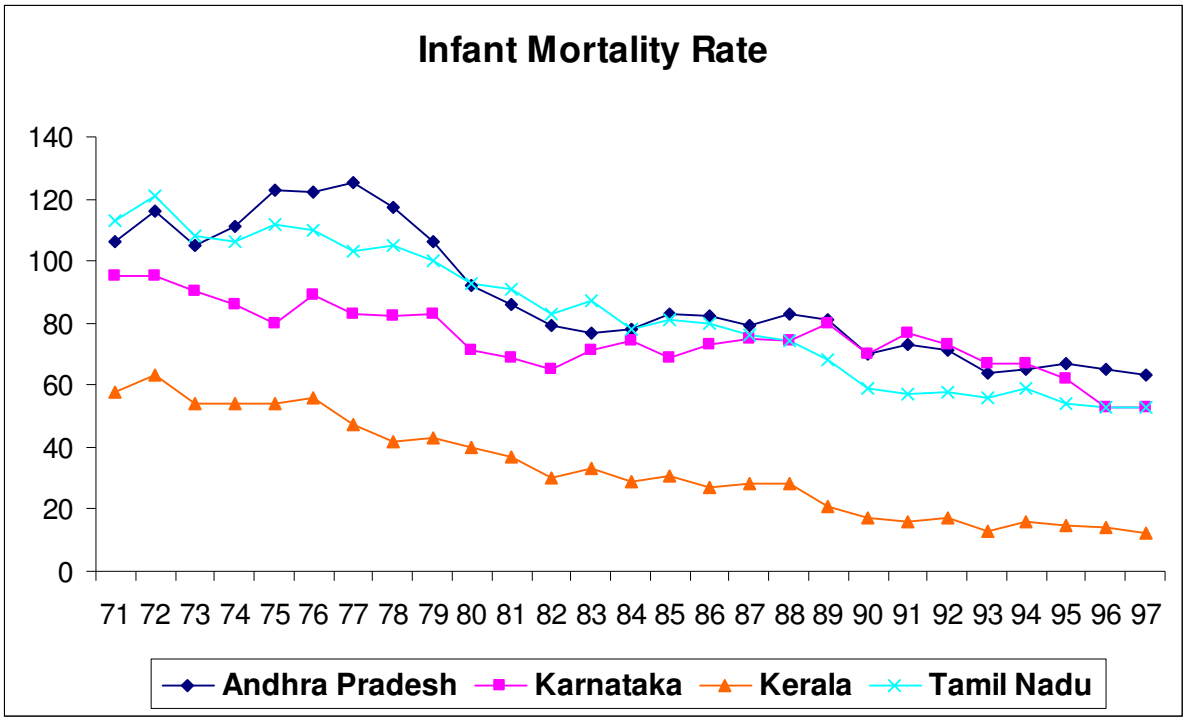
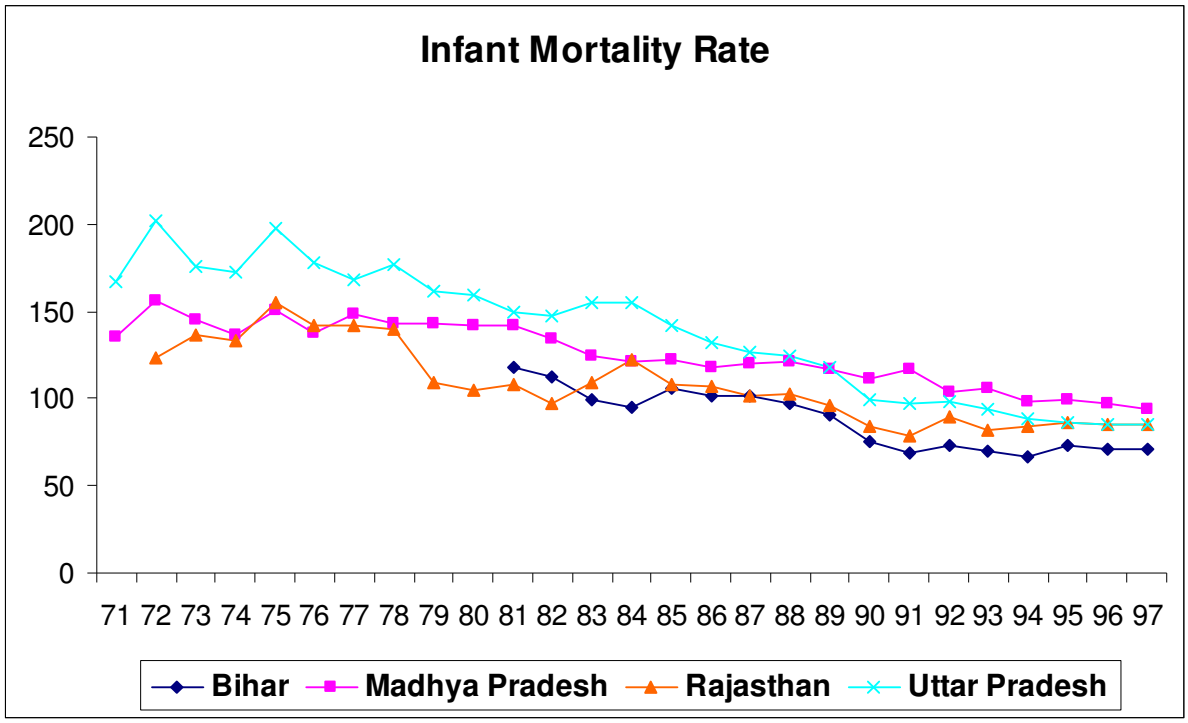


Chart 27: Infant Mortality Rate of Population, Northern States, 1971-1997



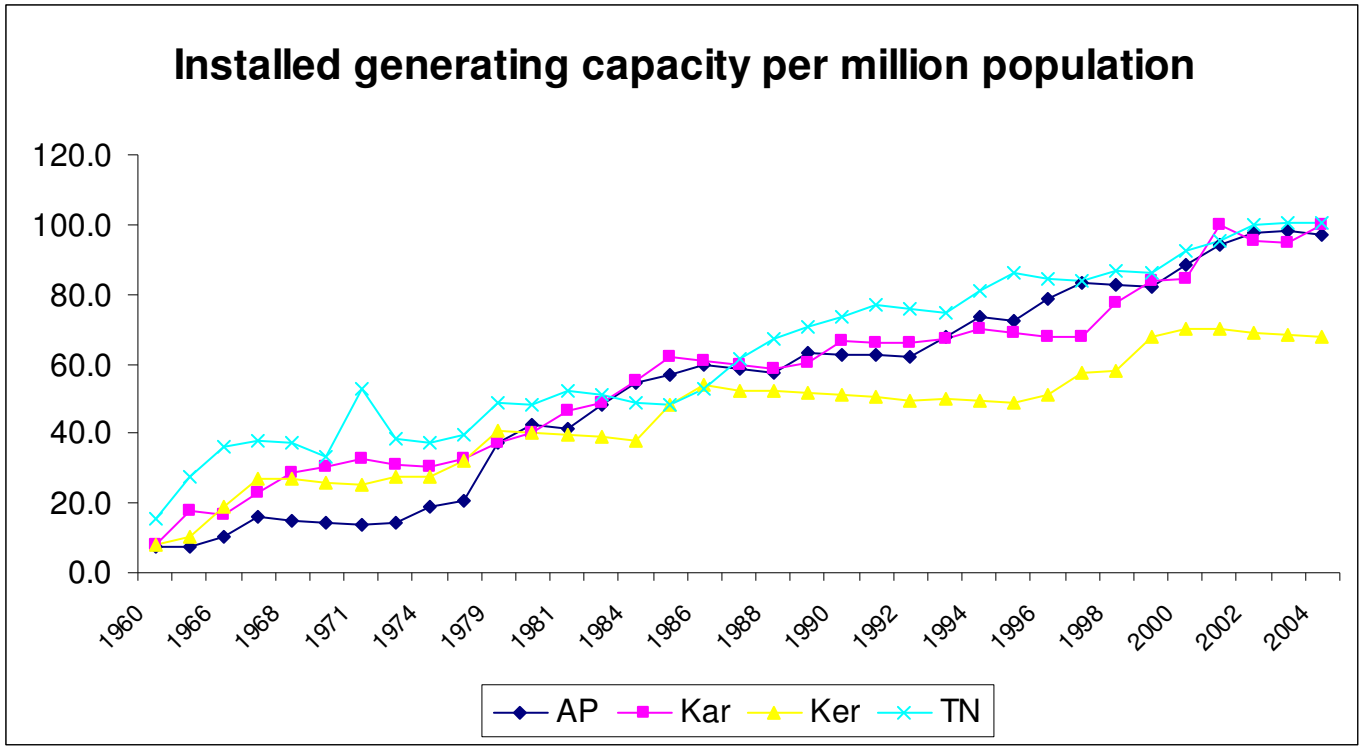
Installed Generating Capacity

As discussed earlier, installed generating capacity of electricity is a critical input for industries and services. We found in the case of the TN-UP analysis that TN had much higher installed capacity in the 1960s than that of UP's. Further, beginning from the late 1980s onwards, TN's installed capacity generation took off while UP's declined.

We reviewed the installed generating capacity of the southern states versus the northern states to examine if the TN-UP story holds good. Charts 28-29

respectively summarize the trends in installed generating capacity of electricity in the two regions for a reasonably long period of time, 1960-2004.

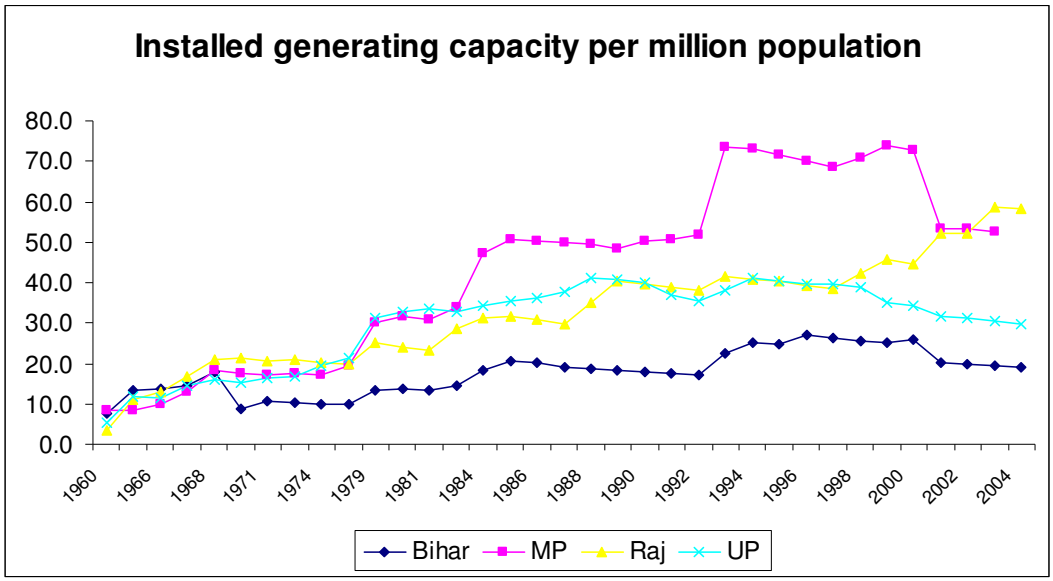
Chart 28: Installed Generating Capacity Per Million Population, Southern States, 1960-2004



The charts confirm what we learned in the case of the individual states. The weighted installed capacity per million population had always been higher in the southern states beginning with 10.23 (000 KW) in 1960, compared with only 6.35 (000 KW) for the northern states. The installed generating capacity per million population for Kerala was much lower than for the other southern states. With this caveat, while there was a continuous surge in the weighted (with population) installed capacity of the southern states, there was in fact a

decline in the northern states in the late 1990s (1996 to be precise) and since then has been diverging. This shows that the southern states were prepared to take the plunge when the economic reforms of 1991 took place, whereas the northern states simply did not have the prerequisites in place for economic growth to occur.

Chart 29: Installed Generating Capacity Per Million Population, Northern States, 1960-2004



Urbanization

Finally we examine another important indicator of disparities between the two regions – urbanization. The findings here are consistent with what we find in the two state analysis. Charts 30-31 present the urbanization rates for the south and northern states separately. Not only is the average weighted proportion of urban population higher in the southern states to begin with

compared with their northern counterparts, but their rate of urbanization has also proceeded at the same rate, with the result that the northern states are not as urbanized as their southern counterparts. For instance, the average weighted proportion of urban population in the southern states was 23% compared to only 14% for the northern states. The southern states' urbanization was 33% in 2001 when compared with only 20% for the northern states. So it does appear that the northern states failed to benefit from the benefits of agglomeration and urbanization economies with passage of time, compared with the south.

Chart 30: Trends in Urbanization, Southern States, 1971-2001

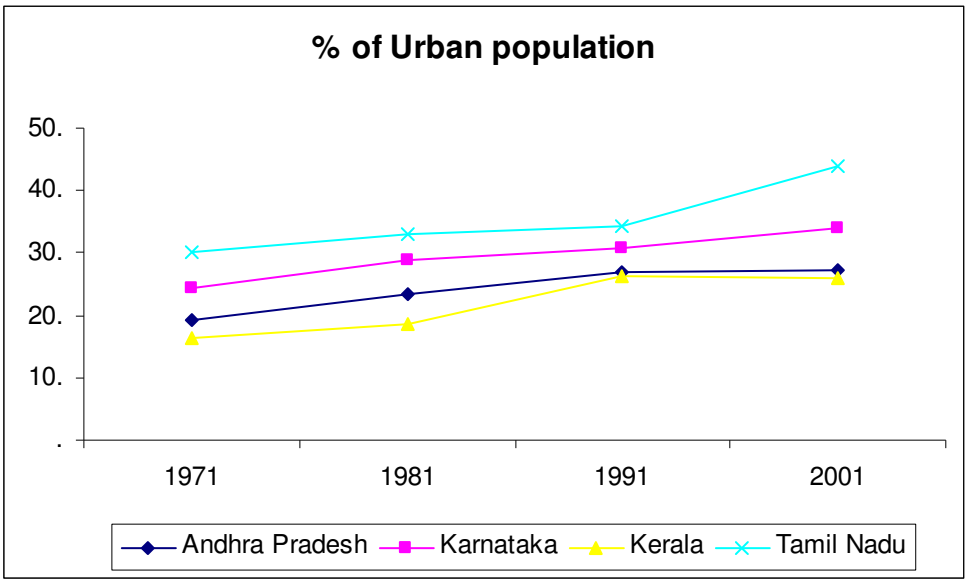
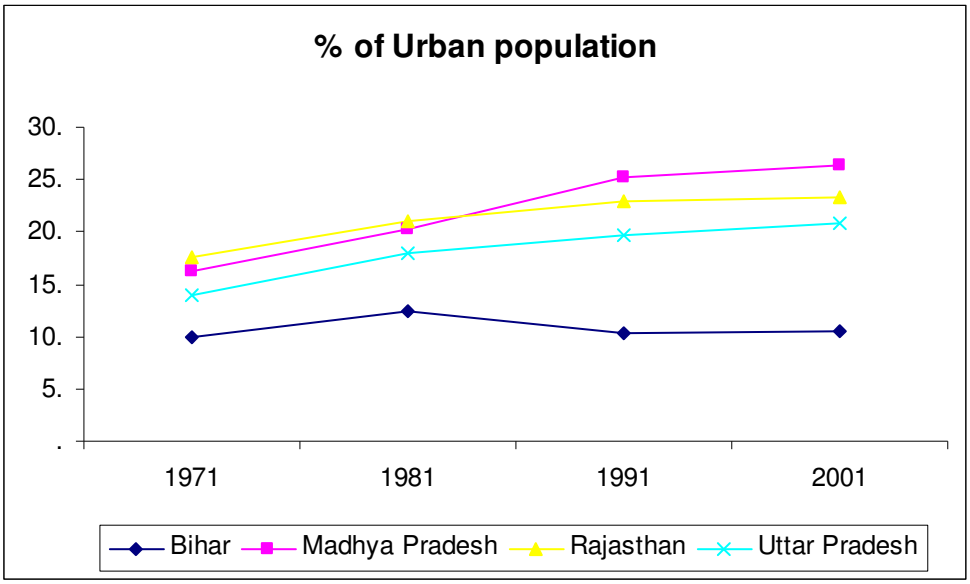


Chart 31: Trends in Urbanization, Northern States, 1971-2001



Public Investment

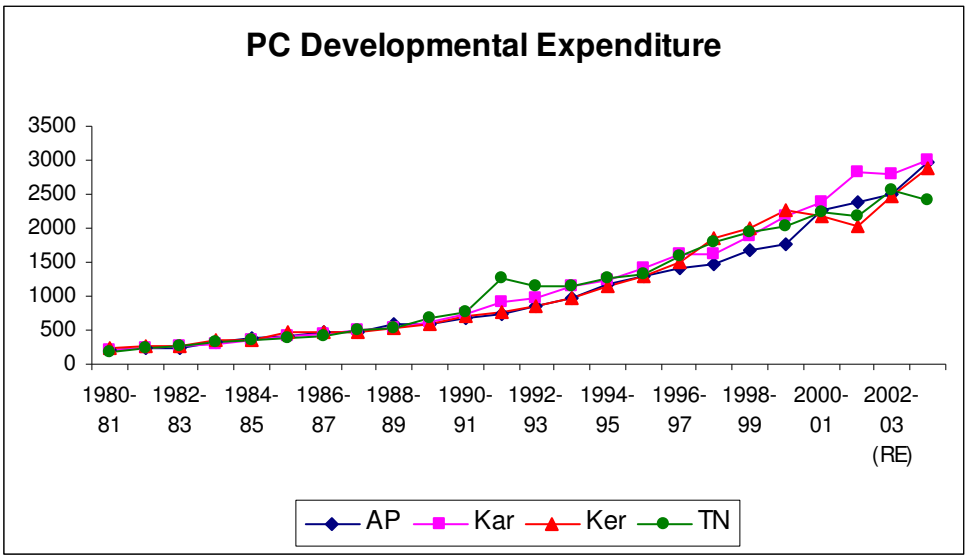
Next we examine trends in public investment and look at per capita developmental expenditure in the southern region versus that in the northern states. Per capita developmental expenditure, as discussed earlier, could be important as it results in the creation of productive assets. The hypothesis is that the southern states spend more on developmental expenditure.

We present the per capita developmental expenditure of the southern and northern states during 1980-2004 in Charts 32-33.

Chart 32 shows that the per capita developmental expenditure of all the southern states very closely clustered during the entire period we examine. Interestingly, Chart 32 shows a similar trend for the northern states, with the exception of MP (which started at a much higher level than the other northern

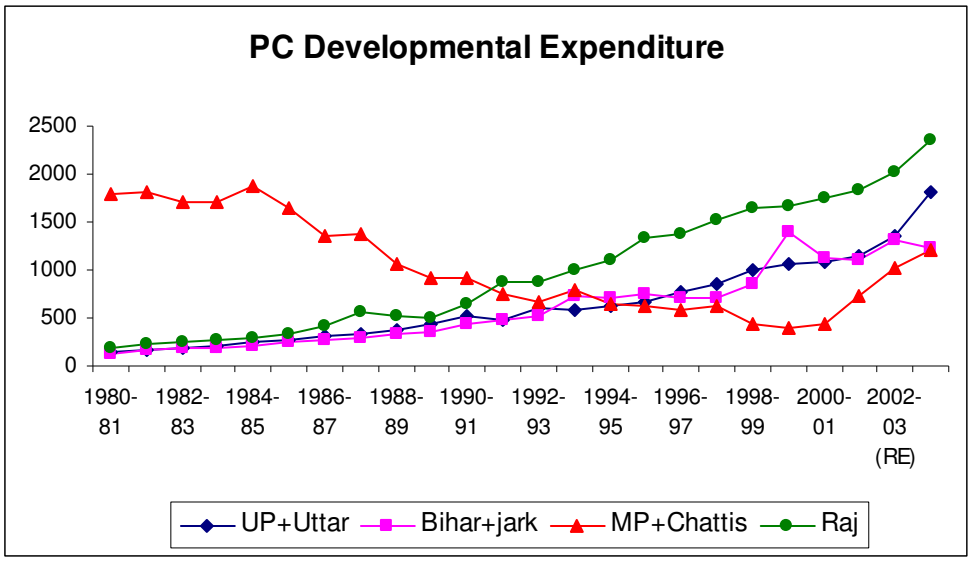
states) during the period we examine. When we examine the average weighted (weighted with population) per capita developmental expenditure, the southern states have experienced a much steeper increase starting from only Rs.208 in 1980 which increased to Rs.2,812 in 2003-04, compared with the northern states which started with a higher Rs.474 but increasing only to Rs.1,623 per capita in 2003-04. Thus what we notice is an upward shift in investment spending after the increase in incomes. This could be a result of increasing revenues and must not have been a causal factor for increasing incomes.[19]

Chart 32: Per Capita Developmental Spending, Southern States, 1980-2003



[19] We do not have the detailed data on developmental outcomes in the eight states for us to make a comparison of relative efficiencies of spending.

Chart 33: Per Capita Developmental Spending, Northern States, 1980-2003



Governance

A comparison of the north and south in terms of the three indicators of governance, average tenure of chief ministers, police firing cases per million population, and proportion of pending cases in the state judiciary is summarized respectively in Table 3, and Charts 34-36.

Table 3: Average Tenure of Chief Ministers (Number of days)

Year	Avg. No. of days (weighted), South	Number of CMs South	Avg. No. of days (weighted), North	Number of CMs North
1960-61	831	29	1268	25
1980-81	717	30	449	42
2000-01	914	31	663	41

Note: Average number of days includes the tenure of president's rule.

The southern region has performed distinctly better than the northern region on all the dimensions (except police firing incidents for which the evidence is mixed). We find that the police firing incidents in the south are dominated by Andhra Pradesh (1987-2002), which was characterized by frequent naxalite disturbances during which there was a sharp increase in the number of police firing incidents. It should be noted that Andhra Pradesh which is high on this score (law and order problems) is lowest on the per capita income front among the southern states (implied in Chart 20). By and large, police firing incidents in the southern states have always been at a lower level than is the case in the north (Charts 34 and 35).

Overall, these findings are similar to what we learned from the UP-TN comparison. It is significant that the north started with a better record in terms of CMs' tenure than the south, but experienced a clear decline in later periods. As noted earlier, we have captured only some dimensions of governance through these indicators. Our findings here do not imply that governance was of the highest order in any of the states under review. In fact, allegations and evidence of corruption, abuse of power, and injustice have existed in both regions. But in a relative sense, based on these indicators, we have concluded that governance was better in the south than in the north during the period under review though the enabling conditions may have been better in the north at the outset. A more detailed assessment might have shed much more light on the quality of governance in the two regions. Further analysis of what was done during a CMs' tenure, for

example, would have given us insights into how policies, implementation might have differed between the states involved.

Chart 34: Police Firing Incidents Per Million Population, Southern States

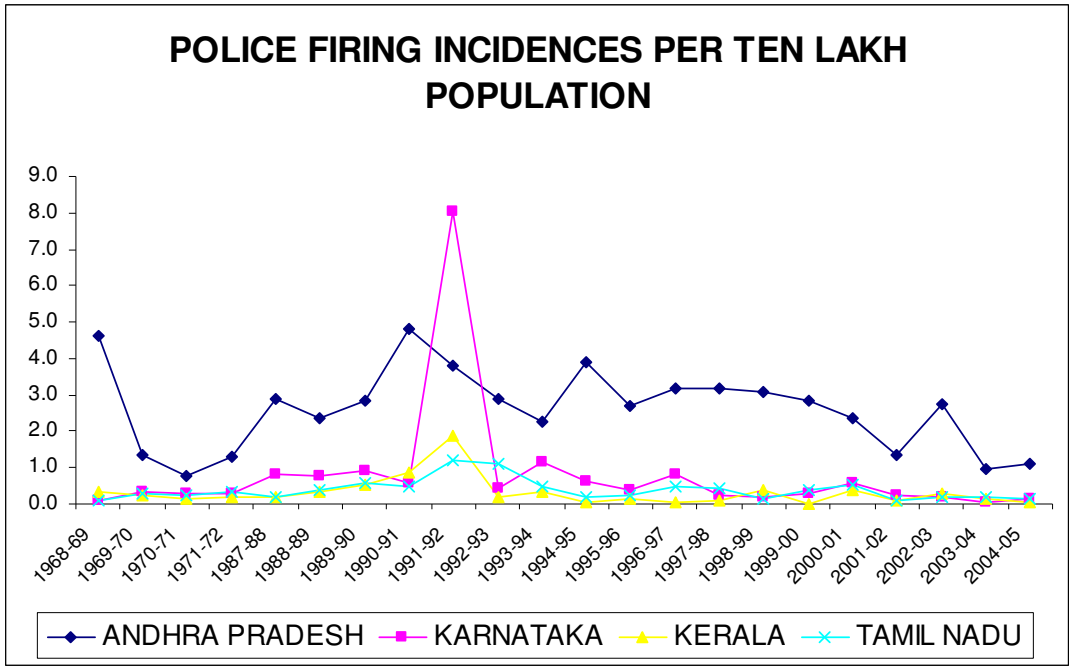


Chart 35: Police Firing Incidents Per Million Population, Northern States

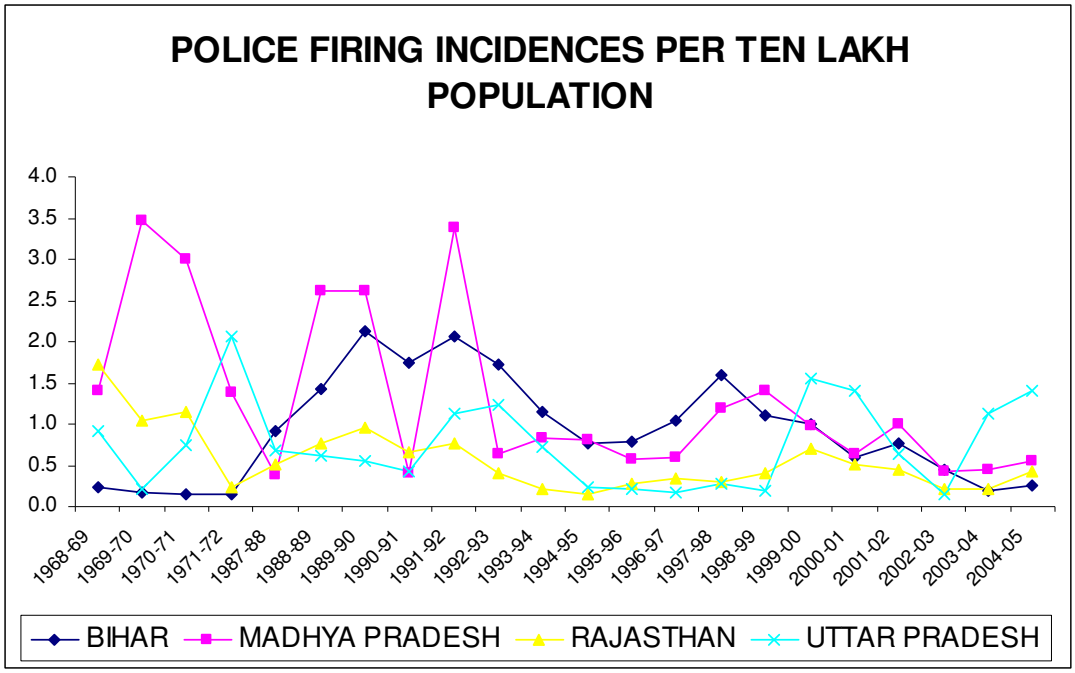
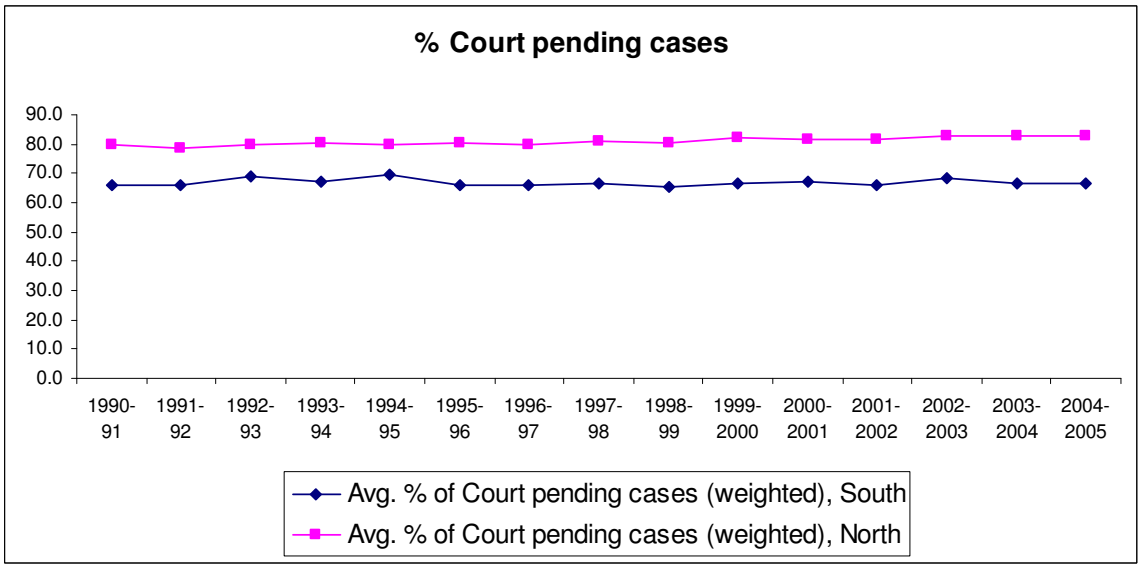


Chart 36: Proportion of Pending Court Cases, South and Northern States



V. Conclusions and Policy Implications

This study has examined whether the economic divide between India's north and south is a real phenomenon or a product of media hype. After establishing that the north- south divide does indeed exist, and that it is a fairly recent phenomenon, we investigated the underlying factors that may have led to this outcome. The factors examined by us included both proximate factors and foundational factors. The study applied this framework first to analyse the historical experience of TN and UP and later extended it to probe the historical experience of the two regions. We summarise below the main conclusions and policy implications of the study.

1. As in the case of TN and UP, the economic divide between India's north and south is also a relatively recent phenomenon. The economic performance of the south began to surge ahead by the late 1980s when Government of India had launched a modest regime of liberalization. Three out of the four northern states had also shown an acceleration of their growth rates during this period, but their pace of growth was not fast enough to catch up with the south. In the 1990s, the gap between the north and south widened even more with the result that the south's per capita income was more than double that of the north by 2005. The incidence of poverty in the south had also declined at a faster rate than the north during this period.

2. The evidence from the two regions reinforces our earlier conclusion about the convergence of both proximate and foundational factors in explaining the north-south divide. The two regions differed significantly with respect to literacy, urbanization, infant mortality of population (health status), and infrastructure, especially, electricity, and the gap widened in favour of the south over the study period. But the gap in terms of the proportion of graduates in the population was negligible. Further analysis, however, shows that despite this seeming similarity, engineering education had surged ahead in the south, leaving the north way behind. It reflects a strategic move by the southern states in response to policy shifts that the north had failed to exploit. Among the proximate factors, public investment does not seem to explain the north-south gap in economic performance. In fact the northern states had a headstart in this regard as per capita development spending was higher in the north than in the south in the early decades after Independence, but the latter overtook the north in the 1990s. A closer probe reveals that the increase in public investment in the south was financed by the rising revenues of its state governments. The foundational (governance related) factors also showed the south to be way ahead of the north. By and large, we conclude that the proximate and foundational factors highlighted in our TN-UP comparison may have played a dominant and joint role in explaining the differential in the long term growth performance of the two regions too. Explanations

that consider just one or two of these factors may provide only a partial understanding of what lies behind the development outcomes observed at the national and regional levels.

3. Though the per capita development spending in the northern states was higher than that of the south in the early decades, it did not translate into higher growth rates of literacy, health status or infrastructure (proximate factors) in the north. Our surmise is that this phenomenon signals the lower resource efficiency achieved by the north relative to the south. The increased resources deployed in the north did not result in a correspondingly larger volume of public goods as was shown in the UP-TN comparison. This outcome may have resulted also from the weaknesses in the foundational factors. A government that suffers from greater political and administrative instability, and law and order problems is less likely to make optimal and efficient use of its resources. Diversion of resources, delays and corruption are likely to increase under these conditions. The net result will be slower progress in terms of the proximate factors.

4. Our analysis of the two regions also shows that their growth rates remained similar, but low, for a very long period of over two decades. A similar pattern was evident in our study of TN and UP too. Our earlier finding that even when the preconditions in terms of the factors mentioned above are present, a region might not perform well in the

context of a restrictive policy regime is thus reaffirmed. In fact, the south's growth rate was lower than that of the north for over two decades despite its better preparedness in terms of preconditions. The final outcomes thus depend not only on the factors that strengthen the supply side, but also on factors that create incentives to invest, take risks, and expand economic activities (the demand side). It was only after the move towards liberalization began that the demand side turned positive. A case in point is the expansion of engineering education in the south from the early 1990s that resulted in its remarkable dominance in technical manpower. The south, as of 2006, accounted for 53% of the student intake of engineering colleges in India while the north had a share of only 16% (Banerjee and Muley (2007)). The decision of numerous entrepreneurs to enter this field reflects the joint influence of the proximate and foundational factors along with a liberalized policy regime that permitted such investments. The same policy was available in the north, but no such large scale investments took place in the northern states. Is it reasonable to speculate that their relatively poorer record in terms of governance may have acted as a barrier in this regard?

5. The role of social movements as a precursor to the growth of education and the spread of entrepreneurship is borne out at the level of regions too (see Damodaran (2008)). Like TN, Kerala also had seen strong social movements early in the 20th century that promoted greater

awareness and interest in education among the lower castes that had not received such opportunities in the past. Andhra Pradesh and Karnataka that were part of the erstwhile Madras Presidency had also witnessed a similar awakening and networking among their lower caste groups. The “social capital” created through this process in the region may have laid the foundation for more widespread education through institutions established by communities and caste groups. The explosion of technical education in the south in the 1990s could also be traced to this phenomenon. There was hardly any comparable development of educational institutions through non-governmental initiatives in the northern states.

6. It is difficult to say whether the same set of proximate and foundational factors are adequate to explain the differential performance of all countries and regions. Specific country contexts may reveal the role of yet other factors that we may have ignored here. It is also possible that the weakness in one factor may be compensated by the strength of another. As noted in an earlier section, the absence of educated manpower could be offset through the import of trained personnel from other places. It is possible for the state to intervene and achieve certain outcomes when the private sector is not developed enough to play this role. The most difficult factors to import or substitute will be in the area of governance. A cursory look at other better performing states in India confirms that they are closer to the southern states than to the north in

respect of governance. Rajasthan, the best performing state among the northern states, also has relatively better governance indicators than the other three.

7. This study does not offer a standard recipe for achieving development outcomes or a formula to plan for or sequence the preconditions for growth. This is because the historical legacies and endowments available in different country and regional contexts tend to vary a great deal. These in turn will determine how and when the preconditions for economic growth will be created. But even if the preconditions are created, restrictive policy regimes can result in a failure to utilize the full potential of the preconditions. In the present case, it is the liberalization policies and the global opportunities that became available in the late 1980s and 1990s that enabled the south to surge ahead at a faster pace than the north. But the responses of different states with the right preconditions need not be the same. In TN, the proximate and foundational factors facilitated the inward flow of resources for investment in manufacturing and services. As a result, both domestic and foreign investment expanded at a fast pace in TN. In Kerala that had similar educational endowments, a major response was for the workforce to go abroad in large numbers as local policies did not create a proper environment for investment. Kerala per capita income also rose significantly despite the different path it adopted. In both cases, people of the two states were able to respond to the new

opportunities, raise their income levels and achieve a fair measure of poverty reduction. It was preconditions such as education, improved health status and an enabling environment in terms of governance (in relative terms) that enabled them to craft their own responses and strategies to take advantage of the unfolding economic opportunities.

References

Ashraf, Quamrul H. Ashley Lester, and David N. Weil (2008) When Does Improving Health Raise GDP? NBER Working Paper No. 14449, October 2008.

Balakrishnan, Pulapre, and M. Parameswaran (2007). "Understanding Economic Growth in India: A Prerequisite," Economic and Political Weekly, July 14 Edition, p. 2915-2922.

Banerjee, R and V.P.Muley (2007) Engineering Education in India, Indian Institute of Technology, Mumbai, Mimeo.

Basu, Sudip Ranjan (2004) Economic Growth, Well-Being and Governance under Economic Reforms: Evidence from Indian States, HEI Working Paper No: 05/2004.

Damodaran, Harish (2008) India's New Capitalists: Caste, Business and Industry in a Modern Nation, Permanent Black.

Datt, Gaurav and Martin Ravallion (1998) Why Have Some Indian States Done Better than Others at Reducing Rural Poverty? Economica (1998) 65, 17-38.

George, Benny (2009) Sanitation Programmes: A Glass Half-full, *Economic and Political Weekly* 44 (8): 65-67.

Ghate, Chetan and Steven Wright (2008) The "V-Factor": Distribution, Timing and Correlates of the the Great Indian Growth Turnaround, Unpublished paper. http://www.isid.ac.in/~cghate/vfactor_final.pdf

Government of Tamil Nadu (2003) Tamil Nadu Human Development Report, Government of Tamil Nadu and Social Science Press, Delhi.

Kurian, N.J. (2000) Widening Regional Disparities in India: Some Indicators, Economic and Political Weekly February 12, 2000: 538-550.

Nagaraj, R., A. Varoudakis and M. A. Veganzones (2000), "Long-Run Growth Trends and Convergence Across Indian States", *Journal of International Development,* Vol.12.

Norton, S.W. (1992). Transaction Costs, Telecommunications, and the Microeconomics of Macroeconomic Growth. *Economic Development and Cultural Change* 41(1): 175-196.

Rao, M. Govinda, R. T. Shand and K. P. Kalirajan (1999), "Convergence of Incomes Across Indian States: A Divergent View", *Economic and Political Weekly,* March 27, pp. 769-778.

Rodrik, Dani and Arvind Subramanian. (2005). "From Hindu Growth to Productivity Surge: They Mystery of the Indian Growth Transition." IMF Staff Papers, Volume 52(2).

Shand, R. and S. Bhide, (2000), "Sources of Economic Growth: Regional dimensions of Reforms", *Economic and Political Weekly,* October 24, pp. 3747-3757.

Sridhar, Kala S and V.Sridhar (2007) Telecommunications Infrastructure and Economic Growth: Evidence from Developing Countries, *Applied Econometrics and International Development,* 7 (2): 37-56.

Virmani, Arvind. (2006), "India's Economic Growth History: Fluctuations, Trends, Breakpoints, and Phases", Indian Economic Review, Vol. 41(1), pp. 81-103.

Data Appendix

Data sources for education/health and urbanization indicators are the Census of India. Historical data on the infant mortality rate are obtained from the publication, *Sample Registration System: Statistical Report 2006,* published by Census of India. NSDP data are from the Central Statistical Organization (or the Economic and Political Weekly Research Foundation (EPW-RF)). Poverty data are from the Planning Commission. Law and order indicators such as the number of police firing incidents, proportion of pending cases in the court, and the proportion of civil to total police force are all from the National Crime Record Bureau. Infrastructure measures such as installed capacity of electricity are from the Central Electricity Authority, Ministry of Power, Government of India. Data on telephone penetration are from the Department of Telecommunications (DoT). Data on total and developmental expenditures by sector (education, sports and culture, energy, roads and bridges, public health and medical facilities are from the EPW Research Foundation. Literacy rates and proportion graduate for all states by year are from the Census of India. Data on the proportion of technical degree holders are from the Ministry of Human Resources Development's publication, *Selected Educational Statistics.* Annual time series data on the population in various states are from the EPW-RF. Data on urbanization are from the Census of India.

Annexure A.1: Historical Roots of Education in TN

Education in Early Years of Madras Presidency

Government enquiry into the state of education in Madras Presidency, initiated by Sir Thomas Munro in 1822, showed that there was approximately one school per thousand population and that the number of boys taught was one-fourth of the total school age population. It also showed that the instruction imparted in these indigenous institutions was of little practical value tending to burden the memory rather than to train the intellect. A board was, therefore, appointed to organize a system of public instruction, and an annual grant of Rs.50,000 was sanctioned for the establishment of schools. In 1826, 14 collectorate and 81 taluk schools, with a central school at Madras, were opened. In 1836, this scheme was pronounced a failure and the schools were abolished as inefficient. In 1840, a University Board was constituted by Lord Ellenborough's Government to organize and establish a central school and a few provincial schools. In 1841, the central school was converted into a high school; in 1853, a college department was added to it and later it developed into the Presidency College. In 1854, the Court of Directors issued its memorable dispatch regarding education. Thereupon the Department of Education, with the Directorate of Public Instruction and its inspecting staff was organized; the so-called Madras University was re-modelled and designated the Presidency College; a normal school was

established; *zilla* or district schools were opened; and the grant-in-aid system was introduced. While in 1853 there were 460 educational institutions with 14,900 pupils, by 1904 this number had risen to 26,771 with 784,000 pupils.

Source: TN HDR, 2003, Box 1.1.

History of Elementary Education in Tamil Nadu

The earliest developments in the field of education in the State were brought on by the advent of the Christian missionaries as early as the beginning of the eighteenth century. Though the English East India Company had started a school at Fort St George in 1673 for educating the children of its own employees, it was the missionaries who were responsible for spreading education among the local population. The Report of the Elementary Education Survey of the Madras Presidency, 1925, gives us some interesting insights into the history and progress of elementary education in the State. The report points out that there were three agencies managing elementary schools in the province:

i) private bodies, mission and non-mission including private individuals and teacher managers;
ii) local boards and municipal councils; and
iii) government.

Three distinct periods are also traced in the spread of elementary education in the province:

i) The early period up to 1910;
ii) The middle period from 1911–20; and
iii) The period from 1921 onwards.

The earliest period is characterized by major changes in policy, both regarding the medium of instruction, agency to start and run elementary schools as well as the methodology of funding of aided institutions. Though

early initiatives like Munro's minute of 1820 made some headway in vernacular education, these were often cancelled by contradictory policies such as Macaulay's directives on English as the medium of instruction. Progress was made after Wood's despatch of 1854, which introduced the system of grant-in-aid for encouraging private participation in primary education.

Spurred by the national movement under leaders like G.K. Gokhale, there was a marked shift in the educational policy of the government from 1910 onwards, marking the second period in educational development in the Madras presidency. The Government of India agreed to subsidize the opening of elementary schools in every village with more than 500 inhabitants. In pursuance of this policy, a liberal recurring grant of Rs 5 million was sanctioned out of Imperial subsidies which enabled the Provincial Government to subsidize district boards for the opening of such new schools.

The third major breakthrough in the spread of education came with the Madras Elementary Education Act 1920. Under this act, local bodies were given the responsibility for elementary education and were also given powers to levy special cess to raise funds for education. The act also directed the local bodies to introduce compulsory primary education in selected areas based on their financial position. Some interesting highlights on the status of girls' education in the State in a recent article reveal that the proportion of boys to girls in elementary schools changed from 4:1 in 1911–12 to 3:1 in

1926–7. A report published on 'Development of Women's Education' (1929) revealed the various obstacles that stood in the way of girls' education. Since the society at large and the backward communities in particular had not accepted co-education as a system, there was a need to open more girls' schools so as to ensure access for girls. But the limited funds for education were used up for the opening and development of boys' schools for which there was much more public clamour and support. Private aided agencies also were not keen to open girls' schools which would necessarily serve a more limited group of children. Further, the spread of girls' education was severely hampered by the non-availability of trained women teachers, especially among Hindu and Muslim women. In March 1927, as against 39,000 male teachers in higher and lower elementary grade, there were only 6000 women teachers, which was considered 'satisfactory' by the authorities at that time.

Source: TN HDR, 2003, Box 5.1.

Annexure A.2: Governance in UP

TSR Subramanian in his account as Chief Secretary, UP, records the following (pp.15):

"Sometimes I wonder whether the planning department itself had little to do or was it that the commissioners responsible had little to do? One day I accompanied Virendra Dayal, who was officiating as collector of Moradabad at that time, to Bareilly to attend the divisional planning committee meeting. All the district collectors, district planning officers and the local officers dealing with development matters participated in this meeting. We left for Bareilly at 8.30 AM to attend the meeting scheduled at 10. The drive normally took about one and a quarter hours, but at Clutterbuckgunj, on the outskirts of Bareilly, the jeep had a flat and we were delayed by some twenty minutes. We arrived at the meeting hall a few minutes late. It looked as if the meeting had not started. The head table was empty and the twenty or so participants were outside, laughing and chatting, seated on chairs in the main hall. The then officiating commissioner was I D N Sahi who was appropriately nicknamed "I do nothing" Sahi. After about ten minutes, Dayal asked, "When is the meeting starting?" There was laughter all around. We gathered that the commissioner had opened the meeting and stated that he had no comments to make and he hoped that everything was going satisfactorily, everyone immediately agreed that everything was going as well as possible.

Thereupon, the commissioner concluded the meeting, since there was no further business to transact. So much for planning and development!”

Annexure A.3: Education in UP

TSR Subramanian in his account as Chief Secretary, UP, records the following (pp.229) which throws light on the state of primary education in the state:

"In 1991, as I was once driving in the mountains in the course of an official visit, I stopped the car on an impulse, to visit a village which was situated on a ridge well above the highway, involving a steep climb on foot for about two kilometers. As I started walking up, the local block development officer who was accompanying me frantically tried to stop me, giving me various excuses. He finally talked about a hear-condition and I was a bit intrigued about why this functionary was so unwilling. Anyway, leaving him behind, I went ahead, accompanied by my orderly. We found a medium sized village with perhaps two hundred inhabitants. A primary school was located there: Only one teacher was present. After some questioning, I managed to find out that the school had a regular strength of five teachers. However, by mutual arrangement among the teachers, only one would be present on any day; each of the five would take turns of fifteen days at a time, to attend to their teaching duties and take the rest of the time out to attend to other matters. I also discovered to my dismay that the village had not seen an inspection visit by a single block level officer, even though there were some fifteen officers attached to each block. The block level officers conveniently visited only the

roadside villages. The village I visited was not particularly inaccessible. Yet, such was the apathy to the villagers' needs. In a microcosm, we can, at one stroke, understand the failure of development to take hold in the hills. Nearing the end of my visit to the village, I was quite dispirited."

Annexure A.4: Literature Survey

A number of studies have attempted to document and explain the patterns of economic growth in Indian states. There is a large literature on convergence/ divergence between states. There is another strand of literature which examines the sources and timing of the shift in Indian output growth since the 1980s. This literature addresses a variety of questions such as: when did the shift in growth occur? Was the shift uniform across states? What were the factors causing the shift? Based on a review of this literature, we find that none of studies have explored issues such as the North-South divide that is the subject of this paper.

Kurian (2000), taking a holistic view of development, drew attention to inter-state disparities by presenting recent data for states on demographic characteristics, social characteristics, magnitude and structure of SDP, poverty ratio, developmental and non-developmental revenue expenditures, indicators of physical infrastructure development and of financial infrastructure. The paper found that a sharp dichotomy between the forward and backward groups of states had emerged.[20] This paper does not explain the causes of the observed dichotomy. It is also only cross-sectional, and clubs together all states with high per capita income and others with low per

[20] Kurian's (2000) forward group consists of Andhra Pradesh, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Punjab and Tamil Nadu. The backward group comprises of Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal.

capita income, without making a distinction as to when these changes occurred.

Virmani (2006) finds that the growth rate of manufacturing in Indian states accelerated after 1980-81, and this contributed to the acceleration in growth of GDP from 1981-82. The most important innovation of this paper is the use of a rainfall index to remove the confounding effect of large droughts.

In contrast to Virmani (2006), Balakrishnan and Parameswaran (2007) find that the break in growth rate of GDP occurs in 1978-79 —with the 1978-79 take off in growth occurring prior to the positive break in manufacturing (1982-83). However this paper does not look at the sub-national level.

Thus the interest of all these studies appears to be to examine when a break appeared in the growth rate of Indian states without worrying about why and how the break occurred.

In all fairness, in addition to the literature which summarizes the disparities among the states and the timing of a shift, there is also a stream which makes an attempt to explain the interstate growth differentials.

Panel data regressions by Shand and Bhide (2000) examine variations in the size, income and structural characteristics of Indian states. It analyses total and per capita net state domestic product for the period 1970-71 to 1995-96. Sectoral analysis showed that reform in agriculture will yield the most benefit

as growth in this sector is positively and significantly related to overall growth. Infrastructure and human development were found to be other important determinants.

Rao et al (1999) analysed the determinants of growth of per capita SDP with data for the 14 major states. The coefficient on the initial income variable was significantly positive in the regressions for longer periods 1965-94, 1970-94 and 1975-94. The variable indicating private investment was found to be the most important determinant of growth. Next in importance was the literacy variable.

The analysis of Nagaraj et al (2000) used panel data for 17 states for the years 1960-94. The growth regression included, apart from lagged per capita SDP, the share of agriculture, the relative price of agricultural and manufactured goods, several infrastructure indicators and fixed effects for states as explanatory variables. Evidence for conditional convergence was found. The results of the study suggested that focusing investment efforts on physical infrastructure (electricity, irrigation and railways), and social infrastructure (human development) would raise the overall effectiveness of public investment and raise growth.

Ghate and Wright (2008) find that the ratio of Indian to US per capita output over the past 45 years has displayed a distinctive "V"-shaped pattern.[21] They carry out preliminary investigations of correlates of the "V-factor", using a new panel data set for Indian states from 1960 to 2005. Ghate and Wright (2005) observe that:

- V-States were on average more urbanised and more literate;
- They were somewhat more industrialised, and somewhat less dependent on agriculture;
- They spent somewhat less on development spending (revenue expenditure) than non-V states.

Rodrik and Subramanian (2005) argue — in similar vein to Virmani (2006) — that the improvement in India's economic performance was driven by policy changes. In particular, Rodrik and Subramanian argue that the trigger for India's upward break in growth — which they pin down to around 1980 — occurs because of an "attitudinal shift" on the part of the national government in 1980 in favor of businesses. While largely cross-national, this is one paper which takes into account the importance of non-economic factors in growth which needs to be noted.

[21] Their approach in using the US as a benchmark may be debatable, but given the US is the head of the technological frontier, and the standard neo-classical model would predict that growth rates converge to the country on the technology frontier, their choice is somewhat understandable.

Datt and Ravallion (1998) study the causes of rural poverty in a developing rural economy and ask the question as to why some Indian states have done better than others at reducing rural poverty. They model the evolution of various poverty measures using pooled state-level data for the period 1957-91. Differences in trend rates of rural poverty reduction were attributed to differing growth rates of farm yield per acre and differing initial conditions; states starting with better infrastructure and human resources saw significantly higher long-term rates of poverty reduction. Deviations from trend were attributed to inflation (which hurt the poor in the short term) and shocks to farm and non-farm output. This paper, while being quite insightful, unfortunately does not cover institutional factors such as the existence of the minimum support price to farmers and their impact on reducing rural poverty.

Basu (2004) provides empirical evidence, from a study of sixteen major Indian states for the period 1980-2001, that under the economic reform process, the better institutional mechanism could actually help economies to grow faster with a higher level of economic well-being. This paper estimates economic well-being index (by aggregating fifteen socio-economic variables, i.e., education, infrastructure, technological progress, income, and so on) and an index of good governance (by aggregating thirteen variables indicating rule of law, government functioning, public services, press freedom, and the like) by multivariate statistical measures. Panel regression showed that governance measures, and economic policy variables are crucial to explain differential level of development performance across states in India during

the last two decades. It is worthy of note that this is one of the few papers to take into account the impact of governance and institutional factors on differential economic performance of the states.

While the differential rate of growth among Indian states and the issue of convergence have been extensively probed in the literature, as is clear from the literature review above, no one has looked at what explains the differential growth records of the northern and the southern Indian states, using historical data. Very few studies have gone beyond the standard economic variables to take into account non-economic factors such as political stability and law and order, for example, which impinge upon economic activities and investment decisions.