Efficiency and Productivity Analysis of Elementary Education in India

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By

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Certified that the Thesis entitled

Efficiency and Productivity Analysis of Elementary Education in India submitted by me for the award of the Degree of Doctor of Philosophy in Arts at Jadavpur University is based upon my own work carried out under the supervision of Dr. Arpita Ghose, Professor, Department of Economics, Jadavpur University and that neither this thesis nor any part of it has been submitted before for any degree or diploma anywhere/ elsewhere.

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(Dr. Arpita Ghose)

Dated:

"Statement of Originality"

I **AMRITA BHANJA** registered on **July 24, 2013** do hereby declare that this thesis entitled **"Efficiency and Productivity Analysis of Elementary Education in India"** contains literature survey and original research work done by the undersigned candidate as part of Doctoral studies.

All information in this thesis have been obtained and presented in accordance with existing academic rules and ethical conduct. I declare that, as required by these rules and conduct, I have fully cited and referred all materials and results that are not original to this work.

I also declare that this thesis has been checked as per the "Policy on Anti Plagiarism, Jadavpur University, 2019" on December 1, 2020, and the level of similarity as checked by iThenticate software is **2%.**

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Contents

List of Tables

List of Figures

Abbreviations

AA	Above Average
AE	Allocative Efficiency
BA	Below Average
BCC	Banker, Charnes and Cooper
CBC	Percentage of Classrooms in 'Bad' Condition
CCD	Caves, Christensen and Diewert
CCR	Charnes, Cooper and Rhodes
CES	Constant Elasticity Substitution
CRS	Constant Returns to Scale
CTF	Percentage of Schools with Common Toilet Facility
CV	Coefficient of Variation
DEA	Data Envelopment Analysis
DEAP	Data Envelopment Analysis Programme
DWF	Percentage of Schools with Drinking Water Facility
FDH	Free Disposal Hull
FGLR	Fare, Grosskopf, Lindgren and Roos
FGNZ	Fare, Grosskopf, Norris and Zang
GCSs	General Category States
GENB	Percentage of Girls Enrolment to Boys
GFSTB	Percentage of Girls getting Free Stationery to Boys
GFTBB	Percentage of Girls getting Free Text Books to Boys
GTCT	Percentage of Girls' Toilet to Common Toilets
GTF	Percentage of Schools with Girls' Toilet Facility
HEIs	Higher Education Institutions
IMR	Infant Mortality Rate
LP	Linear Programming
MB	Marginally Below
MDMS	Mid-Day Meal Scheme
MFP	Multifactor Productivity
MLM	Multilevel Modelling
MPI	Malmquist Productivity Index
MPSS	Most Productive Scale Size
NBB	Percentage of Schools with No Blackboard
NEP	National Education Policy
NER	Net Enrolment Ratio
NPB	Percentage of Schools having No Pucca Building
NPEGEL	National Programme for Education of Girls at the Elementary Level
NUEPA	National University of Educational Planning and Administration
PGR	Productivity Growth Rate
PPS	Production Possibility Set
SCEN	Percentage of SC Enrolment

SCSs	Special Category States
SD	Standard Deviation
SDG	Percentage of Schools received School Development (SD) Grant
SE	Scale Efficiency
SEC	Scale Efficiency Change
SFA	Stochastic Frontier Analysis
SFPF	Stochastic Frontier Production Function
SFR	Stochastic Frontier Regression
SFST	Percentage of Students getting Free Stationery
SFTB	Percentage of Students getting Free Text Books
SFU	Percentage of Students getting Uniforms
SNCS	Percentage of Single Classroom Schools
SNTS	Percentage of Single Teacher Schools
SSA	State Specific Average
STEN	Percentage of ST Enrolment
SWB	Percentage of Schools without Building
TC	Technical Change
TCR	Technology Closeness Ratio
TE	Technical Efficiency
TEC	Technical Efficiency Change
TEINP	Input Oriented Technical Efficiency
TEOUT	Output Oriented Technical Efficiency
TFPG	Total Factor Productivity Growth
TLF	Three Language Formula
TLMG	Percentage of Schools received Teaching Learning Material (TLM) Grant
TVET	Technical and Vocational Education and Training
UTs	Union Territories
VRS	Variable Returns to Scale

Chapter 1

Background and Motivation of the Study

1.1 Introduction

The education sector is one of the most important parts of the country without which the entire economy fails to work properly. Everyone has to acquire essential knowledge and skill for building capabilities in order to live a meaningful life and to function in the society. Apart from the intrinsic value of education in shaping one's life, economic entitlement strongly depends on both the quality as well as the quantity of education level. Swami Vivekananda said, "Education is the manifestation of the perfection already in man". Additionally the level of education is the prime determinant of maintaining good health and keeping away from undesirable diseases in general. Also, it helps to generate awareness regarding health among women, which has very significant consequences in the well-being of the individual and the family and hence of the entire society.

Without the growth of human capital the economic system cannot work properly. Importance of human capital in determination of growth of the nation has been postulated by different endogenous growth literature. Lucas (1988), Romer (1990), Barro (1991), Mankiw et al. (1992) etc. are important to quote a few among the literatures. The advancement of education sector significantly defines how the human capital will be developed.

The article 45 of the Constitution of India states that "The State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years". The concrete plan of action to stipulate the development of education sector was undertaken by the Government of India after implementing the National Education Policy (NEP) during 1986 (revised in 1992). National Literacy Mission (1988) as a part of NEP has been started to promote the usefulness of literacy learning and its arrangement made by the government all over India. The Government of India with the collaboration of different states has launched several educational activities to develop the educational scenarios. The main agenda of NEP was to make sure that (a) all can acquire a primary level of education (b) preservation of children up to the age of 14 years and (c) universal achievement of the essential level of learning. Revision of adopted NEP from time to time basis can be viewed as a substantial effort making programme from the part of the Central Government. The goal of NEP (2016) focused on to make sure impartial and universal access to education including technical and vocational education and training (TVET), to improve employability of the education system

and to ensure educational opportunities to all parts of the society. NEP (2016) has given emphasis on the following issues addressed by the committee (i) pre-school education, (ii) preservation of child and youth education rights, (iii) learning outcome improvement in school education, (iv) major reforms in school education, (v) educational programs renewal and changes the examination pattern, (vi) inclusive education and student support, (vii) improving literacy and lifelong learning, (viii) importance of skill based learning and employability, (ix) adoption of ICT based learning, (x) faculty improvement and management, (xi) giving importance on language by implementing Three Language Formula (TLF) in many states and culture in education, (xii) self-development through comprehensive education by giving importance on different policy initiatives like physical education, yoga, games, skills etc. and developed Digital India initiative to trace and examine the health condition and the implementation of nutrition programme at school through the on-going Mid-Day Meal Scheme (MDMS), (xiii) school assessment and governance, (xiv) regulation, quality assurance and faculty development in higher education, (xv) incorporation of open and distance learning (ODL) programme and massive open online courses (MOOCs), (xvi) internationalisation of education and (xvii) giving importance on research, innovation and new knowledge. The committee by the leadership of Dr. K. Kasturirangan has submitted the draft of National Education Policy in 2019. The committee suggested reforming all levels of education in India. The key challenges addressed by the education policy are the following (i) access, (ii) equity, (iii) quality, (iv) affordability and (v) accountability faced by the current education system. The draft gives attention to focus on elementary education, modify the existing examination process, more development on teacher training and reorganize the learning regulatory structure. The draft policy suggests extending the scope of the RTE Act to incorporate early childhood education and secondary school education. The practices such as setting up a National Education Commission along with increasing public investment and focus on vocational and adult education and improving the use of technology should be emphasized.

Thus, upgradation of the quality of life through the improvement in occupational skills has been emphasized through the National Development Programme in various dimensions. Various projects have been initiated by the Government of India to enhance the overall performance of the elementary education system. Elementary education has been of need regarding sub-sectoral allotment with Indian five year plans.

A number of schemes have been initiated to promote elementary education programmes. Among them, District Primary Education Programme initiated in 1994 is a centrally sponsored scheme. The aim of this programme is to afford the access of elementary education for all, minimizing the rate of dropout at the elementary level, escalating learning goals and reducing gender and social gaps. The central government of India with the help of states launched the Sarva

Shiksha Abhijaan programme in November 2000. The programme mainly focused on enhanced quality of education of children between the age groups six to fourteen and minimised the gender discrepancy and social disparity. Its framework was so strong that it covered all existing schemes related to education. It was implemented in every district all over India. National Programme for Education of Girls at the Elementary Level (NPEGEL) has been started in 2003–2004. The target of this programme was to provide extra facilities for girls for elementary education under Sarva Shiksha Abhijaan programme. National Education Policy (2019) (Dr. K. Kasturirangan Committee Report) proposed for restructuring education in India from basic level to a higher level and recently approved by the Union Cabinet (2020).

Performance of the elementary education sector, measured by literacy rate, in different states of India is quite hopeful. This rate significantly improved from 18.3% in 1951 to 74% in 2011 (Census (2011)). In this time window, enrolment number has also increased at the elementary level. The all India level enrolment has increased from 2005-06 to 2013-14 although disparities are present amongst different states. The total enrolment number increased from 124615546 (2005-06) to 132428440 (2013-14) for primary level and the corresponding figure for upper primary level are 43667786 and 66471219 (DISE). In this context, whether an educational sector is functioning efficiently or not is a major question. Has the school properly utilized the inputs to produce maximum or optimum output? Given this scenario the basic question arises that whether the schools in different districts are technically efficient? Similar questions are the following: is there any scope to improve the level of efficiency, i.e., producing maximum output on the basis of the fixed inputs or contracting the resources used to produce the observed level of output in the production process. Description of productivity performance of the education sector is also an interesting issue. If any nation wishes to obtain achievement from the field of education, requires enhancing the productivity. Without the increase in productivity the growth performance cannot be sustained. Thus, measurement of both the extent of efficiency and productivity is important. An obvious hunch is to identify the determinants that affect the difference of technical efficiency (TE) scores and productivity performance across different districts of India at primary and upper primary levels of education.

For the accomplishment of parity of educational services between different states of India, a relative study in efficiency and productivity at the state level and the district level is required. This analysis will assist to demark the states/districts whose scores of efficiency and productivity are below the average. In order to reduce disparities at the state and district level, the idea regarding the states/districts which are below the general average level and also the relative position of the states/districts with respect to good performing one is quite important. The study is also useful to determine suitable strategies for improving educational efficiency and productivity of the backward states/districts, such that

uniformity in terms of these indicators across regions can be established. Thus, district wise efficiency and productivity study at the state level will be helpful to identify the low performer states/districts and appropriate measures can be taken for enhancing of less efficient and productive states/districts.

There are two concepts of efficiency of a producing unit-technical efficiency (TE) and allocative efficiency (AE). Technical efficiency has output augmentation and input conservation approach. TE refers to the ability of the producing unit to produce the maximum output given the input usage and technology or to use as little input as required by technology and output production. On the other hand, in case of allocative efficiency, it refers to the condition in which it is not possible to produce maximum benefit or output based on the existing inputs or the circumstances where a number of individuals cannot be improved by reallocating the inputs without converting others worse-off. The present thesis deals only with technical efficiency.

The literature talks about two types of technical efficiency: output oriented and input oriented. In the case of former, the comparison is conducted between the observed output and the maximum possible output accessible from the fixed level of inputs. It shows given the input level how much amount of output can be proportionally expanded. On the other hand, in case of later the comparison is conducted between observed inputs and the minimum possible inputs required to produce the observed level of output, i.e., finding out by how much input quantities can be proportionally reduced without changing the actual output bundle. The present study considers estimation of both output and input oriented technical efficiency and find out their determinants.

Coming to the productivity measures it is observed that, according to the theory the partial productivity indicates the contribution of single factor to output growth holding the other factors constant. It does not truly predict the actual situation. On the other hand, Total Factor Productivity Growth (TFPG) is a complete and broader concept which enumerates the rise in total output which is not considered for the enhancing in total inputs. Therefore, TFPG estimates the change in output for the change in the production over time, assuming all inputs are given [Abramovitz (1956); Denison (1962, 1967, 1985); Hayami, Ruttan and Southworth (1979)] and it includes the measure of technical efficiency change, technical change and scale efficiency change. The present study will devote to measure TFPG, decompose it into different components of technical efficiency change, technical change and scale efficiency change and find out the determinants of TFPG.

The perusal of literature surveys identify that there is dearth of studies on measuring technical efficiency and productivity performance in the elementary education sector and figuring out their significant determinants at district level

over time. Also, it suggests that there is a dearth of literature dealing with comparisons made at primary and upper primary levels of education over time. The detailed survey of literature is presented in chapter 2.

The present study contributes to the literatures by addressing these research gaps in this directions and emphasizes on the measurement of technical efficiency and productivity performance of Indian elementary education sector over the period from 2005-06 to 2013-14. The analysis is performed at district level for the 16 major selected states, namely Andhra Pradesh (AP), Assam (AS), Bihar (BI), Gujarat (GJ), Haryana (HA), Himachal Pradesh (HP), Karnataka (KA), Kerala (KE), Madhya Pradesh (MP), Maharashtra (MH), Orissa (OR), Punjab (PN), Rajasthan (RA), Tamil Nadu (TN), Uttar Pradesh (UP) and West Bengal (WB). Total number of cross-sections at any time point is 461. Based on the district level results on output oriented and input oriented technical efficiency and TFPG, the corresponding figures representing the performance of the 16 major selected states are obtained and interstate comparison has been made for primary and upper primary levels of education separately. Also the common determinants affecting technical efficiency and TFPG are figured out.

The revision of literature suggests that there are two alternative approaches of estimating efficiency: (i) parametric approach and (ii) nonparametric data envelopment analysis (DEA). This study adopts nonparametric DEA technique. Charnes et al. (1978, 1981) defined the way of tackling the issue of estimating efficiency for decision making units (DMUs) consists of several inputs and outputs cases by introducing the DEA technique. It assumed constant returns to scale (CRS) and thereafter Banker et al. (1984) modified the structure incorporating variable returns to scale (VRS). Different DMUs can be considered like hospitals, schools, courts which produce identifiable and measurable output from measurable inputs. The present study employs Bankar, Charnes and Cooper (BCC (1984)) models of variable returns to scale. The major advantage of this approach is that it does not require any prior specification of production function and avoids misspecification of the functional relationship in case of the use of parametric specification which may result in wrong estimate. Since in DEA no specification of the production function is assumed, the best possible or benchmark production function has to be constructed which is known as frontier, and is supposed to be perfectly efficient. This is obtained using actual input output data and following some programming method given the data on actual input and output.

In tune with the literature, measurement of technical efficiency and total factor productivity requires assumption of production function, which necessitates identification of inputs and outputs. Relevantly, it will be useful to highlight the following difference between this educational production function and the standard production function used in micro theory. First of all, the output

produced in case of education is not the tangible output. Thus one needs to represent the output using some suitable measures. For example, present study considers two outputs for the measurement of efficiency score: (i) net enrolment ratio (NER) and (ii) percentage of students passed having greater than 60% in the examination. The second output measures the attainment of quality. There can be other measures of output as well. Similarly, following input variables are considered : (i) number of schools per lakh population, (ii) teacher-pupil ratio in the school, (iii) classroom-student ratio in the school and (iv) percentage of teachers with qualification graduate and above in the school, measuring the quality of the teacher input. Secondly, both the output and the inputs in the production process do not have prices. Thus, one needs to obtain their shadow prices for further analysis.

The present study uses district as unit of account and estimates the performance indicators of primary and upper primary levels separately for any district. Admitting that quality of schooling varies substantially from village to village or even from school to school depending on various socio-economic factors and thus takes into account aggregate figure for the input and output variables of the respective district, considering all the schools in the district. All the input and output figures are considered separately for primary and upper primary levels of education. NER is defined as the enrolment of the age group 6-11 years for primary level of education expressed as percentage of total population in that age group. Similarly, the input variable, number of schools per lakh population represents total number of schools for any given level of education (primary and upper primary) in a particular district divided by total population in lakhs of that district. Considering the other inputs, for any particular level of education (primary and upper primary), the district level figure for all these inputs are obtained by taking into account all the schools for that education level (primary and upper primary) in the respective district. For example, for any particular district, the input variable, teacher-pupil ratio in the school corresponding to any given level of education (primary and upper primary), is measured by the ratio of total number of teachers of all the schools for that education level and of that particular district to total enrolment corresponding to all the schools for that education level and that particular district. Likewise, the input variable, classroom-student ratio for any given level of education (primary and upper primary) and for any particular district is measured by the ratio of total number of classrooms of all the schools for that particular education level and that particular district to total enrolment corresponding to all the schools for that particular education level and that particular district. The input percentage of teachers with qualification graduate and above in the school for any given level of education (primary and upper primary) and for any district is obtained by taking the total number of teachers having qualification graduate and above of all the schools for that particular education level and that particular district expressed as percentage

of the total number of teachers for that particular education level and that particular district. All the input and output data are taken from DISE (District Information System for Education). The detailed methodology for estimating output oriented, input oriented measures of technical efficiency and total factor productivity growth and the data sources are found in chapters 3, 4 and 5 respectively.

Given this above backdrop, the objectives of this present study can be presented as follows.

1.2 Objectives of the Present Study

Considering the data for 461 districts (as per DISE) of 16 major selected Indian states, as mentioned above, for the period 2005-06 to 2013-14, the objectives of the present study are the following:

- To measure the extent of output oriented technical efficiency
- To estimate the extent of input oriented technical efficiency and to measure whether there is more usage of different inputs over the optimum or not
- To determine total factor productivity growth (TFPG), its growth rate and to decompose TFPG into different components like technical efficiency change, technical change and scale efficiency change
- To find out significant factors of output and input oriented technical efficiency and TFPG for the elementary education sector in India at both primary and upper primary levels of education separately
- To carry out interstate comparison of efficiency and TFPG and to figure out the common factors leading to fostering efficiency and TFPG.

1.3 Chapters of the Present Study

Chapter 1 Background and Motivation of the Problem

Chapter 2 The Survey of Literature

Chapter 3 The Analysis of Output Oriented Technical Efficiency

Chapter 4 The Analysis of Input Oriented Technical Efficiency

Chapter 5 The Analysis of Productivity

Chapter 6 The Interstate Comparison of Efficiency and Productivity

Chapter 7 Summary and Conclusions

Chapter 2

The Survey of Literature

2.1 Introduction

The role of the education sector in the economic development in an economy has been discussed in the literature. As a result, considerable amount of literature dealing with a different perspective of the education sector can be pointed out. Since the proposed study is related to the measurement of performance of the elementary education sector in terms of analysing efficiency and productivity, to keep the discussion within limit, survey of the literature will mainly concentrate on these two aspects. The theoretical and empirical studies on output and input oriented technical efficiency and productivity performance have been discussed in different subsections of this chapter.

The present chapter is organised as follows: section 2.2 discusses the theoretical aspect relating to estimation of technical efficiency. Different international and national level of surveys of measurement of efficiency is presented in the section 2.3. Sections 2.4 and 2.5 deal with the theoretical and empirical studies on productivity performance respectively. Finally the gaps in the literature and connection of the present study with the existing literature are discussed in section 2.6.

2.2 Theoretical Literature relating to Technical Efficiency

The notion of efficiency can be segregated into two parts: technical efficiency (TE) and allocative efficiency (AE) (Farrel (1957)). The capability of the producing unit to produce the optimum (utmost) output given the input usage and technology or to use as little input given the output produced and the production technique is termed as TE. According to Lovell (1993) AE indicates the capability of a decision making unit to produce the unit combining inputs and outputs optimally in presence of production technology and their respective price. In case of AE, the efficiency occurs when the ratio of marginal productivities of any two inputs employed in the production process is equal to the factor price ratio (Ghose (2017)). The analysis of the present thesis is restricted only to the study of technical efficiency. Therefore, to keep the survey within limit, the studies relating to technical efficiency will be discussed.

There are basically two different approaches to evaluate TE of a producing unit in theoretical and empirical literature-(i) parametric and (ii) nonparametric methods. Efficiency measurement rests on the comparison between actual performances with the optimal performance located on the frontier. Specific functional form of the frontiers is used in the parametric method. For the efficiency measurement this

method mainly involves econometric technique which is defined as stochastic frontier analysis (SFA) in the literature. By contrast, in nonparametric method the frontier is constructed using some simplified assumptions regarding the production process. Nonparametric method which is known as data envelopment analysis (DEA) uses mathematical programming approach (mainly linear programming) for measuring efficiency. Construction of the frontier and the distance measurement are the two main steps of performing nonparametric method.

2.2.1 Parametric Method: Stochastic Frontier Analysis

Formal definition of TE was given by Koopmans (1951) corresponding to which Debreau (1951) and Farrell (1957) proposed two alternate measures of TE viz. output oriented and input oriented.

Consider a deterministic production frontier f (X_i, t; β) represents where X_i is the non-negative input vector, β is the technology parameter given in the period, t indicates time frame and f denotes maximum producible outputs. Now the observed output Y_i of the i^{th} producing unit may not lie on the optimal frontier level of output. The reason of the shortfall may be due to low performance of the worker or lower managerial power of monitoring to the subordinates (Ray (2004)) which is really ascribed to the existence of the inefficiency of the producing unit.

The production function of i^{th} unit can be written as

$$Y_i=f(X_i, t; \beta) .\exp(-u_i),\ldots,u_i \geq 0 \qquad (2.1)$$

And Farrell's output oriented technical efficiency of the producing unit i is given by

$$TE_i= Y_i/f(X_i, t; \beta)=\exp(-u_i), \quad u_i \geq 0 \qquad (2.2)$$

Which is the proportion of observed yield (outcome) to the greatest possible yield from the given amount of input sources. The value of $TE_i \in [0,1]$ and it inversely proportionate to u_i. When $u_i=0$, $\exp(-u_i)=1$, revealing perfect efficiency, whereas u_i can be explained as sign of Technical Inefficiency.

The constraint of the deterministic production frontier is that it disregards the way that yields can be influenced by any irregular variables like weather, strike or whatever other unanticipated issues which are not under control of the producer. In order to detect the influence of random shocks in the frontier output model, Aigner et al. (1977), Meeusen and Broeck (1977) both incorporated an extra random error term 'v' in the model along with the non-negative random variable 'u'. This methodology is called as stochastic frontier production function (SFPF) model.

Incorporating the random shocks into the deterministic model, equation (2.2) can be rewritten as

$Y_i=f(X_i, t; \beta). \exp(v_i) .\exp(-u_i), \qquad (2.3)$

Here the stochastic production frontier is denoted by $[f(X_i, t; \beta) . \exp(v_i)]$. Here $f(X_i, t; \beta)$ corresponds to the deterministic part and $\exp(v_i)$ explains the random shocks of i^{th} producing unit. In the expression (2.3), two terms u_i and v_i are uncorrelated. The inefficiency part (u_i) can take either of the following distributions: half-normal, truncated normal, gamma, or exponential whereas the random part is considered to be normally distributed.

2.2.2 Nonparametric Method: Data Envelopment Analysis

The benefit of using nonparametric method is that it is free from any particular functional form of the production frontier. It basically deals with mathematical linear programming method under some feasible assumptions. There are two types of technical efficiency: input oriented (TEINP) and output oriented (TEOUT). In the case of former the comparison is conducted between observed inputs and the minimum possible inputs required to produce the standard level of outputs. On the other hand, in case of later the comparison is conducted between the observed output and the maximum possible output accessible from the given inputs. Therefore, the TE has the output augmented and input conserving orientation.

Farrell (1957) was the first to construct linear programing model using actual input output data of sample firms assuming constant returns to scale (CRS) technology. Hoffman (1957) suggested dual simplex method to obtain Farrell's measure of efficiency. Later Farrell and Fieldhouse (1962) considered increasing returns to scale to solve the problem using dual simplex algorithm. This approach could not provide a satisfactory solution due to presence of fractional objective function.

Later Charnes, Cooper and Rhodes (CCR (1978)) modified the problem by incorporating virtual prices of input and output as suitable weights. They (CCR (1981)) developed a generalized DEA model in a multiple-output multiple-input framework considering a CRS assumption.

The assumption of CRS illustrates the fact that the amount of changes in output will be in the same proportion to the changes in input. In case of VRS, the production technology may show increasing, constant and decreasing returns to scale. If there are economies of scale, then doubling all inputs should produce more than a doubling of output. So in reality firms may not always necessarily operate at optimal scale due to various reasons. There are certain general assumptions regarding the production technology. They are

- All input output combinations based on observations are feasible
- The possibility set related to the production is convex
- Inputs are freely disposable
- Outputs are also freely disposable

Banker, Charnes and Cooper (BCC (1984)) derived the data envelopment analysis (DEA) model using inputs and outputs under the above assumptions. This model associates VRS in CCR (1978) model which assimilates the idea of technical and scale efficiencies together through the linear programming model.

The application of data envelopment analysis methodology for measuring technical efficiency has been discussed in details in chapter 3 and chapter 4 respectively.

2.3 Empirical Literature relating to Estimation of Technical Efficiency

There are a number of studies available that are associated with estimation of TE using either parametric or nonparametric approach or both for the different levels of education in different academic institutes of international as well as national context.

2.3.1 International Studies on Technical Efficiency using Parametric Approach

Studies relating to School Education

Adkins and Moomaw (2007) evaluated technical efficiency and determinants of school districts in Oklahoma by applying stochastic production frontier and a maximum likelihood estimator suggested by Battese and Coelli (1995). The result indicated that the additional instructional and non-instruction expenditures improved the student performance, but only by a small amount. Also technical efficiency was affected by the school district size, teacher education and experience and amount of teacher salary.

Pereira and Moreira (2007) analysed the performance and efficiency of Portuguese secondary schools, using the stochastic production frontier analysis. The average national examination scores were taken as output, whereas teacher seniority, school size and private management were considered as inputs in the study.

Kirjavainen (2012) used panel data related to upper primary school of Finnish and adopted different stochastic frontier models to evaluate education production functions and efficiency on the basis of the data. Grades in matriculation examination were used as an output and school grade point average, socio-economic condition of parents, school capitals and the span of studies were included as determinants of the efficiency. Variation in inefficiency and schools'

ranks on the basis of their inefficiency values depended on the application category of the stochastic frontier model.

Studies relating to Higher Education

Kempkes and Pohl (2008) collected data from German universities that were financed by the public from 1998 to 2003 and used the stochastic frontier model to assess the impact of institutional factors on the efficiency. The analysis observed that the universities with a comparatively liberal legal framework are more efficient than those universities functioning under more preventive state rules.

Agasisti and Johnes (2010) applied stochastic frontier model to evaluate the efficiency of higher education institutions to Italian data. The inter-institutional variation in efficiency was performed based on the efficiency result obtained from the method.

2.3.2 International Studies on Technical Efficiency using Nonparametric Approach

Studies relating to School Education

Ray (1991) used DEA to measure efficiency in the public school in the districts of Connecticut. The results reveal that variation can be explained by the differences in the socio-economic background.

Mancebon and Bandres (1999) measured the efficiency of a sample of Spanish secondary schools highlighting the theoretical specification of the measurement model. The paper also stated the features that able to distinguish the schools which are most efficient from the least efficient.

Portela and Thanassoulis (2001) decomposed pupil's under-attainment in school using data envelopment approach. Overall measures of each pupil's efficiency were divided into pupil, school and school type efficiencies.

Waldo (2007) applied DEA to estimate efficiency of public education schools of Sweden and in the second stage the efficiency scores were regressed by the factors that illustrating competition and local politics using the Tobit model. It was found that efficiency was affected by the political majority by city council but there was no such correlation between private school competition and the level of efficiency.

Alexander et al. (2010) estimated school level efficiency at the secondary level of New Zealand and then obtained the determinants using regression in the second stage. School efficiency was affected by school type and teacher quality. The paper also introduced double bootstrap procedure (Simar and Wilson (2007)) in

order to deal with the presence of unknown serial correlation in the efficiency scores.

Cherchye et al. (2010) adopted nonparametric data envelopment approach for efficiency and equity evaluation in education at pupil level. Two multidimensional stochastic dominance criteria were proposed for comparing the performance of public and private school types. The study demonstrated the usefulness of nonparametric approach as it included the environmental (uncertainty in the data) and equity considerations in the data analysis.

Naper (2010) analysed the empirical association between educational efficiency and teacher hiring process of the Norwegian school districts. The dependent variable was educational efficiency estimated by data envelopment analysis. The impact of hiring practices on efficiency was investigated by Tobit model. The empirical result suggested that the school districts where principals hired teachers were more efficient than school districts where principal himself or herself not responsible to hire a teacher.

Blackburn et al. (2014) used data envelopment analysis to measure the efficiency of primary and secondary schools of Australia. The results suggested that most of the schools were moderately inefficient and that efficiency increased for the quintile of schools in the most positive environment. Also enrolment positively affected the efficiency level.

Cuellar (2014) gathered data on public expenditure for education of 15 Latin American countries in the time span 2000-2009 and used two nonparametric methods, namely data envelopment analysis (DEA) and free disposal hull (FDH) to estimate the efficiencies of public expenditure. Public spending on education per student was taken as output indicators in primary and secondary school. As a case study, Colombia's efficiency scores were compared with others to achieve better results.

Bogetoft et al. (2015) examined the impact of relatively high level of expenditure on upper secondary education on the output in educational sector measured in terms of student enrolment, completion rates and expected earnings after completing education in the Nordic countries. For this purpose data envelopment analysis had been used to estimate the input efficiency score in order to make a comparison between the Nordic countries with a group of rich OECD countries. Depending on different specifications, the result suggested that Finland was the most efficient Nordic country, whereas Sweden, Norway and Denmark were clearly inefficient. The inefficiencies of these three countries had been reduced by applying PISA test scores. Especially all Nordic countries were estimated to be fully efficient when expected wages after completion of education were considered as a yardstick of output quality.

Studies relating to Higher Education

Beasley (1995) estimated teaching and research efficiencies in UK. For this purpose he had considered the same discipline of the university departments. The computational results were given for two departments, namely chemistry and physics department.

Johnes and Johnes (1995) applied DEA to investigate the technical efficiency in the research field of the economics discipline of UK. External funding research was taken as an input in the research process. The result concluded that university performance explained in terms of meaningful indicators had been improved.

Avkiran (2001) examined the relative efficiency of Australian universities based on 1995 data using data envelopment analysis (DEA). He introduced three models on performance. They were overall performance, performance on delivery of educational services, and performance of fee-paying enrolments. The empirical results show that the performance in the university sector was superior with respect to both the technical and scale efficiencies. However, there was scope for making better performance on fee-paying enrolments. There were slight slacks in input utilisation as well. DEA helped in identifying the reference sets for inefficient institutions.

Abbott and Doucouliagos (2003) used DEA to study technical and scale efficiency of Australian universities. Different measures based on outputs and inputs were suggested. The empirical results illustrated that irrespective of the mixtures of output and input, Australian universities as whole depicted high efficiency comparative to each other.

Flegg et al. (2004) estimated efficiency of forty five British universities in the time span 1980-81 to 1992-93 employing DEA. The result suggested that there was a substantial rise in the technical efficiency score during the study period, especially from 1987-88 to 1990-91.

Ferrari and Laureti (2005) collected data from the University of Florence in the context of human capital growth and in this work they utilized an estimate of technical efficiency to evaluate output oriented efficiency. The study also used DEA on a particular input-output set.

Johnes (2006a) performed DEA and multilevel modelling (MLM) to judge whether the performance of universities depends on the choice of technique applied. For this purpose he selected a data set of 54564 graduate students from UK universities in the year 1993. The methodology (Thanassoulis and Portela (2002)) allowed decomposing DEA efficiency score corresponding to each entity into two parts. One part is associated with the university and another part is connected to the individual student. The first part mainly estimated teaching

efficiency of each institution. The results suggested that the rankings of universities based on efficiency scores were not strongly associated with the university rankings that were obtained from the university effects of the multilevel models under four broad subjects, namely arts, social science, pure science and applied science. The efficiency scores obtained from university level DEAs and individual level DEAs were largely dissimilar to each other.

Johnes (2006b) measured efficiency of higher education institutions of England in 2000-2001 using DEA. He considered more than 100 institutions. The results illustrated that the value of technical and scale efficiencies were higher on average. The quantity and quality of undergraduates, the quantity of post graduates, expenditure on administration and the value of interest payments and depreciation were among the significant inputs. On the other hand, the research along with quantity and quality of undergraduate degrees, the quantity of post graduate degrees are the major outputs.

Kao and Hung (2008) applied DEA to measure the efficiency of the academic departments at National Cheng Kung University in Taiwan. Total credit-hours, publications, and external grants were considered as output and personnel, operating expenses, and floor space used by the departments were taken as input. The analysis indicated that the efficient utilization of the resources by a department and identification of the weak areas through efficiency decomposition mechanism were the two methods to improve the level of efficiency.

Tajnikar and Debevec (2008) used data envelopment analysis to classify the members of the University of Ljubljana according to their relative technical efficiency. The institutions were initially segregated into study groups based on the fields of education, and generated funds by the state. The result indicated that the study groups were not homogenous, the formation of one group is inappropriate, and classification of institutions was inaccurate.

Agasisti and Bianco (2009) analysed the effects of teaching reforms in higher education in Italy using data envelopment analysis for the period 1998-99 to 2003-04. The study included several inputs: professors, facilities and students to produce the output graduate. The result indicated that the efficiency in higher education as a whole improved during the study period.

Agasisti and Johnes (2009) computed technical efficiency scores by employing data envelopment analysis of Italian and English higher education institutions and the result suggested that England was more efficient than Italy while comparing their joint performances. Also, their over period estimation of technical efficiency found that Italian universities were improving where English universities were in the stable positions.

Cokgezen (2009) evaluated technical efficiencies of higher education institutions in Turkey using nonparametric data envelopment approach. Comparison of technical efficiencies between private and public institutions had taken place. If the quality of data was not considered then the average efficiency of public institutions was higher. However, whenever it was taken into consideration, then the difference in average efficiencies of public and private institutions was reduced.

Agasisti (2011) analysed efficiency scores of Higher education systems in European countries using nonparametric data envelopment techniques. The data used in the study were collected from OECD data sets. Cross-countries comparison suggested the presence of efficiency in Switzerland. The result also illustrated that public sector deployed important role to estimate efficiency values.

Cunha and Rocha (2012) estimated the comparative efficiency of public higher education institutions in Portugal using DEA. There were three separate groups for which the analysis had been performed. The groups were public universities, public polytechnics and the various faculties of the University of Porto. The result suggested that the greater portion of institutions was working as inefficiently.

Aristovnik (2013) applied nonparametric data envelopment technique to measure the relative efficiency based on maximum output possible from each input level in utilizing public education expenditures. The comparison between new EU member states and the selected EU (plus Croatia) and OECD countries had been performed. The result of the output oriented analysis showed that Hungary, Estonia and Slovenia were the best countries with respect to all the educational levels. The empirical findings also suggested that for tertiary education new EU member states depicted relatively high efficiency on an average.

Barra and Zotti (2016) estimated technical efficiency in a big public university using DEA based on the data from 2005 to 2009 on different sectors (science and technology and humanity and social science sectors) under two main activities such as teaching and research. Different specifications of outputs were taken. The result suggested that science and technology sector was more superior with respect to quality of research than the humanity and social science sector which achieved higher efficiency in teaching.

Wolszczak-Derlacz (2017) assessed the efficiency of a number of public European and American higher education institutions. Considering different input-output sets and frontiers technical efficiency was determined by using data envelopment analysis. The inefficiency level was determined by various external factors like institutional settings, location and funding structure. The results indicated that higher efficiency was achieved by the older European higher educational institutes. However, the same conclusion was not valid for America. Also government spending has inversely related to the efficiency scores in

Europe. This fact was also not applicable for US. Country wise variation in efficiency was also found in the European higher education institution through intensive sensitivity analysis.

Studies relating to Further Education Sector

Abbott and Doucouliagos (2002) derived technical and scale efficiencies of Victorian technical and further education institutes by using data envelopment analysis in 1995. The results revealed the substantial dispersion in technical and scale efficiencies. To identify the variables associated with technical inefficiency regression analysis was performed.

Bradley et al. (2010) investigated that the average level of efficiency varies between 83 and 90 percent between the time intervals 1999 to 2003 for nearly 200 institutions in England. They undertook the data envelopment analysis for measuring efficiency. A multivariate analysis suggested that gender, ethnic and age mixes of the students were more significant for assessing the efficiency level than the factors associated with the staff. The unemployment rate was important in determining efficiency as well. The policy associated with the improvement in completion and achievement rates of white males and higher administrative support for teachers was found to be important.

2.3.3 International Studies on Technical Efficiency using Parametric and Nonparametric Methods at All Levels of Education

Chakraborty et al. (2001) used the stochastic production function approach along with non-stochastic once. They measured the efficiency in public education at Utah. The empirical analysis showed substantial variation in efficiency among school districts.

Mizala et al. (2002) evaluated the efficiency scores of schools in Chile using two alternative methodologies namely stochastic production frontier and data envelopment analysis (DEA). The empirical findings suggested that the result obtained by two approaches was same when sample of 2000 schools was analysed. Interesting points for educational policy discussions were also provided.

Barbetta and Turati (2003) evaluated efficiency scores within the Italian school industry. They explored the proprietary structure. For this purpose they collected a sample of 497 schools which are located in Piemonte. They also segregated the schools into three categories: public, private for profit and private nonprofit schools. The robust results had been derived by applying stochastic frontier and data envelopment analysis. The result indicated that non-profit schools were more efficient than public ones. Efficiency scores were negatively affected by the presence of foreign and disabled students, whereas school size was found to be an important determinant of efficiency.

Mcmillan and Chan (2006) adopted both DEA and SF methods to estimate efficiency scores for universities of Canada. The results obtained from two alternative approaches were compared and the analysis of rankings of individual universities was found to be consistent across sets of several efficiency rankings.

Rassouli-Currier (2007) used two estimation method viz. stochastic frontier regression (SFR) and DEA to determine the efficiency scores in public education of Oklahoma. The empirical results suggested that the SFR and DEA efficiency scores for the majority of Oklahoma districts were not identical. According to both of the methods the most important determinants of inefficiency were the socioeconomic factors associated with the each district.

Kempkes and Pohl (2010) analysed the efficiency of 72 public German universities applying data envelopment and stochastic frontier analysis for the years 1998–2003. The result suggested that West German universities have performed better in terms of mean efficiency scores over the sample period.

Johnes (2013) incorporated DEA and SFA to evaluate the efficiency in English higher education in order to estimate an output distance function over a thirteen year period. This study had taken into account the measures of teaching (quantity and quality) and research inputs and outputs. The analysis compared the efficiency estimates obtained from different estimation techniques and the results pointed out important policies to the researchers, managers and policy makers on undertaking efficiency studies.

2.3.4 Literature on Technical Efficiency Measurement in Indian Education Sector

The studies relating to measurement of technical efficiency in the Indian education sector considering different time periods are few in literature. Kingdon (1996) emphasized quality aspects of education to improve efficiency. Analysis of relative quality and technical efficiencies of private and government funded schools in Uttar Pradesh had been performed. The results revealed that quality and cost-efficiency of government funded schools requires to be greatly improved. Since private unaided institutions are both more technically efficient and cost-efficient, therefore it would be beneficial to encourage these schools to gains in efficiency.

Sankar (2007) attempted to measure relative efficiencies of the public education system to upgrade the level of educational outcomes. The analysis helped to plan appropriate strategies to achieve higher levels of overall outcomes.

Tyagi et al. (2009) estimated efficiencies and efficiency differences among 348 elementary schools in Uttar Pradesh using nonparametric data envelopment analysis. Eight inputs and three outputs were used in the study. The inputs were

mainly divided into two broad categories: school resources and home environment of schools. Teaching, physical and ancillary facilities, teachers' qualities are considered into school resources category and parents' education and occupation are considered into other category. The average marks in environment studies, mathematics and languages were taken as output. Principal component analysis was used in order to prepare inputs outputs. Four models assuming constant returns to scale were used to assess the performance of the schools. The result indicated that 67 schools (19.25%) were efficient. The study is considered to be the first application in the elementary education sector using the DEA technique in India and also helped to formulate school wise policies to boost overall efficiency.

Sengupta and Pal (2010) analysed multidimensional aspects of primary education system using district level DISE statistics in India for the year 2005-2006. They recognized few elementary aspects of education like deprivation aspects, social aspects and policy aspects to construct indices using UNDP formula. They divided the states/UTs into five regions viz., North, North-East, East, West and South. Following Anand and Sen (1997) formula they constructed grand indices comprising three indices, namely core poverty indicators, input poverty indicator and facility poverty indicators. The core poverty and facility poverty are more dominating than input poverty indicating that inadequacy of infrastructure is more serious problem than others in the educational system. The empirical findings suggested that Eastern districts had significantly high efficiency under both the standard efficiency indicators and DEA. Under standard efficiency indicator Western districts zone and North-Eastern districts under DEA scores had significantly low value. Poverty indicators had a greater negative impact on technical efficiency, whereas social and policy indicators failed to have a significant effect on the level of efficiency.

Sengupta and Pal (2012) assessed the performance of primary education, especially for Burdwan district (West Bengal) for the year 2006-2007.

Dutta (2012) evaluated the technical efficiency and differences in efficiency score considering elementary education system across Indian states by applying DEA and regression model for the period 2007-08. Enrolment rate and completion rate were considered as educational outcome variables in primary and upper primary schools. The inputs included in the analysis were: percentage of habitants with access to primary schools within 1 km distance and upper primary school within 3-5 km, and percentage of full-time teachers in primary and upper primary schools. The results indicated that the states Delhi, Kerala, Tamil Nadu and Nagaland were perfectly efficient. On the contrary states like Bihar, Madhya Pradesh, Odisha and Uttar Pradesh due to limited input constraints had low performance. It had been argued that either by arranging adequate inputs by the states or efficient use of schemes taken by the central government, the outcomes

of the low performer states can be enhanced. By using simple regression model also the study attempted to identify the determinants of efficiency.

Purohit (2015) estimated district level efficiency in enrolments at primary and upper primary levels, in both public and private schools in the state of Rajasthan for the year 2008-12 using stochastic frontier analysis. Income and urbanization played strong role and direct educational interventions seemed to play as optimistic part in order to enhance enrolments at various levels. Proper educational policies should be emphasized to capture district specific gaps to strengthen the outcomes.

Ghose (2017) obtained technical efficiency scores for both primary and upper primary levels of education in India by incorporating meta frontier and group frontier analysis for two groups of states namely general category states (GCSs) and special category states (SCSs) and union territories (UTs) employing nonparametric DEA, using state level data. Technology closeness ratio (TCR) defining as the proximity of the group frontiers to the meta frontier had also been measured for the period 2005-06 to 2010-11.

2.4 Theoretical Studies relating to the Estimation of Productivity

There are two notions of productivity. One is partial productivity and the other is total productivity. As the theory stated, partial productivity indicates the contribution of single factor to output growth holding the other factors constant. But partial productivity is generally unable to predict whether the reason of productivity growth is the use of more inputs or improvement of technology. So there is a scope to analyse TFPG. Basically, it determines the efficient and intense level of utilisation of the factors in the production process. Thus TFPG captures the changes in efficiency in terms of shifts in the production function. The upward movement in the production basically suggests the increase in the amount of output. When multiple inputs and/or multiple outputs are considered, the concept of multifactor productivity is used in the study.

TFP growth quantifies the measure of increment in absolute output, which is not occurred due to the expansion in complete inputs and subsequently estimates the change in output because of the change in the production over time, keeping the level of inputs fixed [Abramovitz (1956); Denison (1962, 1967, 1985); Hayami, Ruttan and Southworth (1979)].

There are three main approaches for estimating TFPG

a) Growth accounting approach
b) Production function approach and
c) Nonparametric approach.

a) By growth accounting approach, TFPG is described as the growth in the output not explained by the factor of inputs used in the production and is measured as a residual factor. Firstly Solow (1957) framed the outline for this concept and after that Denison (1967 and 1985) modified the method. The key feature of this approach is to separate out the change in production due to change in amount of factors of production from the residual portion which includes technological progress, etc. Ratio of the index of output to the index of total inputs describes the TFP index. There are three major indices used in the growth accounting approach, namely, Solow index, Kendrick index and Translog index.

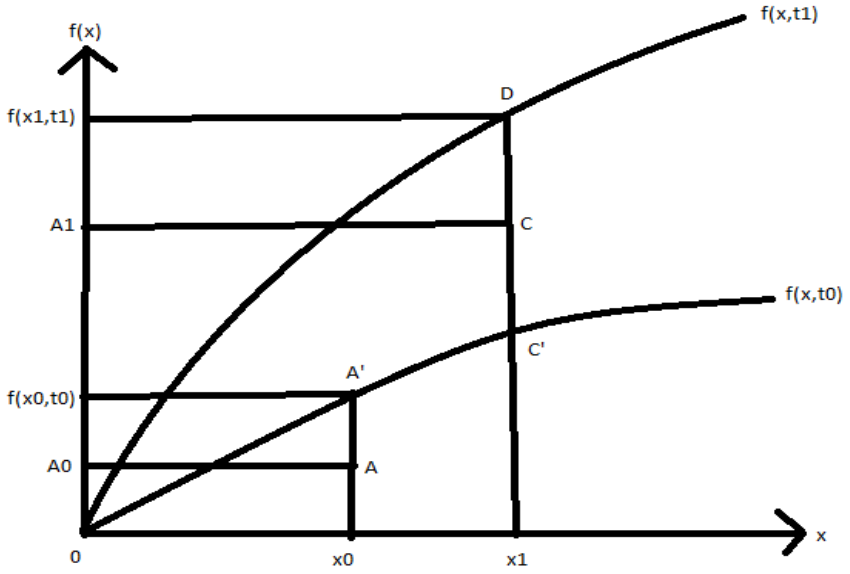
b) In this approach TFPG is represented as the technical progress resulting from change in the production function or cost function over time. Duality theory suggests that the outward change of production function is similar to the inward change of the cost function. Different types of production function for eg. Cobb-Douglas, Constant Elasticity Substitution (CES) etc. can be assumed for estimating purposes. So another way of measuring TFPG using cost function is to capture the gap between changes in total cost and weighted changes in total input prices. Though, the value of estimated TFPG from production function is equal to the value obtained from the cost function, but the sign of these estimates is in the opposite direction.

c) The nonparametric approach of TFPG measure differs from the other approaches in the way that it does not require the prior specification of the form of the production function and the distribution of the inefficiency term. The index is calculated on the basis of benchmark or reference technology obtained from the sample observations of outputs and inputs of the decision making units (DMUs) by making only a minimum number of general assumptions like feasibility, convexity of the production possibility set, free disposability of input and outputs and returns to scale. Actual input output bundle along with some mathematical programming are required to estimate TFPG and to decompose the changes in productivity into technical change, technical efficiency change and scale efficiency change. Tornqvist and Fisher productivity indexes are the two famous measures of TFPG. Both of these are descriptive measures of productivity change. Another widely used measure of TFPG is Malmquist Productivity Index (MPI) introduced by Caves, Christensen and Diewert (CCD) in the year of 1982. This measure basically creates a production frontier in terms of the technology and distance functions are estimated for various combinations of inputs and outputs. Measurement of TFPG using MPI is performed through Data Envelopment Analysis (DEA). The

computed TFPG is decomposed into its components like technical efficiency change, technical change and scale efficiency change.

The concept of TFPG can be explained diagrammatically.

Figure 2.1: Total Factor Productivity Growth



Consider the situation with a single input-output framework where x= single input, f(x)=single output, t= time period, $t_1 > t_0$ and $y_0=f(x,t_0)$ and $y_1=f(x,t_1)$ are the production functions at time point t_0 and t_1 respectively.

Now y=f(x) represents the maximum possible amount of output that can be obtained by utilising x amount of input. If (y′, x′) is the actual observation of DMU, then the firm is technically efficient if y′=f(x′). So the extent of technical efficiency is given by: e= y′/ f(x′), where $0 \leq e \leq 1$.

In the above diagram the firm is not technically efficient in both the time points t_0 and t_1. During t_0 and t_1, the amount of inefficiency can be measured by: AA′ = $A_0/f(x_0)$ and DC= $A_1/f(x_1)$.

Therefore, the movement from A to C can be decomposed in the following manner: (movement from A to A′ (efficiency change)) + (movement from A′ to C′ (scale efficiency change)) + (movement from C′ to D – movement from D to C (efficiency change)) where CC′= technical change.

Thus technical change is captured by (movement from C′ to D - movement from D to C).

The Malmquist Productivity Index can be portioned into three parts: (i) Technical efficiency change, (ii) Technical change and (iii) Scale efficiency change. The methodology of estimation and decomposition of MPI is discussed in details in chapter 5.

2.5 Empirical Literature on TFPG of Education Sector

There are various studies on measuring TFPG of education sector considering different time periods and using different methodologies in both the international as well as Indian context.

2.5.1 Studies relating to TFPG in International Context

The studies on TFPG using different methodologies around the globe have been presented in this section. The worth mentioning studies are done by Bessent, Bessent, Kennington and Reagon (1982), Dundar and Lewis (1998), Flegg , Allen, Field and Thurlow (2004), Hua (2005), Worthington and Lee (2005), Castano and Cabanda (2007), Fernando and Cabanda (2007), Johnes (2008), Bradley, Johnes and Little (2010), Parteka and Wolszczak-Derlacz (2013), Arjomandi, Salleh and Mohammadzadeh (2015) among others.

In the study by Bessent et al. (1982) the pilot survey was done in 167 elementary schools in Houstan District. Out of these 78 schools were found to be inefficiently utilizing their resources where the rest of the schools are efficient. Thereafter an Educational Productivity Council has been established to lay out an annual analysis for all of its member schools.

Dundar and Lewis (1998) focused the role of organisational factors to enhance the productivity in research performances in U.S research universities. The paper attempted to examine the association between productivity related to academic research and the different factors associated with the institution. National Research Council data on the nation's research universities had been used for this purpose. Four major fields like biological sciences, engineering, the physical sciences and mathematics, and the social and behavioural sciences had been chosen.

Flegg et al. (2004) used data envelopment analysis to compute Malmquist Productivity Index to discriminate between changes in technical efficiency and inter-temporal movement in the efficiency frontier. The data had been collected from 45 British universities in the time span 1980-1981 to 1992-1993. The empirical result revealed that the total factor productivity rose by 51.5% between the study period and the mainly this expansion was because of a significant outward movement in the efficiency frontier during this period.

Hua (2005) investigated the impact of different levels of education on total factor productivity growth and its two components, namely efficiency growth and

technical progress using DEA Malmquist indices of productivity growth in the time span from 1993 to 2001 for 29 Chinese provinces. The outcome demonstrated that university education had significant effect on efficiency growth and technical progress. However, there was no trace that primary education and secondary education had a favourable effect on efficiency growth.

Worthington and Lee (2005) investigated productivity growth of several universities in Australia using the nonparametric frontier technique in the time span from 1998 to 2003. For this purpose they had considered full-time equivalent academic and non-academic staff, non-labour expenditure, under graduate and post graduate student load as inputs. The outputs used in the analysis are undergraduate, post graduate and Ph.D. completions, national competitive and industry grants and publications. The outcome of the results suggested that annual productivity growth in all the universities was near about 3.3% on an average. The growth is mainly driven by technological progress.

Castano and Cabanda (2007) estimated the productivity growth of state universities and colleges in the Philippines using nonparametric data envelopment approach over the period 1999-2003. Three educational outputs and three inputs are considered in the study. The result indicated that the main source of productivity growth (index score of 1.002) is technical efficiency than innovation. Also technical efficiency computed under constant returns to scale has been compared to that of calculated under the assumption of variable returns to scale.

Fernando and Cabanda (2007) collected data from 13 colleges under the University of Santa Tomas and thereafter evaluated the relative efficiency and productive scores of those colleges using DEA and multistage model. Malmquist indices were estimated to measure total factor productivity over the period 1998-2003. Total factor productivity growth was mainly driven by efficiency change.

Johnes (2008) measured TFPG for several higher educational institutions in England during the time span 1996-1997 to 2004-2005 and estimated MPI adopting distance function approach. The study depicted 1% annual productivity growth. The inputs for the study were staff, admin, expenditure on library and learning resource centres, etc., UG students and PG students. The outputs were UG output, PG output and utilisation of Research grants.

Bradley et al. (2010) observed 12% productivity growth during the time period 1999 to 2003 for the further education providers in England by taking 200 samples. The result of estimation suggested that productivity change (20%) was mainly driven by technology change (8%) than technical efficiency change (4%).

Parteka and Wolszczak-Derlacz (2013) investigated trends in productivity change of 266 public higher education institutions (HEIs) in 7 European countries over the time period 2001 to 2005. They have used consistent bootstrap method to

estimate confidence intervals for Malmquist indices of productivity and their decompositions. The result suggests that HEI productivity rose on average by 4% annually. The cross-country performance assessment indicated that German, Italian and Swiss performing better among the selected countries in terms of productivity growth.

Arjomandi et al. (2015) attempted to find out Hicks-Moorsteen total factor productivity index in case of higher education institution in Malaysia assuming VRS in the production technology. This assumption is more realistic than the constant returns to scale assumption. The reason is that universities are functioned at suboptimal scales. The result indicated that technical efficiency had enhanced after the 2007 National Higher Education Strategic Plan within all three major university groupings: research, comprehensive and focused universities.

2.5.2 Studies relating to TFPG in Indian Context

But research work on measuring productivity and finding out its determinants of the education sector are not quite sufficient in Indian context. Study by Ghose (2019) estimates total factor productivity growth (TFPG) considering two frontiers for general category and special category states and union territories in elementary education in India. The study period is from 2005-06 to 2014-15. Nonparametric data envelopment analysis is used to measure MPI for primary and upper primary levels of education separately. Also the MPI is decomposed into its different components like technical efficiency change, technical change and scale efficiency change. The results depicted that in general productivity change is mainly due to technical change and efficiency change. In the second stage, the significant determinants are obtained by using panel regression.

2.6 Gaps in the Literature and Contributions of Study: Linkage of the Present Study with the Existing Literature

The vastness of the literature reveals that not much analysis has been attempted to explain the measurement of technical efficiency and productivity performance of the elementary education sector in India at district level. There are the gaps in the existing literature relating to the measurement and finding out significant determinants of efficiency and productivity of elementary education at the district level for India. The performance assessment of elementary education at the district level is very crucial both from an academic point of view and policy perspectives. Therefore the present study tries to overcome these limitations and further contributes to the literature in the subsequent way.

First of all, the study evaluates technical efficiency and productivity performance both for primary and upper primary levels of education for nine consecutive years from 2005-06 to 2013-14 at the district level for major selected states in India.

Using the district level estimates the state level figures are obtained. The earlier studies in Indian context did not consider such district level over time analyses.

Secondly, the present study gives a detailed analysis regarding the measurement and determinants of efficiency and productivity for primary and upper primary levels of education. This basically serves the objective for comparison of the primary and upper primary levels of education, studies for which are not well captured in the literature.

Thirdly, the estimation procedure also considers both quantities as well as quality aspects of the outputs and inputs and there is scarcity of such approaches in the existing studies.

Fourthly, the present analysis also attempts to measure whether there is more usage of different inputs over the optimum or not at district level, both for primary and upper primary levels of education, studies for which are lacking in the literature.

Fifthly, TFPG is a broad measure and it incorporates the aspects of technical efficiency change (TEC), technical change (TC) and scale efficiency change (SEC). Basically decomposition of TFPG into its respective components reveals the contribution of these factors. If it is found that either technical change or technical efficiency change plays dominating role over scale factor then growth issue can be maintained in the long run. Therefore decomposition of TFPG for primary and upper primary levels separately is also an interesting aspect but there is lack of such studies.

Finally, while explaining the significant factors of technical efficiency and productivity score some poor and favourable infrastructural, social and policy indicators are taken into account. Instead of using composite index, the study intends to capture the individual effect of the different explanatory variables. This is because for identification of the appropriate policies, the individual effect of the variable that matters.

Estimation and analysis of technical efficiency and productivity performance at district level will be meaningful and relevant for identifying the district as well as state for which the performance measure is not quite satisfactory and thus proper policies can be adopted to promote the performance level for those less satisfactory regions. Therefore, these important issues which are not properly emphasized in earlier studies need to be focused on details.

Chapter 3

The Analysis of Output Oriented Technical Efficiency

3.1 Introduction

Development of education sector is one of the prime factors for developing human capital in an economy. All modernised societies tend to emphasize on universalization of education for sustainable development. Government of India has emphasized it by taking different developmental programmes to boost the growth of the education system over the years and has continued to raise expenditure on education recently. Apart from this, developmental programme like Sarva Shiksha Abhiyan for opening new schools, construction of school buildings, additional classrooms, distribution of free textbooks, appointment of well-educated teachers, toilets and drinking water facilities has been initiated to enhance the quality and quantity of the education system. Although the literacy rate in our nation has increased over the years still this is not uttered satisfactory as this rate is still far away from the world average rate. At the same time, there is a steady increase in enrolment corresponding to elementary education level, although disparities are present amongst different districts within the state (DISE). In this context, whether educational sector is performing efficiently or not is a major concern for policy makers. The basic question is whether the schools in different districts of a particular state are producing maximum or optimum output (outcome) with the help of fixed inputs. In other word, the question is related to hunch for the technical efficiency of the schools of the districts in every state. The basic question is whether the schools in different districts of a particular state are technically efficient in the sense that they are generating maximum output given the existing resources. Identification of the factors responsible for variation of output oriented technical efficiency (TEOUT) across different districts within a particular state in elementary education level is also an important aspect. Thus, it is worthwhile to measure the technical efficiency of the education sector which may be helpful for policy makers and academicians.

Advancement of elementary level of education is crucial among the different levels of education since it decides the opportunity of any individual for getting economic entitlement by acquiring skills and knowledge. It is very important to analyse whether educational services in various districts of the country are equally and resourcefully used or not. This is why a comparative study on efficiency across the districts of each state is required. The study will be very vital one in order to recognize the performance of backlog districts for which are below the efficiency of the state average and to derive suitable policies for increasing educational efficiency for those. Technical efficiency refers to a situation at which it is impossible to produce more output from the given level of inputs unless reducing the level of other output (termed as output oriented technical efficiency)

and the same level of output by using less of one or more inputs unless increasing the amount of other inputs (termed as input oriented technical efficiency). There are substantial amount of empirical literature dealing with estimation of technical efficiency in school education, higher education and further education either by using parametric (stochastic frontier analysis) or nonparametric (data envelopment analysis). Among them Tyagi et al. (2009), Sengupta and Pal (2010; 2012), Dutta (2012) and Ghose (2017) are the worthwhile to mention in Indian context. Also the revision of literature reveals that there is dearth of studies dealing with technical efficiency at district level over time. The present chapter of the thesis tries to fill this gap and tries to estimate the output oriented technical efficiency by using data envelopment analysis considering each district as a producing unit of the selected major states in India.

TE can be estimated using two approaches, namely parametric and nonparametric. In the case of former the efficiency is measured based on the stochastic frontier production method. On the other hand the in case of second approach DEA is used. In this study, estimation has been performed using DEA technique. The advantage of using this method is that it does not require any particular functional specification of the production frontier. Charnes et al. (1978, 1981) introduced DEA technique, considering constant return to scale (CRS), to estimate the efficiency for DMUs when there are several inputs and also multiple outputs. Furthermore, Banker et al. (1984) modified the concept by incorporating VRS.

The present study is related to the measurement of district wise output oriented technical efficiency score of 16 major states taking into considerations primary and upper primary levels of education. The idea of TEOUT is already discussed in the previous chapter. The main difference between this present analysis and related earlier work available in the literature is as follows:

(i) The study estimates district wise TEOUT of both primary and upper primary levels of education for 16 major states of India for nine consecutive years from 2005-06 to 2013-14. District wise measurement of TEOUT score of the said levels of education over the years for various states of the country is practically lacking. Also, this study assumes variable returns to scale and interdistrict variation in efficiency scores for a particular state can be examined.

(ii) The study considers both quantitative and qualitative aspects of output and inputs while estimating TEOUT. The existing works in the literature measured efficiency without considering the qualitative aspects and measured efficiency using CRS only.

(iii) While finding out the determinants of district wise TEOUT, the following factors should be incorporated –(a) factors explaining poor infrastructure in order to investigate whether such infrastructure hinder the improvement

of TEOUT, (b) some key factors from the improved infrastructure to explain whether accessibility of these improve TEOUT, (c) social factors indicating whether inclusion of backward/disadvantageous classes into the educational structure improves TEOUT and (d) some policy indicators explaining whether the addition of public facilities enhances TEOUT.

(iv) Instead of using a composite index, the study aims to find out the individual effect of the different determinants. It basically indicates that the impact of each explanatory variable on the measured TEOUT score is taken into account separately.

The present chapter unfolds in the following way: section 3.2 discusses on methodology and data availability. Section 3.3 deals with the empirical findings. The estimated results on TEOUT for both primary and upper primary levels of education are described in section 3.3.1 and section 3.3.2 respectively. The analysis of the significant factors determining the TEOUT at primary and upper primary levels is discussed in section 3.4. Section 3.5 illustrates summary, conclusions and some policy recommendations to enhance the efficiency score of the elementary education system in India.

3.2 Methodology and Data Sources

3.2.1 Measurement of Output Oriented Technical Efficiency

There are two components of the efficiency of a Decision Making Unit (DMU):

(i) Technical Efficiency (TE)
(ii) Allocative Efficiency (AE)

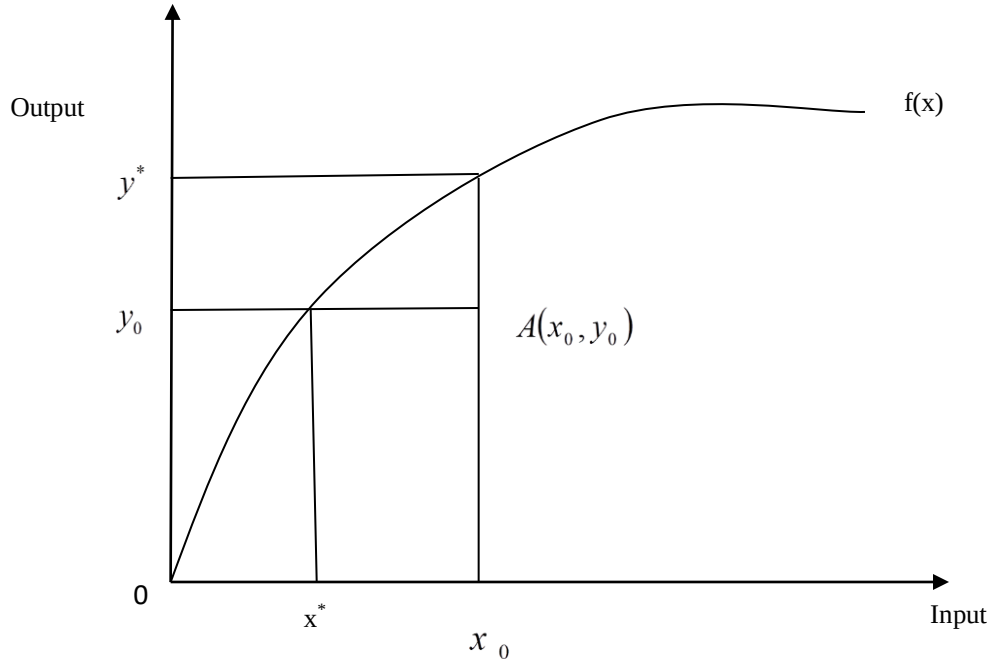
TE (output oriented) indicates the capability of a DMU to produce maximum output using a given set of inputs and technology. Allocative efficiency refers the capacity of a DMU to employ the inputs in optimal proportions, given their respective prices. These two measures jointly define the measure of economic efficiency. The present work is restricted to study the measurement of TE only.

The production unit may not always behave optimally in the efficiency analysis and thereby they may not be efficient. In case of efficiency measure a benchmark production function has to be formed initially, which is known as frontier and is expected to be completely efficient and then the performance of the production units is analysed by comparing the observed unit with the postulated standard of perfect efficiency level.

TE of DMU is generally two types: (i) output oriented or (ii) input oriented. Input oriented TE (TEINP) measure indicates the maximum or optimum allowable input quantities, which can be proportionately decreased without altering output production. Output oriented TE (TEOUT) measure indicates the maximum or

optimum allowable output that can be enhanced proportionately without varying input quantities. The TE of a DMU for output oriented measure can be evaluated by making a comparative study between its actual output with the maximum allowable production quantity obtained from its given input resources i.e. by how much can output quantities be proportionally increased without altering the input quantities used. Figure 3.1 reveals this fact by taking into account a single input and a single output.

Figure 3.1: The Output and Input Oriented Measure of Technical Efficiency



In figure 3.1, X-axis represents input value and Y-axis represents output values. At the point A, input x takes x_0 amount of input and output y takes y_0 amount of output. Thus the point A (x_0,y_0) indicates that x_0 amount of input produces y_0 amount of output. Let y* be the maximum allowable output that can be achieved from the x_0 amount of input. It can be assumed that y*=a function of x_0, i.e., y*=f(x_0). The ratio between the actual output and the optimum or maximum output at a given point estimates the output oriented technical efficiency (TE) of DMU. So, y_0/y* is the TE at the point A. At the point A, the ratio y_0/y* compare the observed output (y_0) with the maximum possible output (y*) for the observed input amount x_0.

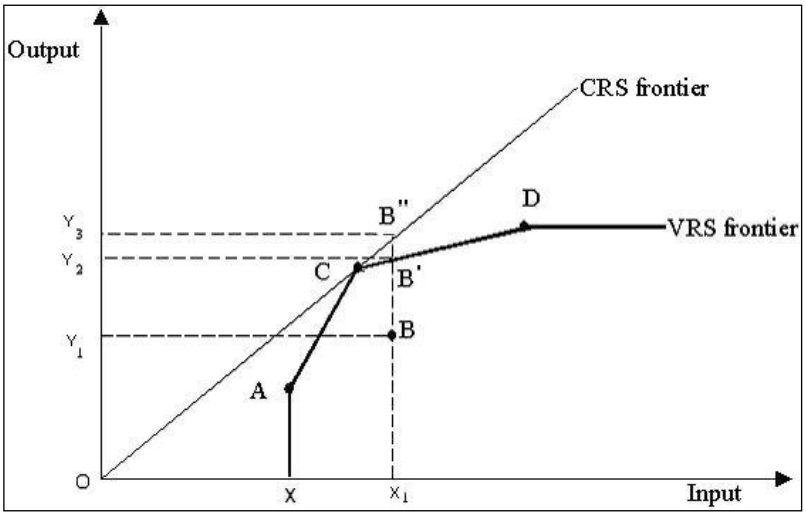
Similarly, at the point A, to produce y_0 amount of output the input amount can be reduced and this reduction can be done proportionately until frontier is achieved. Let it is possible that x* amount minimum input can produce y_0 amount of output. Thus the ratio between x*/x_0 represents input oriented technical efficiency for

DMU at the point A. It is easy to note that for both the technical efficiencies (input oriented and output oriented) the score lies between 0 to 1. If TE takes value 1 then one can say that the unit is fully technically efficient. Anything less than 1 is termed as inefficient.

It is to be noted that the TE not only depends on whether it is input or output oriented, but also one vital assumption called returns to scale. The assumption that the change of output is same proportionate as it is for input, then this type of assumption is termed as constant returns to scale (CRS). But the consideration of increasing, constant and decreasing returns to scale for production technology is known as variable returns to scale (VRS) in Data Envelopment Analysis Programme (DEAP).

The basic concept of the DEA and variable returns to scale (VRS) can be explained through the following figure 3.2. Here the efficient frontier can be expressed through four points A, C, B′, and D. Any point below the line that added these four points will be considered as inefficient. For example, considering four points A, C, B′, D as depicted in figure 3.2, B is placed below of the curve (frontier) and hence is not efficient. It implies that inputs are not properly utilised for the DMU at the point B and there is a scope to increase the production of output and it can be maximized upto B′ for X_1 amount of input. A comparison can also be made between CRS and VRS with the help of this figure. In case of CRS, the frontier is represented by the line that adds two points O and C and hence any point (DMU) in the line will be treated as efficient and the points that lie below the line will be considered as inefficient. Thus in case of CRS maximisation capacity of output is higher than it is under VRS.

Figure 3.2: The Production Frontier and Returns to Scale



The concept of CRS has many restrictions. In contrast the VRS assumption is more generalized one. The present analysis estimates TEOUT score assuming VRS frontier and applies DEA as formulated by Banker, Charnes and Cooper (BCC) (Banker et al. (1984)). The following are the assumptions made regarding the nature of underlying production technology: (i) all actually observed input-output combinations are feasible, (ii) the production possibility set is convex, (iii) inputs are freely disposable and (iv) outputs are freely disposable. With the help of linear programming, BCC (1984) derives a standard amount of output. For this specification of the production frontier is not required. Hence, in case of efficiency measurement standard output quantity can be compared with the actual amount of output.

The current study measures output oriented technical efficiency score considering VRS and their significant determinants. The estimation of input oriented technical efficiency score has been discussed in the next chapter.

3.2.2 Estimation of Output Oriented Technical Efficiency using DEA

Let us consider a problem with N DMUs. It is also assumed that using 'h' inputs one can obtain 'g' outputs. For the t^{th} DMU inputs and corresponding outputs are denoted as follow:

Input bundle: $x^t = \left(x_{1t,} x_{2t,\ldots,} x_{ht}\right)$ and

output bundle: $y^t = \left(y_{1t,} y_{2t,\ldots,} y_{gt}\right)$.

The specific production possibility set under CRS is represented as

$$T^{CRS} = \left\{ (x,y) : x \geq \sum_{j=1}^{N} \lambda_j x^t ; y \leq \sum_{j=1}^{N} \lambda_j y^t ;\ \lambda_j \geq 0;\ (j = 1,2,\ldots, N) \right\} \quad (3.1)$$

Similarly, the production possibility set corresponding to VRS is given by

$$T^{VRS} = \left\{ (x,y) : x \geq \sum_{j=1}^{N} \lambda_j x^t ; y \leq \sum_{j=1}^{N} \lambda_j y^t ; \sum_{j=1}^{N} \lambda_j = 1; \lambda_j \geq 0; (j = 1,2\ldots, N) \right\} \quad (3.2)$$

Linear programming problem is applied to measure the technical efficiency. Under the output-oriented DEA, TE for CRS can be obtained as follows:

$\max \phi$

Subject to $\sum_{j=1}^{N} \lambda_j y_{rj} \geq \phi y_{rt} ;\ (r = 1,2,\ldots, g)$;

$$\sum_{j=1}^{N} \lambda_j x_{ij} \leq x_{it}; \left(i = 1,2,...,h\right);$$

$$\phi \text{ free}, \ \lambda_j \geq 0; \left(j = 1,2...,N\right) \quad (3.3)$$

Output oriented TE of DMU t can be estimated by using equation (3.4).

$$TE_o^{ct} = TE_o^{ct}(x^t, y^t) = \frac{1}{\phi^*} \quad (3.4)$$

Here, ϕ^* is the estimate obtained from the equation (3.3) that measuring the maximum value of ϕ. From the input bundle x^t, it can be possible to produce y* output which is considered as the maximum output bundle and defined by $y^* = \phi^* y^t$. In case of VRS, the TE can be solved similarly using the equation (3.3) under the restrictions (constraints)

$$\sum_{j=1}^{N} \lambda_j = 1$$

and using the VRS frontier (equation (3.2)).

3.2.3 Determinants of Output Oriented Technical Efficiency Score

This chapter estimates district wise TEOUT of 16 major states in India applying VRS. The included major states that are considered for the study are the following: Andhra Pradesh (AP), Assam (AS), Bihar (BI), Gujarat (GJ), Haryana (HA), Himachal Pradesh (HP), Karnataka (KA), Kerala (KE), Madhya Pradesh (MP), Maharashtra (MH), Orissa (OR), Punjab (PN), Rajasthan (RA), Tamil Nadu (TN), Uttar Pradesh (UP) and West Bengal (WB).

The study considers two outputs for the measurement of efficiency score: (i) net enrolment ratio (NER) and (ii) percentage of students passed having greater than 60% in the examination. This variable estimates the attainment of quality output.

For empirical estimation the present chapter considers the following inputs: (i) number of schools per lakh population, (ii) teacher-pupil ratio in the school, (iii) classroom-student ratio in the school and (iv) percentage of teachers with qualification graduate and above in the school. This variable estimates the quality of the teacher input.

All the outputs and inputs considered in this study are the district level figure taking into account all the schools in the respective district. The methodology for measurement of outputs and inputs are presented in chapter 1.

After computing technical efficiency scores a second stage panel regression is utilised to detect the determinants of the technical efficiency score. The list of explanatory variables included in this analysis along with their expected sign of influence on the TEOUT is described in Table 3.1.

Table 3.1: Description of the Determinants Explaining TEOUT

Determinants Category	Indicators	Expected Impacts (+/-)
Poor Infrastructure: Does it slow down the achievement of TEOUT?	1. Percentage of schools without building (SWB) 2. Percentage of schools having no pucca building (NPB) 3. Percentage of classrooms in 'bad' condition (CBC) 4. Percentage of single teacher schools (SNTS) 5. Percentage of single classroom schools (SNCS) 6. Percentage of schools with no blackboard (NBB)	Negative Impact
Favourable Infrastructure: whether availability of these improves efficiency score?	1. Percentage of schools with drinking water facility (DWF) 2. Percentage of schools with common toilet facility (CTF) 3. Percentage of schools with girls' toilet facility (GTF)	Positive Impact
Social Indicators: Whether incorporation of backward/disadvantageous classes into the education sector promotes TEOUT?	1. Percentage of SC enrolment (SCEN) 2. Percentage of ST enrolment (STEN) 3. Percentage of girls enrolment to boys (GENB) 4. Percentage of girls' toilet to common toilet (GTCT)	Positive Impact
Policy Indicators: Whether the provision of public benefits positively affects TEOUT?	1. Percentage of students getting free text books (SFTB) 2. Percentage of girls getting free text books to boys (GFTBB) 3. Percentage of students getting uniforms (SFU) 4. Percentage of students getting free stationery (SFST) 5. Percentage of girls getting free stationery to boys (GFSTB) 6. Percentage of schools received School Development (SD) grant (SDG) 7. Percentage of schools received Teaching Learning Material (TLM) grant (TLMG)	Positive Impact

At the end of each of the notation of used explanatory variable the letter either (i) 'P'or, (ii) 'UP' is added depending on whether the variable is meant for (i) primary or, (ii) upper primary level.

In the second stage a panel regression has been carried out. Here the estimated TEOUT has been considered as the dependent variable and the above mentioned indicators are taken as independent variables. The main aim is to capture the effect of each determinant individually. It may happen that among the selected variables some have significant effect and some may not have and in this situation the use of composite index cannot differentiate between these possibilities. Therefore composite index has not been applied in this analysis.

3.2.4 Data Sources

The secondary data included in this study are of the different outputs and inputs and the determinants for explaining the measured output oriented technical efficiency score of the total 461 districts (as per DISE) in 16 major selected states over the nine successive years from 2005-06 to 2013-14. The data are obtained from different versions of the publication of "DISE Statistics: Elementary Education in India: District Report Card" developed by the National University of Educational Planning and Administration (NUEPA) on behalf of the Department of School Education and Literacy, Ministry of Human Resource Development, Government of India.

3.3 Empirical Findings

3.3.1 District wise TEOUT Score at Primary Level of Education in India

The output oriented technical efficiency score for 461 districts of the selected 16 major states are obtained on the basis of a computer programme Data Envelopment Analysis Programme (DEAP) version 2.1 developed by Tim Coelli. The district wise estimated values of the TEOUT score under the assumption of VRS for different states at primary level of education are reported in this section. The district wise estimates of TEOUT score for the sample year 2005-06 to 2013-14 corresponding to the primary level are presented in Appendix A3 at the end of this chapter (see A3.1 to A3.16 of Appendix A3).

Some of the districts out of 461 districts have experienced an increasing trend, whereas some of them have decreasing trend comparing the initial and the final years of the study period. There are some districts which appeared to be technically efficient all throughout the study period from 2005-06 to 2013-14. Also for some of the districts the level of TEOUT has remained more or less same over time and for some cases it is fluctuating and hence becomes inconclusive in nature. All these possibilities depicting the actual picture of the TEOUT score at primary level of education for 461 districts of 16 major states have been discussed below. The results are given in tables 3.2, 3.3, 3.4, 3.5 and 3.6.

Table 3.2: Districts showing Increasing Trend of TEOUT at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur, Chittoor, Guntur, Khammam, Khrishna, Nalgonda, Nellore, Prakasam, Srikakulam, Vizianagaram, West Godavari
Assam	Bongaigaon, Darrang, Dhemaji, Dibrugarh, Golaghat, Jorhat, Kokrajhar, Lakhimpur, Nalbari, Sibsagar
Bihar	Aurangabad ,Banka, Bhagalpur,Buxar,Darbhanga,Jamui,Jehanabad,Khagaria,Kishanganj,Lakhisarai, Madhepura, Munger,Nalanda,Nawada,PashchimChamparan, Rohtas, Saharsa, Samastipur, Saran,Sheohar, Siwan, Supaul
Gujarat	Amreli ,Anand ,Bharuch ,Bhavnagar, Dohad, Mahesana, Navari,Patan, Rajkot, Surat, ,Surendranagar
Haryana	Bhiwani, Faridabad,Hisar,Jind,Karnal, Kurukshetra,Mahendragarh, Panchkula,Panipat, Rohtak
Himachal Pradesh	Shimla, Siramaur, Solan
Karnataka	Kodagu, Kolar, Shimoga, Uttara Kannada
Kerala	Ernakulam, Kottayam, Kozhikode, Palakkad
Madhya Pradesh	Bhind, Datia, Harda, Jabalpur, Mandsaur, Narsinghpur, Neemuch,Sagar, Ujjain
Maharashtra	Ahmandnagar, Akola, Amravati, Aurangabad (MH), Buldana, Chandrapur, Gondiya, Jalgaon, Kolhapur, ,Nagpur, Nandurbar,Pune, Raigarh (MH), Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane,Washim, Yavatmal
Orissa	Bargarh, Bolangir, Cuttack, Jharsuguda,Kalahandi, Keonjhar,Puri,Sambalpur
Punjab	Fatehgarh Sahib, Jalandhar,Kapurthala, Muktsar, Nawanshahr, Patiala
Rajasthan	Alwar, Bhilwara, Chittaurgarh, Dausa, Hanumangarh, Jhalawar, Jodhpur, Nagaur, Pali, Sawai Madhopur,Sirohi, Tonk, Udaipur
Tamil Nadu	Coimbatore, Erode,Karur, The Nilgiris, Thiruvallur, Tiruchirappalli
Uttar Pradesh	Agra,Allahabad,Auraiya, Bareilly, Bijnor,Faizabad, Gautambuddha Nagar, Jaunpur, Jhansi,Kannauj, Kanpur Nagar, Lucknow, Mathura ,Meerut, Saharanpur, Varanasi
West Bengal	Burdwan, Birbhum, Howrah, Hooghly, Jalpaiguri, Cooch Bihar, Nadia

Table 3.3: Districts showing Decreasing Trend of TEOUT at Primary Level of Education

States	Districts
Andhra Pradesh	Cuddapah, East Godavari , Warangal
Assam	Sonitpur, Tinsukia
Bihar	Araria, Bhojpur, Gaya, Gopalganj, Kaimur (Bhabua), Muzaffarpur, Patna, Purba Champaran,Sitamarhi,Vaishali
Gujarat	Banas Kantha, Gandhinagar, Jamnagar, Junagadh, Kachchh, Narmada, Porbandar, Vadodara,Valsad
Haryana	Fatehabad, Rewari, Yamunanagar
Himachal Pradesh	Bilaspur (H.P), Lahul&Spiti , Mandi
Karnataka	Bangalore Rural, Bellary, Chamrajnagar,Chikmagalur, Chitradurga, Davangere,Gadag, Hassan, Haveri,Koppal,Mandya, Mysore, Raichur ,Tumkur

Kerala	Allapuzha, Kasaragod, Kollam,Pathanamthitta
Madhya Pradesh	Anuppur, Ashoknagar, Burhanpur, Chhindwara, Damoh,Dewas, Dhar, Dindori, Hoshangabad,Katni,Khandwa, Khargone, Panna,Raisen, Rajgarh, Ratlam, Sehore, Seoni,Shahdol, Shajapur,Shivpuri,Sidhi,Umaria, Vidisha
Maharashtra	Dhule, Gadchiroli, Nashik,Wardha
Orissa	Angul,Dhenkanal, Ganjam,Jagatsinghpur, Kandhamal, Kendrapara, Koraput,Nayagarh,Rayagada ,Sonepur
Punjab	Hoshiarpur, Mansa, Ropar,Sangrur
Rajasthan	Ajmer, Banswara, Barmer,Bharatpur, Bikaner, Bundi, Churu, Dungarpur, Jaipur, Jalor, Jhunjhunun, Rajsamand, Sikar
Tamil Nadu	Cuddalore ,Dharmapuri, Kancheepuram, Kanniyakumari,Krishnagari, Nagapattinam, Namakkal,Pudukkottai, Ramanathapuram, Salem, Sivaganga,Thanjavur, Thiruvarur, Tiruvannamalai, Vellore, Viluppuram, Virudhunagar
Uttar Pradesh	Aligarh, Azamgarh,Baharaich, Ballia, Balarampur, Banda,Barabanki, Basti, Bhadohi, Budaun, Bulandshahr, Deoria,Etah, Fatehpur, Firozabad,Gonda ,Gorakhpur,Jalaun, Kanpur Dehat, Kaushambi, Kheri, Kushinagar, Lalitpur, Maharajganj, Mainpuri, Mirzapur, Moradabad,Muzaffarnagar, Pilibhit, Rae Bareli, SantKabir Nagar, Shrawasti, Siddharthnagar, Sonbhadra, Sultanpur
West Bengal	Bankura, Purba Midnapore, Purulia

Table 3.4: Districts showing Perfectly Efficient all throughout the Study period at Primary Level of Education

States	Districts
Andhra Pradesh	Adilabad,Hyderabad, Kurnool, Rangareddi, Visakhapatnam
Assam	Cachar, Dhubri, Goalpara, Hailkandi, Kamrup, KarbiAnglong, Karimganj,Marigaon, Nagaon
Bihar	Begusarai, Katihar,Purnia
Gujarat	Panch Mahals, The Dangs
Haryana	Jhajjar
Himachal Pradesh	Chamba, Hamirpur (H.P), Kangra, Kulu,Una
Karnataka	Bagalkot, Bangalore, Dakshina Kannada, Dharwad
Kerala	Malappuram, Wayanad
Madhya Pradesh	Balaghat, Gwalior, Indore, Tikamgarh
Maharashtra	Bid,Hingoli,Latur,Nanded, Parbhani
Orissa	Balasore, Bhadrak, Khordha, Malkangiri, Nawarangapur
Punjab	Amritsar,Faridkot,Ludhiana
Rajasthan	Baran,Dhaulpur,Jaisalmer
Tamil Nadu	Chennai, Madurai, Perambalur,Theni,Thoothkkudi, Tirunelveli
Uttar Pradesh	Ambedkar Nagar, Baghpat, Chandauli, Ghazipur, Hardoi, Hathras, Jyotibaphule Nagar, Mahoba, Mau, Rampur, Shahjahanpur, Sitapur
West Bengal	Murshidabad,Uttar Dinajpur

Table 3.5: Districts showing TEOUT More or Less Same at Primary Level of Education

States	Districts
Andhra Pradesh	Karimnagar, Mahbubnagar,Medak, Nizamabad
Assam	Baperta
Bihar	Madhubani
Gujarat	Ahmadabad, Kheda, SabarKantha
Haryana	Kaithal
Himachal Pradesh	Kinnaur
Karnataka	Belgaum, Bidar, Bijapur
Kerala	Idukki, Kannur, Thiruvananthapuram, Thrissur
Madhya Pradesh	Barwani,Chhatarpur,Mandla,Morena,Rewa,Satna, Sheopur
Maharashtra	Jalna
Orissa	Nuapada
Punjab	Bathinda , Gurdaspur, Moga
Rajasthan	Karauli
Tamil Nadu	Dindigul
Uttar Pradesh	Chitrakoot, Farrukhabad, Hamirpur, Pratapgarh,Unnao
West Bengal	Dakshin Dinajpur, Malda , North Twenty Parganas, Paschim Midnapore

Districts showing the estimated results either extremely higher for some of the years or lower for another period are categorized as inconclusive in nature. For example, Ambala from HA is a perfectly efficient district in the initial year, but just after the next year efficiency level falls to 0.696. But after that in the terminal year it again achieves score 1. Therefore, the exact pattern of trend in respect of output oriented technical efficiency score cannot be determined for such cases. The number of districts from different states in all over India under this category is not very large.

Table 3.6: Districts Fluctuating in TEOUT at Primary Level of Education

States	Districts
Bihar	Sheikhpura
Haryana	Ambala,Gurgaon, Sirsa,Sonipat
Karnataka	Gulbarga, Udupi
Madhya Pradesh	Betul, Bhopal,Guna,Jhabua
Maharashtra	Bhandara,Mumbai,Mumbai (Suburban), Osmanabad

Orissa	Boudh,Deogarh,Gajapati,Jajpur,Mayurbhanj,Sundargarh
Punjab	Ferozepur
Rajasthan	Ganganagar,Kota
Uttar Pradesh	Etawah,Ghaziabad
West Bengal	Darjeeling, Kolkata, Siliguri, South Twenty Four Parganas

It is evident that some districts are above the state specific average (SSA) of TEOUT calculated based on the average value of the TEOUT score of all the districts and all points of the study period for any particular state. Similarly the lists of districts which are lying below the SSA of mean TEOUT score at primary level are reported in table 3.7.

Table 3.7: State wise list of Districts categorized having Higher and Lower TEOUT compared to State Specific Average (SSA) at Primary Level of Education

States	SSA	Districts above State Specific Average (SSA)	Districts below State Specific Average (SSA)
Andhra Pradesh	0.965	Adilabad, Cuddapah, Hyderabad, Karimnagar, Khammam, Krishna, Kurnool, Mahbubnagar, Medak, Nizamabad, Rangareddi, Srikakulam, Visakhapatnam, West Godavari	Anantapur, Chittoor, East Godavari, Guntur,Nalgonda, Nellore, Prakasam, Vizianagaram, Warangal
Assam	0.982	Baperta, Bongaigaon, Cachar, Darrang, Dhemaji, Dhubri, Goalpara, Hailakandi, Kamrup, KarbiAnglong, Karimganj, Lakhimpur, Marigaon, Nagaon, Nalbari	Dibrugarh, Golaghat, Jorhat, Kokrajhar, Sibsagar, Sonitpur, Tinsukia
Bihar	0.971	Araria, Aurangabad (BH), Begusarai, Bhojpur, Buxar, Gaya, Gopalganj, Jehanabad, Kaimur (Bhabua), Katihar,Khagaria, Kishanganj, Lakhisarai, Madhepura, Madhubani, Muzaffarpur, Purnia, Rohtas, Saharsa, Samastipur, Sheikhpura, Sitamarhi, Siwan, Supaul, Vaishali	Banka, Bhagalpur, Darbhanga, Jamui, Munger, Nalanda,Nawada, PaschimChamparan, Patna, PurbaChamparan, Saran, Sheohar
Gujarat	0.960	Ahmadabad, Amreli, BanasKantha, Bhavnagar, Dohad, Jamnagar, Junagadh, Kachchh, Mahesana, Navsari, PanchMahals, Patan, Rajkot, SabarKantha, Surendranagar, The Dangs	Anand, Bharuch, Gandhinagar, Kheda, Narmada, Porbandar, Surat, Vadodara, Valsad
Haryana	0.916	Faridabad, Gurgaon, Jhajjar, Kaithal, Panipat, Rohtak, Sirsa, Sonipat, Yamunanagar	Ambala, Bhiwani, Fatehabad, Hisar, Jind, Karnal, Kurukshetra,Mahendragarh, Panchkula, Rewari
Himachal Pradesh	0.977	Chamba, Hamirpur (H.P), Kangra,Kinnaur, Kullu, Shimla, Sirmaur, Solan, Una	Bilaspur (H.P), Lahul&Spiti, Mandi
Karnataka	0.963	Bagalkot, Bangalore, Belgaum, Bellary, Bidar, Bijapur, Dakshina Kannada, Davangere, Dharwad, Gadag, Gulbarga, Haveri, Koppal, Raichur, Tumkur, Udupi, Uttara Kannada	Bangalore Rural, Chamrajnagar, ,Chikmagalur, Chitradurga, Hassan, Kodagu, Kolar, Mandya, Mysore, Shimoga
Kerala	0.980	Ernakulam,Idukki,Kollam,Kozhikode,Malappuram,Palakkad,Thrissur,Wayanad	Alappuzha,Kannur,Kasaragod,Kottayam,Pathanamthitta,Thiruvananthapuram
Madhya Pradesh	0.962	Anuppur, Ashoknagar, Balaghat,Barwani,Bhind,Bhopal,Burhanpur,Chhatarpur,Damoh,Datia,Dhar,Dindori,Gwalior,Harda,Hoshangabad,Indore,Jhabua,Katni,Mandla, Mandsaur,Morena,Narsinghpur,Neemuch,Panna,Raisen,Rajgarh,Ratlam, Rewa,Sagar,Satna,Sehore,Sheopur,Shivpuri,Tikamgarh,Umaria,Vidisha	Betul,Chhindwara,Dewas,Guna,Jabalpur,Khandwa,Khargone,Seoni,Shahdol,Shajapur,Sidhi,Ujjain

Maharashtra	0.952	Aurangabad (MH),Bid,Buldana,Dhule,Gadchiroli,Hingoli,Jalgaon,Jalna,Kolhapur,Latur,Mumbai (Suburban),Nanded,Nandurbar,Nashik,Osmanabad,Parbhani,Sindhudurg,Solapur,Thane,Washim	Ahmadnagar,Akola,Amravati,Bhandara,Chandrapur,Gondiya,Mumbai,Nagpur,Pune,Raigarh (MH),Ratnagiri,Sangli,Satara,Wardha,Yavatmal
Orissa	0.948	Balasore,Bhadrak,Bolangir,Deogarh,Gajapati,Ganjam,Jajpur,Kalahandi, Kandhamal,Keonjhar,Khordha,Malkangiri,Mayurbhanj,Nawarangapur, Nuapada,Rayagada,Sundargarh	Angul,Bargarh,Boudh,Cuttack,Dhenkanal,Jagatsinghpur,Jharsuguda,Kendrapara,Koraput,Nayagarh,Puri,Sambalpur,Sonepur
Punjab	0.901	Amritsar,Bathinda,Faridkot,Ferozepur,Gurdaspur,Ludhiana,Mansa,Moga,Muktsar,Sangrur	FatehgarhSahib,Hoshiarpur,Jalandhar,Kapurthala,Nawanshahr,Patiala,Ropar
Rajasthan	0.945	Ajmer,Alwar,Banswara,Baran,Barmer,Bharatpur,Bikaner,Churu,Dausa, Dhaulpur,Dungarpur,Ganganagar,Hanumangarh,Jaipur,Jaisalmer,Jalor,Jhalawar,Karauli,Rajsamand,Sawai Madhopur	Bhilwara,Bundi,Chittaurgarh,Jhunjhunun,Jodhpur,Kota,Nagpur,Pali,Sikar,Sirohi,Tonk,Udaipur
Tamil Nadu	0.973	Chennai,Coimbatore,Dindigul,Kancheepuram,Krishanagari,Madurai,Nagapattinam,Perambalur,Pudukkottai,Ramanathapuram,Salem,Sivaganga, Theni,Thiruvallur,Thiruvarur,Thoothukkudi,Tirunelveli,Virudhunagar	Cuddalore,Dharamapuri,Erode,Kanniyakumari,Karur,Namakkal,Thanjavur,The Nilgiris,Tiruchirappalli,Tiruvannamalai,Vellore,Vilippuram
Uttar Pradesh	0.948	Ambedkar Nagar,Auraiya,Azamgarh,Baghpat,Bahraich,Ballia,Banda,Bareilly,Basti,Bijnor,Chandauli,Chitrakoot,Farrukhabad,Fatehpur,Firozabad,Ghaziabad,Ghazipur,Gonda,Hamirpur,Hardoi,Hathras,Jaunpur,Jhansi,Jyotiba Phule Nagar,Kannauj,Kaushambi,Kheri,Kushinagar,Lalitpur,Lucknow,Maharajganj,Mahoba, Mainpuri,Mau,Mirzapur,Moradabad,Pratapgarh,Rampur,Shahjahanpur,Siddharthnagar, Sitapur,Sonbhadra,Unnao	Agra,Aligarh,Allahabad,Balarampur,Barabanki,Bhadohi,Budaun,Bulandshahr,Deoria,Etah,Etawah,Faizabad,Gautam Buddha Nagar,Gorakhpur,Jalaun,Kanpur Dehat,KanpurNagar,Mathura,Meerut,Muzaffarnagar,Pilbhit,RaeBareli,Saharanpur,SantKabirNagar, Shrawasti,Sultanpur,Varanasi
West Bengal	0.955	Birbhum,Dakshin Dinajpur,Howrah,Jaipaiguri,Cooch Bihar, Malda,Murshidabad,North Twenty Four Parganas,PaschimMidnapore,PurbaMidnapore,Purulia,Siligui, South Twenty Four Pargans,UttarDinajpur	Bankura,Burdwan, Darjeeling, Hooghly, Kolkata, Nadia

Thus, state specific average of TEOUT score of each state is obtained by considering the mean value of the TE score of the respective districts over the sample period. The results suggest that there is a wide variation of TEOUT score among the selected major states of India. The estimated summary findings of the TEOUT score for primary level of education for the selected 16 states in India are reported in table 3.8.

Table 3.8: Summary Findings of TEOUT at Primary Level of Education

States	Range of Mean TE	State Specific Average (SSA) of Mean TE	State Specific SD of Mean TE	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	% of Districts having TE=1	State Specific CV of Mean TE
Andhra Pradesh	0.897 to 1	0.965	0.032	60.87	39.13	21.74	3.31
Assam	0.911 to 1	0.982	0.026	59.09	40.91	18.18	2.66

Bihar	0.875 to 1	0.971	0.026	67.50	32.50	8.11	2.63
Gujarat	0.811 to 1	0.960	0.045	64.00	36.00	8.00	4.69
Haryana	0.803 to 1	0.916	0.059	37.00	63.00	5.00	6.46
Himachal Pradesh	0.875 to 1	0.977	0.037	75.00	25.00	41.67	3.80
Karnataka	0.854 to 1	0.963	0.039	62.96	37.04	14.81	4.06
Kerala	0.944 to 1	0.980	0.017	57.14	42.86	14.29	1.69
Madhya Pradesh	0.793 to 1	0.962	0.050	75.00	25.00	8.03	5.21
Maharashtra	0.849 to 1	0.952	0.042	57.14	42.86	14.29	4.41
Orissa	0.821 to 1	0.948	0.051	56.67	43.33	16.67	5.36
Punjab	0.70 to 1	0.901	0.108	58.82	41.18	17.65	11.99
Rajasthan	0.716 to 1	0.945	0.058	62.50	37.50	9.34	6.14
Tamil Nadu	0.921 to 1	0.973	0.027	60.00	40.00	20.00	2.73
Uttar Pradesh	0.737 to 1	0.948	0.060	62.86	37.14	17.14	6.33
West Bengal	0.786 to 1	0.955	0.050	70.00	30.00	15.00	5.24
Grand Mean	0.700 to 1	0.956	0.045	61.66	38.34	15.62	4.79

It is observed that out of the 16 major states HP (41.67%) and HA (5%) have the highest and lowest percentages in terms of the districts that are perfectly efficient with the technical efficiency score equal to 1 for the entire study period. The standard deviation of mean TEOUT scores is lowest for KE (0.017) indicating lower disparities present among the districts. AS (0.982) and KE (0.980) are in the first and second position respectively, whereas PN (0.901) secured the last position in terms of SSA TEOUT score calculated taking all the respective districts over the sample period 2005-06 to 2013-14. The grand mean comprising the mean of state specific average (SSA) of TEOUT is computed which corresponds to the value of 0.956. The states for which SSA of TEOUT is higher than grand mean for primary level of education are the following: AP, AS, BH, GJ, HP, KA, KE, MP and TN. All over performance explained by the coefficient of variation (CV) indicates that the state KE (1.69%) ranks first, whereas PN (11.99%) is in the last position. The states having lower CV than grand mean of CV are AP, AS, BH, GJ, HP, KA, KE, MH and TN. The estimated value of mean TEOUT for different years under the sample period suggests a marginal increase (see A3.33 of Appendix A3 at the end of this chapter). On an average, percentage of the districts higher than SSA is 61.66. So the majority of the districts have their TEOUT higher than the mean of SSA of efficiency. Also, on average the percentage of the districts having TE equal to 1 is 15.62 implying that these districts are fully technically efficient.

3.3.2 District wise TEOUT Score at Upper Primary Level of Education in India

Like the primary level of education, output oriented technical efficiency of upper primary level has been computed under the assumption of variable returns to scale. The district wise estimated results for the selected states are discussed in

this section. The district wise estimates of TEOUT score for the sample year 2005-06 to 2013-14 corresponding to the upper primary level are presented in Appendix A3 at the end of this chapter (see A3.17 to A3.32 of Appendix A3). The list of 461 districts from 16 major states has been categorized in different groups according to the magnitude of the estimated technical efficiency score. For some districts, TEOUT score is equal to 1 for all the years under the period of study. These are called perfectly technically efficient districts. The level of TEOUT has increased over time for some of the districts and vice versa. It also has become more or less stagnated or inconclusive (due to fluctuation) in nature for the districts mentioned under this category. All these possibilities are explained in tables 3.9, 3.10, 3.11, 3.12 and 3.13.

Table 3.9: Districts showing Perfectly Efficient all throughout the Study period at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Adilabad,Hyderabad,Rangareddi
Assam	Cachar,Dhemaji,Hailakandi,Sonitpur,Tinsukia
Himachal Pradesh	Chamba,Hamirpur (H.P),Kullu,Lahul & Spiti,Una
Karnataka	Belagaum
Kerala	Malappuram
Madhya Pradesh	Gwalior
Punjab	Jalandhar
Rajasthan	Hanumangarh
Tamil Nadu	Perambalur
Uttar Pradesh	Baghpat,Chandauli,Mahoba
West Bengal	Kolkata, Siliguri

Table 3.10: Districts showing Increasing Trend of TEOUT at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantpur,Chittor,East Godavari,Karimnagar,Khammam,Krishna,Kurnool,Mahbubnagar,Medak,Nellore,Nizamabad,Prakasam,Srikakulam,Vizianagaram
Assam	Darrang,Dhubri,Dibrugarh,Kokrajhar,Nagaon
Bihar	Aurangabad (Bihar), Banka, Begusarai,Darbhanga,Jamui,Jehanabad,Katihar,Khagaria,Kishanganj,Lakhisarai,Madhepura,Madhubani,Nawada,Paschim Champaran,Patna,Saharsa,Samastipur,Saran,Sheohar,Sitamarhi,Siwan,Supaul
Gujarat	Amreli,Anand,Bharuch,Bhavnagar,Dohad,Gandhinagar,Kheda,Mahesana,Navsari,Patan,Rajkot,Surat
Haryana	Bhiwani,Faridabad,Hisar,Jind,Karnal,Kurukshetra,Mahendragarh,Panchkula,Panipat,Rohtak
Himachal Pradesh	Bilaspur (H.P),Mandi,Shimla,Sirmaur,Solan

Karnataka	Bangalore,Bidar,Dakshina Kannada,Davangere,Dharwad,Gadag,Gulbarga,Kodagu,Kolar,Mysore,Raichur,Shimoga,Uttara Kannada
Kerala	Alappuzha,Ernakulam,Kottayam,Kozhikode,Palakkad
Madhya Pradesh	Balaghat,Barwani,Betul,Chhatarpur,Chhindwara,Damoh,Datia,Dhar,Dindori,Indore,Jabalpur,Jhabua,Khargone,Mandla,Mandsaur,Narsinghpur,Neemuch,Rajgarh,Ratlam,Sagar,Seoni,Shahdol,Shajapur,Sheopur,Shivpuri,Tikamgarh,Ujjain,Umaria,Vidisha
Maharashtra	Ahmadnagar,Akola,Amravati,Aurangabad (MH),Bhandara,Bid,Dhule,Gadchiroli,Gondiya,Jalgaon,Mumbai,Mumbai (Suburban),Nagpur,Nanded,Parbhani,Pune,Ratnagiri,Sangli,Satara,Sindhudurg,Solapur,Thane,Wardha,Washim,Yavatmal
Orissa	Bargarh,Bhadrak,Bolangir,Boudh,Cuttack,Deogarh,Ganjam,Jagatsinghpur,Kalahandi,Kendrapara,Keonjhar,Khordha,Nayagarh,Nuapada,Puri,Rayagada,Sambalpur,Sonepur,Sundargarh
Punjab	Amritsar,Fatehgarh Sahib,Ferozepur,Kapurthala,Ludhiana,Mansa,Nawanshahr,Patiala,Ropar,Sangrur
Rajasthan	Ajmer,Alwar,Baran,Barmer,Dhaulpur,Jaipur,Jaisalmer,Jhalawar,Karauli,Nagaur,Pali,Sawai Madhopur,Tonk,Udaipur
Tamil Nadu	Chennai,Coimbatore,Dharamapuri,Erode,Karur,Madurai,Nagapattinam,Salem,The Nilgiris,Thiruvallur
Uttar Pradesh	Agra,Bahraich,Bijnor,Budaun,Etah,Hamirpur,Hardoi,Jhansi,JyotibaPhule Nagar,Kaushambi,Kheri,Lalitpur,Mainpuri,Mau,Meerut,Pilbhit,RaeBareli,Shahjahanpur,Siddharthnagar,Sitapur,Sonbhadra
West Bengal	Howrah,Hooghly,CoochBihar,Malda,Murshidabad,Purulia,South Twenty Four Pargans,Uttar Dinajpur

Table 3.11: Districts showing Decreasing Trend of TEOUT at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Cuddapah,Guntur,Nalgonda,Visakhapatnam,West Godavari
Assam	Baperta,Bongaigaon,Golaghat,Jorhat,Karbi Anglong,Karimganj,Marigaon,Sibsagar
Bihar	Araria,Bhagalpur,Bhojpur,Buxar,Gaya,Gopalganj,Kaimur (Bhabua),Munger,Muzaffarpur,Nalanda,Purba Champaran,Vaishali
Gujarat	Banas Kantha,Jamnagar,Junagadh,Kachchh,Narmada,Porbandar,Sabar Kantha,Surendranagar,The Dangs
Haryana	Ambala,Rewari,Sonipat,Yamunanagar
Himachal Pradesh	Kinnaur
Karnataka	Bangalore Rural,Bellary,Chamrajnagar,Chikmagalur,Chitradurga,Hassan,Haveri,Koppal,Mandya,Tumkur,Udupi
Kerala	Kasaragod,Pathanamthitta
Madhya Pradesh	Anuppur,Ashok Nagar,Bhind,Bhopal,Burhanpur,Dewas,Guna,Harda,Hoshangabad,Katni,Khandwa,Morena,Panna,Raisen,Rewa,Satna,Sehore,Sidhi
Maharashtra	Chandrapur,Hingoli,Jalna,Nandurbar,Raigarh (MH)
Orissa	Balasore,Dhenkanal, Jajpur,Kandhamal,Koraput,Malkangiri,Nawarangapur
Punjab	Hoshiarpur,Moga,Muktsar
Rajasthan	Bharatpur,Bhilwara,Bikaner,Bundi,Chittaurgarh,Churu,Jalor,Jodhpur,Rajsamand,Sikar,Sirohi
Tamil Nadu	Cuddalore,Dindigul,Kancheepuram,Kanniyakumari,Krishanagari,Namakkal,Pudukkottai,Ramanathapuram,Sivaganga,Thanjavur,Theni,Thiruvarur,Thoothukkudi,Tiruchirappalli,Tirunelveli,Tiruvannamalai,Vellore,Vilipuram,Virudhunagar

Uttar Pradesh	Aligarh,Allahabad,Ambedkar Nagar,Azamgarh,Ballia,Balarampur,Barabanki,Bareilly,Basti,Bhadohi,Bulandshahr,Chitrakoot,Deoria,Etawah,Faizabad,Farrukhabad,Firozabad,Gautam Buddha Nagar,Gonda,Gorakhpur,Hathras,Jalaun,Jaunpur,Kannauj,Kanpur Dehat,Kanpur Nagar,Kushinagar,Maharajganj,Mathura,Mirzapur,Moradabad,Muzaffarnagar,Saharanpur,Sant Kabir Nagar,Shrawasti,Sultanpur,Unnao,Varanasi
West Bengal	Bankura,Birbhum,Dakshin Dinajpur,Darjeeling,Nadia,Paschim Midnapore,Purba Midnapore

Table 3.12: Districts showing TEOUT More or Less Same at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Warangal
Assam	Goalpara, Kamrup
Bihar	Purnia
Gujarat	Valsad
Karnataka	Bijapur
Kerala	Idukki,Kannur,Kollam,Thiruvananthapuram,Thrissur
Maharashtra	Buldana,Kolhapur,Latur
Punjab	Bathinda,Faridkot
Rajasthan	Banswara, Dausa

Table 3.13: Districts Fluctuating in TEOUT at Upper Primary Level of Education

States	Districts
Assam	Lakhimpur, Nalbari
Bihar	Rohtas, Sheikhpura
Gujarat	Ahmedabad,Panch Mahals,Vadodara
Haryana	Fatehabad,Gurgaon,Jhajjar,Kaithal,Sirsa
Himachal Pradesh	Kangra
Karnataka	Bagalkot
Kerala	Wayanad
Maharashtra	Nashik,Osmanabad
Orissa	Angul,Gajapati,Jharsuguda,Mayurbhanj
Punjab	Gurdaspur
Rajasthan	Dungarpur,Ganganagar,Jhunjhunun,Kota
Uttar Pradesh	Auraiya,Banda,Fatehpur,Ghaziabad,Ghazipur,Lucknow,Pratapgarh,Rampur
West Bengal	Burdwan,Jalpaiguri,North Twenty Four Parganas

The districts which are above and below the SSA calculated taking all the districts and time points under the study period of the respective states have been presented in table 3.14.

Table 3.14: State wise list of Districts categorized having Higher and Lower TEOUT compared to State Specific Average (SSA) at Upper Primary Level of Education

States	SSA	Districts above State Specific Average (SSA)	Districts below State Specific Average (SSA)
Andhra Pradesh	0.924	Adilabad,Cuddapah,Hyderabad,Karimnagar,Khammam,Medak,Nalgonda,Nizamabad,Rangareddi,Visakhapatnam,Warangal,West Godavari	Anantpur,Chittor,East Godavari,Guntur,Krishna,Kurnool,Mahbubnagar,Nellore,Prakasam,Srikakulam,Vizianagaram
Assam	0.962	Baperta,Cachar,Dhemaji,Goalpara,Hailakandi,Kamrup,Karbi Anglong,Karimganj,Lakhimpur,Nagaon,Nalbari,Sonitpur,Tinsukia	Bongaigaon,Darrang,Dhubri,Dibrugarh,Golaghat,Jorhat,Kokrajhar,Marigaon,Sibsagar
Bihar	0.886	Araria,Begusarai,Gaya,Jehanabad,Katihar,Khagaria,Kishanganj,Lakhisarai,Madhepura,Muzaffarpur,Purba Champaran,Purnia,Rohtas,Saharsa,Samastipur	Aurangabad (Bihar),Banka,Bhagalpur,Bhojpur,Buxar,Darbhanga,Gopalganj,Jamui,Kaimur (Bhabua),Madhubani,Munger,Nalanda,Nawada,Paschim Champaran,Patna,Saran,Sheikhpura,Sheohar,Sitamarhi,Siwan,Supaul,Vaishali
Gujarat	0.959	Ahmedabad,Anand,Bhavnagar,Dohad,Junagadh,Kheda,Mahesana,Navsari,Panch Mahals,Rajkot,Sabar Kantha,The Dangs,Valsad	Amreli,Banas Kantha,Bharuch,Gandhinagar,Jamnagar,Kachchh,Narmada,Patan,Porbandar,Surat,Surendranagar,Vadodara
Haryana	0.913	Bhiwani,Jhajjar,Jind,Kaithal,Panipat,Rohtak,Sirsa,Sonipat,Yamunanagar	Ambala,Faridabad,Fatehabad,Gurgaon,Hisar,Karnal,Kurukshetra,Mahendragarh,Panchkula,Rewari
Himachal Pradesh	0.981	Chamba,Hamirpur (H.P),Kullu,Lahul&Spiti,Mandi,Sirmaur,Una	Bilaspur (H.P),Kangra,Kinnaur,Shimla,Solan
Karnataka	0.944	Bagalkot,Bangalore,Balgaum,Bidar,Bijapur,Chikmagalur,Dharwad,Gadag,Kolar,Koppal,Shimoga,Tumkur,Uttara Kannada	Bangalore Rural,Bellary,Chamrajnagar,Chitradurga,Dakshina Kannada,Davangere,Gulbarga,Hassan,Haveri,Kodagu,Mandya,Mysore,Raichur,Udupi
Kerala	0.973	Alappuzha,Ernakulam,Idukki,Kollam,Kozhikode,Malappuram,Palakkad,Thiruvananthapuram,Thrissur,Wayanad	Kannur,Kasaragod,Kottayam,Pathanamthitta
Madhya Pradesh	0.837	Anuppur,Ashoknagar,Balaghat,Bhind,Bhopal,Burhanpur,Chhatarpur,Damoh,Datia,Dewas,Dhar,Gwalior,Harda,Indore,Jabalpur,Katni,Khandwa,Mandsaur,Morena,Narsinghpur,Neemuch,Raisen,Sagar,Satna,Sehore,Shahdol,Shivpuri,Tikamgarh,Umaria	Barwani,Betul,Chhindwara,Dindori,Guna,Hoshangabad,Jhabua,Khargone,Mandla,Panna,Rajgarh,Ratlam,Rewa,Seoni,Shajapur,Sheopur,Sidhi,Ujjain,Vidisha
Maharashtra	0.934	Ahmadnagar,Akola,Amravati,Aurangabad (MH),Bhandara,Bid,Buldana,Dhule,Gondiya,Hingoli,Kolhapur,Latur, Mumbai,Mumbai (Suburban),Nandurbar,Nashik,Osmanabad,Sindhudurg,Solapur,Washim	Chandrapur,Gadchiroli,Jalgaon,Jalna,Nagpur,Nanded,Parbhani,Pune,Raigarh (MH),Ratnagiri,Sangli,Satara,Thane,Wardha,Yavatmal
Orissa	0.910	Angul,Balasore,Bhadrak,Bolangir,Cuttack,Ganjam,Jajpur,Jharsuguda,Kalahandi,Kandhamal,Khordha,Nawarangapur,Nuapada,Rayagada,Sonepur,Sundargarh	Bargarh,Boudh,Deogarh,Dhenkanal,Gajapati,Jagatsinghpur,Kendrapara,Keonjhar,Koraput,Malkangiri,Mayurbhanj,Nayagarh,Puri,Sambalpur
Punjab	0.946	Bathinda,Faridkot,Gurdaspur,Hoshiarpur,Jalandhar,Mansa,Moga,Muktsar,Patiala	Amritsar,Fatehgarh Sahib,Ferozepur,Kapurthala,Ludhiana,Nawanshahr,Ropar,Sangrur
Rajasthan	0.919	Ajmer,Alwar,Banswara,Barmer,Bharatpur,Dausa,Dhaulpur,Dungarpur,Ganganagar,Hanumangarh,Jaipur,Jhunjhunun,Jodhpur,Karauli,Kota,Nagaur,Sikar,Sirohi,Udaipur	Baran,Bhilwara,Bikaner,Bundi,Chittaurgarh,Churu,Jaisalmer,Jalor,Jhalawar,Pali,Rajsamand,Sawai Madhopur,Tonk
Tamil Nadu	0.940	Chennai,Coimbatore,Dharamapuri,Dindigul,Erode,Madurai,Nagapattinam,Namakkal,Perambalur,Salem,Sivaganga,Theni,Thiruvallur,Thoothukkudi,Tirunelveli,Virudhunagar	Cuddalore,Kancheepuram,Kanniyakumari,Karur,Krishanagari,Pudukkottai,Ramanathapuram,Thanjavur,The Nilgiris,Thiruvarur,Tiruchirappalli,Tiruvannamalai,Vellore,Vilippuram

Uttar Pradesh	0.784	Ambedkar Nagar,Auraiya,Azamgarh,Baghpat,Ballia,Bhadohi,Bijnor,Chandauli,Chitrakoot,Etawah,Faizabad,Fatehpur,Firozabad,Ghaziabad,Ghazipur,Gorakhpur,Hamirpur,Hardoi,Hathras,Jaunpur,Jhansi,Jyotiba PhuleNagar,Kannauj,Kanpur Nagar,Kheri,Lucknow,Mahoba,Mau,Mirzapur,Moradabad,Pilbhit,Pratapgarh,Rae Bareli,Rampur,Sitapur,Sonbhadra,Sultanpur,Varanasi	Agra,Aligarh,Allahabad,Bahraich,Balarampur,Banda,Barabanki,Bareilly,Basti,Budaun,Bulandshahr,Deoria,Etah,Farrukhabad,Gautam Buddha Nagar,Gonda,Jalaun,Kanpur Dehat,Kaushambi,Kushinagar,Lalitpur,Maharajganj,Mainpuri,Mathura,Meerut,Muzaffarnagar,Saharanpur,Sant KabirNagar,Shahjahanpur,Shrawasti,Siddharthnagar,Unnao
West Bengal	0.876	Burdwan,Dakshin Dinajpur,Howrah,Hooghly,Jalpaiguri,CoochBihar,Kolkata,Nadia,North Twenty Four Parganas,Paschim Midnapore,Purba Midnapore,Siliguri	Bankura,Birbhum,Darjeeling,Malda,Murshidabad,Purulia,South Twenty Four Pargans,Uttar Dinajpur

The estimated summary findings of TEOUT score at upper primary level of education for the selected 16 states in India are reported in table 3.15.

Table 3.15: Summary Findings of TEOUT at Upper Primary Level of Education

States	Range of Mean TE	State Specific Average (SSA) of Mean TE	State Specific SD of Mean TE	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	% of Districts having TE=1	State Specific CV of Mean TE
Andhra Pradesh	0.839 to 1	0.924	0.054	52.17	47.83	0.13	5.80
Assam	0.842 to 1	0.962	0.040	59.09	40.91	22.73	4.16
Bihar	0.790 to 0.988	0.886	0.006	48.64	51.36	0.00	0.64
Gujarat	0.836 to 0.995	0.959	0.035	52.00	48.00	0.00	3.62
Haryana	0.784 to 0.993	0.913	0.063	52.63	47.37	0.00	6.90
Himachal Pradesh	0.906 to 1	0.981	0.029	58.33	41.67	41.67	2.94
Karnataka	0.879 to 1	0.944	0.035	48.15	51.85	3.70	3.76
Kerala	0.910 to 1	0.973	0.029	71.43	28.57	21.43	2.99
Madhya Pradesh	0.656 to 1	0.837	0.085	60.42	39.58	2.08	10.18
Maharashtra	0.849 to 0.999	0.934	0.042	57.54	42.46	0.00	4.50
Orissa	0.825 to 1	0.910	0.052	53.33	46.67	0.03	5.72
Punjab	0.862 to 1	0.946	0.039	52.94	47.06	5.89	4.15
Rajasthan	0.808 to 1	0.919	0.059	59.38	40.62	3.13	6.39
Tamil Nadu	0.843 to 1	0.940	0.041	56.67	43.33	3.33	4.41
Uttar Pradesh	0.437 to 1	0.784	0.128	54.29	45.71	1.43	4.29
West Bengal	0.477 to 1	0.876	0.117	55.00	45.00	10.00	13.36
Grand Mean	0.437 to 1	0.918	0.053	55.75	44.25	7.22	5.24

From the empirical results it can be explained that the range of mean TEOUT scores is lowest for the state KE (0.910 to 1) and highest for UP (0.437 to 1). The

SSA of TEOUT score (average of the TEOUT score of all the districts over the sample period 2005-06 to 2013-14) is highest and lowest for HP (0.981) and UP (0.784) respectively. KE (28.57%) ranks in the first position in terms of the performance indicated by the percentage of the districts below the SSA level. This share is highest for the state KA (51.85%) among others. The value of grand mean corresponds to 0.918. The states for which SSA of TEOUT is higher than grand mean for upper primary level are the following: AP, AS, GJ, HP, KA, KE, MH, PN, RA and TN and the states having CV lower than grand mean of CV are AS, BH, GJ, HP, KA, KE, MH, PN, TN and UP. The estimated value of mean TEOUT for different years under the sample period suggests that there is an increase in technical efficiency score (see A3.33 of Appendix A3 at the end of this chapter). On an average percentage of the districts higher than SSA is 55.75. Therefore, it is observed that the majority of the districts have their efficiency above the mean of SSA level. Similarly the percentage of the districts having TE equal to 1 is 7.22 implying that these districts are perfectly technically efficient.

The analysis of TEOUT of primary and upper primary levels of education suggests that- (i) on an average TEOUT is larger for the primary as compared to the upper primary, (ii) only a small percentage of the districts are technically efficient (15.62 % for primary and 7.22% for upper primary) and (iii) the states for which SSA of TEOUT is higher than grand mean for both primary and upper primary levels of education are namely AP, AS, GJ, HP, KA, KE and TN. The comparison of CV with respect to grand mean of CV reveals that these states except the state AP are also the states with lower CV as compared to grand mean of CV for both the primary as well as upper primary levels of education.

3.4 Analysis of Significant Determinants behind the Variation of Output Oriented Technical Efficiency Score

This section intends to explain the output oriented technical efficiency score in terms of different poor and favourable infrastructural, social and policy variables. A second stage panel regression is resorted to get state level determinants of TEOUT using their first stage district level estimates. At the time of performing the panel regression for identifying the significant determinants, to decide what will be a suitable model choice between fixed effect and the random effect, Hausman specification test is considered. This test strongly rejects the consideration of the fixed effect model and thus random effect model has been considered for both the levels of education. Separate regressions for primary and upper primary levels of education have been carried out. The coefficients and p-value along with the significant variables have been mentioned for every state. The statistical significance of these variables has been checked by Wald test. If this $p>chi^2$ is less than equal to the value 0.05 then fitted model is okay. In order to find out the determinants different panel regressions are tried out state wise, considering the districts figure over time, taking into account alternative

combinations of the explanatory variables and the best results are reported. Those variables are kept in the panel regressions that actually increase the goodness of fit with the expected sign condition. The state wise best fitted results and the significant variables are presented in tables 3.16 and 3.17 for primary and upper primary levels of education respectively. From both the tables it is observed that significant determinants vary across states.

Table 3.16: Significant Determinants Explaining TEOUT at Primary Level of Education

States	Variables (Coefficients & p value)	Goodnesss of Fit of Model
Andhra Pradesh	SNCSP (-0.00192, 0.00), NBBP (-0.00093, 0.037), SFTBP (0.000365, 0.045)	Wald chi^2=96.5, P>chi^2=0.00
Assam	SNCSP (-0.00037, 0.050), NBBP (-0.000511,0.026), GTCTP (0.000671, 0.00), SFTBP (0.000501, 0.002)	Wald chi^2=71.29, P>chi^2=0.00
Bihar	SNCSP (-0.0017, 0.009), NBBP (-0.00146,0.00), GTFP (0.000331, 0.004), GENBP (0.002083, 0.00)	Wald chi^2=226.19, P>chi^2=0.00
Gujarat	SWBP (-0.001152,0.044)	Wald Chi^2=10.52, P>Chi^2=0.03
Haryana	STENP (0.060715, 0.018), GTCTP (0.001396, 0.021), GFTBBP (0.007849, 0.001)	Wald chi^2=50.89, P>chi^2=0.00
Himachal Pradesh	SNCSP (-0.00422, 0.00), NBBP (-0.00555, 0.001), STENP (0.000858, 0.004)	Wald chi^2=39.14, P>chi^2=0.0006
Karnataka	CBCP (-0.00116, 0.050), SNTSP (-0.0014, 0.031), NBBP (-0.00258, 0.00), GTFP (0.00043, 0.050)	Wald chi^2=90.2, P>chi^2=0.00
Kerala	SWBP (-0.00108, 0.040), SNCSP (-0.00176, 0.013), CTFP (0.000339, 0.049), SFTBP (0.000603, 0.003), GFTBBP (0.002228, 0.048)	Wald chi^2=39.66, P>chi^2=0.0005
Madhya Pradesh	SCENP (0.00083, 0.013), GENBP (0.002269, 0.030)	Wald chi^2=37.5, P>chi^2=0.0006
Maharashtra	CBCP (-0.00111, 0.029), SFSTP (0.000692, 0.024)	Wald chi^2=57.72, P>chi^2=0.00
Orissa	STENP(0.000625, 0.023), SFSTP (0.000523, 0.043)	Wald chi^2=46.64, P>chi^2=0.00
Punjab	DWFP (0.002519, 0.00), GTCTP (0.002358, 0.00), TLMGP (0.004424, .007)	Wald Chi2=79.44, P>Chi2=0.00
Rajasthan	SWBP (-0.00196, 0.003), CTFP (0.000375, 0.037)	Wald Chi^2=31.97, P>Chi^2=0.0065
Tamil Nadu	NBBP (-0.00151, 0.00)	Wald Chi^2=81.76, P>Chi^2=0.00
Uttar Pradesh	SNCSP (-0.0033,0.010), DWFP (0.001359,0.00), CTFP (0.000289,0.018), GTCTP (0.00035,0.002)	Wald Chi^2=90.49, P>Chi^2=0.00
West Bengal	CBCP (-0.002810,0.035), DWFP(0.000541,0.034), STENP(0.003527,0.037), GFTBBP(0.000799,0.032)	Wald Chi^2=67.63, P>Chi^2=0.00

Table 3.17: Significant Determinants Explaining TEOUT at Upper Primary Level of Education

States	Variables (Coefficients & p value)	Goodnesss of Fit of Model
Andhra Pradesh	SNCSUP (-0.00976,0.041), SCENUP (0.003055,0.021), GTCTUP (0.000604,0.035), GFTBBUP (0.00079,0.011), SFUUP(0.00209,0.002)	Wald Chi^2=63.99, P>Chi^2=0.00
Assam	NPBUP(-0.000421,0.049)	Wald Chi^2=27.47, P>Chi^2=0.03
Bihar	SWBUP (-0.00603,0.00), SNCSUP (-0.01741,0.002), GENBUP (0.003345,0.00)	Wald Chi^2=78.26, P>Chi^2=0.00
Gujarat	GENBUP (0.001773,0.010), GTCTUP (0.000425,0.008)	Wald Chi^2=30.2, P>Chi^2=0.0044

Haryana	SWBUP (-0.00691,0.002), CBCUP (-0.00292,0.021), SCENUP (0.002922,0.016), GTCTUP (0.001562,0.001)	Wald Chi^2=55.25, P>Chi^2=0,00
Himachal Pradesh	NPBUP (-0.0011,0.001)	Wald Chi^2=23.39, P>Chi^2=0.0094
Karnataka	NPBUP (-0.000513,0.012), CBCUP (-0.00162,0.050), SNTSUP (-0.001791,0.025), NBBUP (-0.001564,0.002), SCENUP (0.001915,0.043)	Wald Chi^2=39.31, P>Chi^2=0.0001
Kerala	SNCSUP (-0.00963,0.001), SCENUP (0.00214,0.019)	Wald Chi^2=31.32, P>Chi^2=0.003
Madhya Pradesh	SWBUP (-0.00122,0.044), NPBUP (-0.00106,0.013), GTCTUP (0.000655,0.006), GFTBBUP (0.002381,0.003)	Wald Chi^2=121.11, P>Chi^2=0.00
Maharashtra	SFTBUP (0.000472,0.037), GFSTBUP (0.00052,0.043), SDGUP (0.00176,0.041)	Wald Chi^2=63.39, P>Chi^2=0.00
Orissa	CBCUP (-0.00134,0.039), SFUUP (0.001378,0.012)	Wald Chi^2=34.5, P>Chi^2=0.0046
Punjab	NPBUP (-0.00217,0.010), CBCUP (-0.0042,0.002), SCENUP (0.00143,0.011)	Wald Chi^2=55.33, P>Chi^2=0.00
Rajasthan	STENUP (0.000942,0.024), GENBUP (0.002368,0.006)	Wald Chi^2=51.14, P>Chi^2=0.00
Tamil Nadu	SWBUP (-0.01049,0.00), TLMGUP (0.000312,0.039)	Wald Chi^2=101.83, P>Chi^2=0.00
Uttar Pradesh	NPBUP (-0.000417,0.022), SNTSUP (-0.001147,0.044), CTFUP (0.000586,0.020), GENBUP (0.003142,0.002), SFUUP (0.001621,0.010)	Wald Chi^2=91.35, P>Chi^2=0,00
West Bengal	NPBUP (-0.014541,0.00), GTFUP (0.0016652,0.001), GFSTBUP (0.0000138,0.050)	Wald Chi^2=116.92, P>Chi^2=0.00

After looking into the significant determinants of primary and upper primary levels of education, factors which are responsible for variation in the efficiency score corresponding to the primary level of education are given below. It is evident from the empirical findings that poor infrastructural facilities like percentage of schools without building (SWBP), percentage of classrooms in 'bad' condition (CBCP), percentage of single teacher schools (SNTSP), percentage of single classroom schools (SNCSP) and percentage of schools with no blackboard (NBBP) negatively affect output oriented technical efficiency score. The favourable indicators like percentage of schools with drinking water facility (DWFP), percentage of schools with common toilet facility (CTFP) and percentage of schools with girls' toilet facility (GTFP) are also important in explaining the efficiency score. TEOUT score is positively and significantly influenced by the social indicators like percentage of SC enrolment (SCENP), percentage of ST enrolment (STENP), percentage of girls enrolment to boys (GENBP) and percentage of schools with girls' toilet to common toilet (GTCTP). In case of policy indicators the following factors turned out to be significant in primary level- percentage of students getting free text books (SFTBP), percentage of girls getting free text books to boys (GFTBBP), percentage of students getting free stationery (SFSTP), percentage of girls getting free stationery to boys (GFSTBP) and percentage of schools received TLM grant (TLMGP).

Considering the upper primary level of education the poor infrastructural variables such as percentage of schools without building (SWBUP), percentage of schools with no pucca building (NPBUP), percentage of classrooms in 'bad' condition (CBCUP), percentage of single teacher schools (SNTSUP), percentage of single classroom schools (SNCSUP) and percentage of schools with no blackboard (NBBUP) turned out to be negatively significant factors. The TEOUT is positively affected by the favourable indicators namely percentage of schools with

common toilet facility (CTFUP) and percentage of schools with girls' toilet facility (GTFUP). For the social variables percentage of SC enrolment (SCENUP), percentage of ST enrolment (STENUP), percentage of girls enrolment to boys (GENBUP) and percentage of schools with girls' toilet to common toilet (GTCTUP) are the important factors in the variation of output oriented technical efficiency score. Considering the policy indicators there are some factors which have positive impact on the efficiency score. TEOUT is significantly influenced by percentage of girls getting free text books to boys (GFTBBUP), percentage of students getting free uniforms (SFUUP), percentage of girls getting free stationery to boys (GFSTBUP), percentage of schools received SD grant (SDGUP) and percentage of schools received TLM grant (TLMGUP).

A comparision of the factors influencing TEOUT of primary and upper primary levels of education highlights that ***following are the common factors for both the levels of education which have significant impact in explaining the variation of efficiency score.*** In case of poor infrastructural facilities, percentage of schools without building (SWB), percentage of classrooms in 'bad' condition (CBC), percentage of single teacher schools (SNTS), percentage of single classroom schools (SNCS) and percentage of schools with no blackboard (NBB) turned out to be negatively significant determinants in variation of output oriented technical efficiency score. Considering favourable infrastructural indicators, percentage of schools with common toilet facility (CTF) and percentage of schools with girls' toilet facility (GTF) have a positive significant impact on the efficiency score. For the social indicators, percentage of SC enrolment (SCEN), percentage of ST enrolment (STEN), percentage of girls enrolment to boys (GENB) and percentage of schools with girls' toilet to common toilet (GTCT) are becoming significant indicators in explaining the efficiency score. There are three indicators which have a positive significant impact on the TEOUT score under the policy variables, namely percentage of girls getting free text books to boys (GFTBB), percentage of girls getting free stationery to boys (GFSTB) and percentage of schools received TLM grant (TLMG).

3.5 Conclusions

The present chapter estimates the output oriented technical efficiency of primary and upper primary levels of education for the major selected states using nonparametric data envelopment analysis over the period 2005-06 to 2013-14 considering each district as a producing unit. State specific average (SSA) of TEOUT calculated on the basis of the average value of the TEOUT score of all the districts and all points of the study period for any particular state is also computed. The study also finds the relationship between the output oriented technical efficiency score and the factors responsible for variation of TEOUT level. The important findings of the chapter can be summarized as follows:

The empirical results reveal that not all the districts are fully technically efficient in terms of producing the maximum level of output using given amount of input. Only a small percentage of the districts are perfectly efficient (15.62% for primary and 7.22% for upper primary). Also, considering state specific average (SSA) it is found that there is a wide variation of TEOUT score among the selected major states of India at both primary and upper primary levels of education. The grand mean of output oriented technical efficiency for all the states taken together turned out to be 0.956 and 0.918 for primary and upper primary levels of education respectively. The result shows that grand mean level of efficiency for upper primary level of education is low as compared to the primary level of education. The estimated results suggest that the efficiency level has increased for both the levels of education over the study period. For primary level, the states for which SSA of TEOUT is higher than grand mean are namely AP, AS, BH, GJ, HP, KA, KE, MP and TN, while AP, AS, BH, GJ, HP, KA, KE, MH and TN have lower CV than grand mean of CV. It can be shown that for the state KE (0.017) standard deviation of mean TEOUT is lowest. The higher values for SSA have been observed for the states AS (0.982) and KE (0.980). The lowest value occurs for the state PN (0.901). From the empirical analysis it is clearly evident that most of the districts (61.66%) have higher than SSA value.

Coming into the upper primary level of education, the empirical result shows that in case of KE, the district wise (0.910 to 1) gap between the highest and lowest mean TEOUT is least. On the other hand the gap is largest for UP (0.437 to 1). The maximum and minimum values for SSA of TEOUT score have been depicted by HP and UP respectively and the values are 0.981 and 0.784. On the basis of the performance that is measured by the percentage of the districts below the SSA score, it is observable that KE stands on the top as only 28.57% of districts below the level and KA stands on the bottom with a notable 51.85% of districts below the average. For upper primary level, the states for which SSA of TEOUT is higher than grand mean are namely AP, AS, GJ, HP, KA, KE, MH, PN, RA and TN and AS, BH, GJ, HP, KA, KE, MH, PN, TN and UP have lower CV than grand mean of CV. It is depicted from the result that most of districts (55.75%) have higher than SSA value and thus it is found that bulk of the districts have their efficiency above the mean of SSA level.

The comparison of TEOUT of primary and upper primary levels of education suggests that-(i) on an average TEOUT is larger for the primary as compared to the upper primary, (ii) higher percentage of the districts are technically efficient (15.62%) for primary as compared to upper primary (7.22%) and (iii) the states such as AP, AS, GJ, HP, KA, KE, and TN have SSA of TEOUT is higher than grand mean for both primary and upper primary levels**.** The comparison of CV with respect to grand CV reveals that these states except the state AP also have lower CV as compared to grand mean of CV for both the primary as well as upper primary level.

The state specific results of panel regression highlight that infrastructural variables, school specific favourable variables, social indicators and policy variables are important in explaining output oriented technical efficiency scores for both primary and upper primary levels of education. The relationship between the estimated output oriented technical efficiency and the determinants reveals that efficiency score of the districts is negatively related to poor infrastructural facilities whereas the relationship is positive with school specific favourable, social and policy variables.

The determinants that affect TEOUT of the primary level are discussed below. The result indicates that TEOUT is negatively influenced by poor infrastructural facilities such as percentage of schools without building, percentage of classrooms in 'bad' condition, percentage of single teacher schools, percentage of single classroom schools and percentage of schools with no blackboard. TEOUT is positively influenced by the favourable indicators like percentage of schools with drinking water facility, percentage of schools with common toilet facility and percentage of schools with girls' toilet facility. The positive significant social indicators for TEOUT are percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet. Percentage of students getting free text books, percentage of girls getting free text books to boys, percentage of students getting free stationery, percentage of girls getting free stationery to boys and percentage of schools received TLM grant are significant policy indicators that are positively associated with TEOUT.

Similarly, TEOUT of the upper primary level of education is negatively related with the poor infrastructural facilities like percentage of schools without building, percentage of schools with no pucca building, percentage of classrooms in 'bad' condition, percentage of single teacher schools, percentage of single classroom schools and percentage of schools with no blackboard. The TEOUT is positively influenced by the favourable variables like percentage of schools with common toilet facility and percentage of schools with girls' toilet facility. The significant social factors on TEOUT are percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet. Percentage of girls getting free text books to boys, percentage of students getting free uniforms, percentage of girls getting free stationery to boys, percentage of schools received SD grant and percentage of schools received TLM grant are major significant policy indicators that are positively related to TEOUT.

After the identification of significant determinants for both primary and upper primary levels it is also possible to find out the common factors that influence the efficiency of both the levels. TEOUT is negatively influenced by some poor infrastructural facilities such as percentage of schools without building,

percentage of classrooms in ‘bad’ condition, percentage of single teacher schools, percentage of single classroom schools and percentage of schools with no blackboard for both primary and upper primary levels. On the other hand TEOUT score is positively influenced by favourable infrastructural indicators such as percentage of schools with common toilet facility and percentage of schools with girls’ toilet facility for both primary and upper primary levels. Percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls’ toilet to common toilet are the significant social indicators that are responsible for variation in the efficiency score. Percentage of girls getting free text books to boys, percentage of girls getting free stationery to boys and percentage of schools received TLM grant are three major policy indicators that are positively associated with TEOUT score.

Thus the present analysis indicates that in order to improve the level of output oriented technical efficiency the emphasis on different aspects of poor infrastructure as well as favourable, social and policy indicators as explained above should be given at the district as well as state level at both the primary and upper primary levels of education.

A related question is the extent of inefficiency of different inputs used in the production process, which is the subject matter of the next chapter.

Appendix-A3

District wise Output Oriented Technical Efficiency Scores at Primary Level of Education

A3.1 Andhra Pradesh	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Adilabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Anantpur	0.804	0.893	0.891	0.974	0.950	1.000	0.938	1.000	0.977	0.936
Chittor	0.781	0.902	0.920	0.892	0.959	0.910	1.000	1.000	1.000	0.929
Cuddapah	0.933	1.000	1.000	0.943	1.000	0.938	0.979	1.000	0.907	0.967
East Godavari	0.921	0.978	0.959	0.896	0.959	0.862	0.873	1.000	0.913	0.929
Guntur	0.857	1.000	0.951	0.968	0.951	0.760	0.723	1.000	0.864	0.897
Hyderabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karimnagar	1.000	0.996	0.965	1.000	0.982	0.993	0.999	1.000	1.000	0.993
Khammam	0.827	1.000	0.980	0.997	0.951	1.000	0.994	1.000	1.000	0.972
Krishna	0.876	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.986
Kurnool	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mahbubnagar	1.000	0.973	0.952	0.958	0.960	1.000	0.985	1.000	1.000	0.981
Medak	1.000	1.000	1.000	1.000	1.000	0.944	0.961	1.000	1.000	0.989
Nalgonda	0.821	0.907	0.921	0.930	0.987	0.978	0.986	1.000	1.000	0.948
Nellore	0.825	0.845	0.868	0.928	1.000	0.914	0.991	1.000	1.000	0.930
Nizamabad	1.000	0.923	0.929	0.957	0.982	1.000	0.956	1.000	1.000	0.972
Prakasam	0.847	0.980	0.973	0.892	0.946	0.845	0.810	1.000	0.851	0.905
Rangareddi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Srikakulam	0.838	0.992	1.000	1.000	0.993	1.000	1.000	1.000	1.000	0.980
Visakhapatnam	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Vizianagaram	0.857	0.903	0.864	0.981	1.000	0.972	1.000	1.000	1.000	0.953
Warangal	0.945	1.000	0.984	0.976	0.901	0.920	0.880	1.000	0.873	0.942
West Godavari	0.888	0.983	0.958	1.000	0.991	0.981	0.997	1.000	1.000	0.978
Average	0.914	0.969	0.962	0.969	0.979	0.957	0.960	1.000	0.973	0.965

A3.2 Assam	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Baperta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.982	1.000	0.998
Bongaigaon	0.939	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993
Cachar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Darrang	0.983	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Dhemaji	0.842	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.982
Dhubri	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Dibrugarh	0.748	0.875	0.837	0.858	0.955	0.975	1.000	0.951	1.000	0.911
Goalpara	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Golaghat	0.800	1.000	1.000	1.000	0.903	0.987	0.922	1.000	1.000	0.957

Hailakandi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jorhat	0.808	0.840	1.000	0.957	1.000	1.000	0.797	0.942	0.981	0.925
Kamrup	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karbi Anglong	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karimganj	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kokrajhar	0.761	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.973
Lakhimpur	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Marigaon	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Nagaon	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Nalbari	0.916	1.000	1.000	1.000	0.970	1.000	0.978	1.000	1.000	0.985
Sibsagar	0.883	1.000	1.000	0.893	1.000	1.000	1.000	1.000	1.000	0.975
Sonitpur	1.000	0.827	0.957	0.969	0.912	1.000	1.000	0.913	0.930	0.945
Tinsukia	1.000	1.000	0.936	1.000	1.000	1.000	0.883	0.911	0.943	0.964
Average	0.936	0.979	0.988	0.985	0.988	0.998	0.981	0.986	0.993	0.982

A3.3 Bihar	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Araria	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.853	0.903	0.973
Aurangabad (Bihar)	0.973	1.000	1.000	1.000	1.000	1.000	1.000	0.974	1.000	0.994
Banka	0.731	0.949	1.000	1.000	1.000	1.000	1.000	0.906	0.921	0.945
Begusarai	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bhagalpur	0.792	0.826	1.000	1.000	1.000	1.000	1.000	0.896	0.978	0.944
Bhojpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.881	0.904	0.976
Buxar	0.912	0.997	1.000	1.000	1.000	1.000	1.000	0.939	0.963	0.979
Darbhanga	0.798	0.855	0.984	1.000	1.000	1.000	1.000	0.858	0.897	0.932
Gaya	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.903	0.948	0.983
Gopalganj	0.963	0.991	1.000	1.000	1.000	1.000	1.000	0.913	0.915	0.976
Jamui	0.789	0.931	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.969
Jehanabad	0.976	0.957	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993
Kaimur (Bhabua)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.860	0.965	0.981
Katihar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Khagaria	0.939	0.858	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.977
Kishanganj	0.936	0.813	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.972
Lakhisarai	0.882	0.951	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.981
Madhepura	0.950	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.994
Madhubani	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.900	1.000	0.989
Munger	0.773	0.968	1.000	1.000	1.000	1.000	1.000	0.863	0.918	0.947
Muzaffarpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.868	0.930	0.978
Nalanda	0.812	0.977	0.912	1.000	1.000	1.000	1.000	0.763	0.918	0.931
Nawada	0.807	0.843	0.995	1.000	1.000	1.000	1.000	0.875	1.000	0.947
Paschim Champaran	0.871	0.878	1.000	1.000	1.000	1.000	1.000	0.804	0.865	0.935
Patna	0.977	0.804	1.000	1.000	0.804	0.875	1.000	0.676	0.740	0.875

Purba Champaran	1.000	0.983	1.000	1.000	1.000	1.000	1.000	0.866	0.885	0.970
Purnia	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Rohtas	0.858	0.917	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.975
Saharsa	0.815	0.980	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.977
Samastipur	0.989	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
Saran	0.899	0.946	1.000	1.000	1.000	1.000	1.000	0.852	0.937	0.959
Sheikhpura	1.000	0.829	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.981
Sheohar	0.871	0.681	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.950
Sitamarhi	1.000	0.887	1.000	1.000	1.000	1.000	1.000	0.935	0.997	0.980
Siwan	0.973	0.947	1.000	1.000	1.000	1.000	1.000	0.982	1.000	0.989
Supaul	0.852	0.949	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.978
Vaishali	0.986	1.000	1.000	1.000	1.000	1.000	1.000	0.954	0.981	0.991
Average	0.922	0.938	0.997	1.000	0.995	0.997	1.000	0.928	0.961	0.971

A3.4 Gujarat	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ahmedabad	1.000	1.000	1.000	1.000	1.000	1.000	0.990	1.000	1.000	0.999
Amreli	0.869	1.000	0.876	1.000	1.000	1.000	1.000	1.000	1.000	0.972
Anand	0.955	0.912	0.953	0.853	0.838	0.828	0.802	0.973	1.000	0.902
Banas Kantha	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.911	0.938	0.983
Bharuch	0.778	0.900	0.894	0.887	0.887	0.960	0.944	0.953	1.000	0.911
Bhavnagar	0.913	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.990
Dohad	0.916	1.000	1.000	1.000	1.000	1.000	1.000	0.950	1.000	0.985
Gandhinagar	0.887	0.962	1.000	0.909	0.869	0.901	0.903	1.000	0.841	0.919
Jamnagar	1.000	1.000	0.948	1.000	1.000	1.000	0.936	0.863	0.904	0.961
Junagadh	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.989	0.990	0.998
Kachchh	1.000	0.956	1.000	1.000	1.000	1.000	1.000	0.927	0.966	0.983
Kheda	0.958	0.952	0.952	0.969	0.912	0.920	0.958	0.934	0.958	0.946
Mahesana	0.922	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Narmada	1.000	0.987	0.972	0.931	0.938	0.924	0.902	0.818	0.857	0.925
Navsari	0.896	0.959	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.984
Panch Mahals	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Patan	0.643	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.960
Porbandar	1.000	0.999	0.878	1.000	0.952	0.950	0.905	0.987	0.960	0.959
Rajkot	0.937	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	0.988
Sabar Kantha	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	1.000	1.000
Surat	0.844	0.903	1.000	0.835	1.000	1.000	1.000	1.000	0.952	0.948
Surendranagar	0.969	1.000	1.000	0.987	1.000	1.000	0.970	0.991	0.999	0.991
The Dangs	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Vadodara	1.000	0.726	0.593	0.748	0.735	0.729	1.000	0.868	0.899	0.811
Valsad	1.000	0.908	0.922	1.000	0.782	0.798	0.814	0.909	0.967	0.900
Average	0.939	0.967	0.958	0.965	0.956	0.96	0.965	0.963	0.969	0.960

A3.5 Haryana	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Ambala	1.000	0.696	0.844	0.783	0.991	0.747	0.847	0.955	1.000	0.874
Bhiwani	0.435	0.926	0.942	0.872	1.000	1.000	1.000	0.960	1.000	0.904
Faridabad	0.976	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.997
Fatehabad	1.000	0.752	0.798	0.667	0.858	0.684	0.698	0.883	0.888	0.803
Gurgaon	1.000	0.942	1.000	1.000	1.000	0.729	0.889	0.943	1.000	0.945
Hisar	0.567	1.000	0.840	1.000	0.832	0.936	0.969	0.991	1.000	0.904
Jhajjar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jind	0.713	0.819	0.864	0.803	0.890	0.800	1.000	0.940	1.000	0.870
Kaithal	1.000	0.931	1.000	0.942	1.000	0.942	0.967	0.997	1.000	0.975
Karnal	0.578	0.828	0.713	1.000	0.839	0.809	1.000	0.919	0.943	0.848
Kurukshetra	0.931	0.756	0.882	0.831	0.900	0.734	0.899	0.907	1.000	0.871
Mahendragarh	0.512	1.000	0.924	0.851	0.894	0.864	0.773	0.888	0.960	0.852
Panchkula	0.552	0.886	0.747	0.989	0.925	0.763	0.760	1.000	1.000	0.847
Panipat	0.474	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.942
Rewari	0.937	1.000	1.000	0.957	0.881	0.788	0.787	0.833	0.852	0.893
Rohtak	0.933	1.000	1.000	0.854	1.000	0.891	1.000	1.000	1.000	0.964
Sirsa	1.000	1.000	1.000	0.918	0.994	0.842	0.874	1.000	1.000	0.959
Sonipat	1.000	1.000	1.000	0.878	0.960	0.935	1.000	0.953	1.000	0.970
Yamunanagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.891	0.937	0.981
Average	0.822	0.923	0.924	0.913	0.946	0.866	0.919	0.950	0.978	0.916

A3.6 Himachal Pradesh	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Bilaspur (H.P)	0.916	0.850	0.888	0.878	0.888	0.848	0.846	0.889	0.871	0.875
Chamba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Hamirpur (H.P)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kangra	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kinnaur	1.000	0.965	1.000	0.942	0.959	0.936	1.000	1.000	1.000	0.978
Kullu	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lahul & Spiti	1.000	1.000	0.926	1.000	1.000	0.858	0.935	0.906	0.915	0.949
Mandi	0.964	1.000	1.000	1.000	0.982	0.920	0.867	0.915	0.916	0.952
Shimla	0.886	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.987
Sirmaur	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Solan	0.892	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.988
Una	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.970	0.985	0.984	0.985	0.986	0.964	0.971	0.976	0.975	0.977

A3.7 Karnataka	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Bagalkot	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bangalore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bangalore Rural	0.966	0.927	0.988	1.000	0.898	0.914	1.000	0.943	0.958	0.955
Balgaum	1.000	1.000	1.000	1.000	0.946	1.000	1.000	1.000	1.000	0.994
Bellary	1.000	1.000	1.000	1.000	1.000	0.987	1.000	0.872	0.931	0.977
Bidar	1.000	1.000	1.000	1.000	1.000	0.987	1.000	1.000	1.000	0.999
Bijapur	1.000	1.000	1.000	1.000	1.000	0.987	1.000	1.000	1.000	0.999
Chamrajnagar	1.000	1.000	1.000	1.000	0.932	0.717	0.663	0.852	0.863	0.892
Chikmagalur	0.928	0.963	0.922	0.960	0.911	0.818	1.000	0.892	0.911	0.923
Chitradurga	1.000	1.000	1.000	0.934	1.000	0.912	0.842	0.861	0.889	0.938
Dakshina Kannada	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Davangere	0.991	0.956	1.000	0.965	0.978	1.000	1.000	0.943	0.956	0.977
Dharwad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Gadag	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993	0.999
Gulbarga	1.000	1.000	1.000	0.986	1.000	0.884	1.000	0.959	1.000	0.981
Hassan	1.000	1.000	1.000	1.000	1.000	0.856	0.816	0.835	0.856	0.929
Haveri	1.000	1.000	1.000	1.000	1.000	0.987	1.000	0.937	0.940	0.985
Kodagu	0.858	0.845	0.822	1.000	1.000	1.000	1.000	1.000	1.000	0.947
Kolar	0.912	1.000	0.955	1.000	0.914	0.524	1.000	0.871	1.000	0.908
Koppal	1.000	1.000	1.000	1.000	1.000	0.987	1.000	0.914	0.916	0.980
Mandya	0.864	0.905	0.701	1.000	0.903	0.736	0.745	1.000	0.833	0.854
Mysore	1.000	0.908	0.860	1.000	1.000	0.901	1.000	0.894	0.869	0.937
Raichur	1.000	1.000	1.000	1.000	1.000	0.995	1.000	0.924	0.969	0.988
Shimoga	0.920	0.876	0.904	0.942	0.981	0.886	0.903	0.884	0.924	0.913
Tumkur	1.000	0.922	0.965	0.998	0.986	0.978	1.000	1.000	1.000	0.983
Udupi	1.000	1.000	0.893	1.000	1.000	1.000	0.892	1.000	1.000	0.976
Uttara Kannada	0.921	1.000	0.909	0.940	0.958	1.000	1.000	1.000	1.000	0.970
Average	0.976	0.974	0.960	0.990	0.978	0.928	0.958	0.947	0.956	0.963

A3.8 Kerala	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Alappuzha	0.941	0.983	1.000	1.000	0.993	1.000	0.902	0.940	0.938	0.966
Ernakulam	0.958	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995
Idukki	1.000	1.000	1.000	1.000	1.000	1.000	0.911	1.000	1.000	0.990
Kannur	1.000	0.997	1.000	0.972	0.985	0.948	0.909	0.979	1.000	0.977
Kasaragod	0.962	1.000	1.000	0.941	1.000	0.924	1.000	1.000	0.956	0.976
Kollam	1.000	0.998	1.000	1.000	1.000	0.967	0.996	0.915	0.968	0.983
Kottayam	0.945	0.963	0.928	0.941	0.924	0.957	0.962	0.948	0.994	0.951
Kozhikode	0.971	0.979	1.000	1.000	1.000	1.000	1.000	0.954	0.974	0.986
Malappuram	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Palakkad	0.920	1.000	1.000	1.000	1.000	1.000	0.984	1.000	0.941	0.983
Pathanamthitta	1.000	1.000	0.966	0.978	0.915	0.861	0.843	0.963	0.969	0.944
Thiruvananthapuram	1.000	0.952	0.948	0.987	0.949	1.000	0.963	0.988	1.000	0.976
Thrissur	1.000	0.977	1.000	0.927	0.986	1.000	0.978	1.000	1.000	0.985
Wayanad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.978	0.989	0.989	0.982	0.982	0.976	0.961	0.978	0.981	0.980

A3.9 Madhya Pradesh	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Anuppur	1.000	1.000	1.000	1.000	1.000	1.000	0.863	0.896	0.911	0.963
Ashoknagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.979	0.970	0.994
Balaghat	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Barwani	1.000	1.000	1.000	1.000	1.000	0.984	1.000	1.000	1.000	0.998
Betul	1.000	0.978	0.990	0.991	0.860	0.870	0.861	0.909	0.878	0.926
Bhind	0.979	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Bhopal	1.000	1.000	1.000	0.784	1.000	1.000	1.000	1.000	1.000	0.976
Burhanpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.861	0.985
Chhatarpur	1.000	1.000	1.000	1.000	1.000	0.996	1.000	1.000	1.000	1.000
Chhindwara	1.000	0.988	0.979	0.915	0.842	0.847	0.900	0.905	0.864	0.916
Damoh	0.995	1.000	1.000	1.000	1.000	1.000	1.000	0.970	0.958	0.991
Datia	0.936	1.000	1.000	1.000	1.000	0.974	1.000	1.000	1.000	0.990
Dewas	0.902	0.990	1.000	0.982	0.858	0.907	0.962	0.988	0.852	0.938
Dhar	1.000	1.000	1.000	1.000	1.000	0.997	1.000	0.977	0.856	0.981
Dindori	1.000	1.000	1.000	0.983	0.963	1.000	1.000	0.997	0.979	0.991
Guna	1.000	0.867	0.892	0.904	0.922	0.971	0.997	1.000	1.000	0.950
Gwalior	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Harda	0.791	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.966	0.973
Hoshangabad	0.982	1.000	0.973	1.000	0.981	0.972	0.982	1.000	0.900	0.977
Indore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jabalpur	0.755	0.793	0.796	0.785	0.949	0.857	1.000	0.967	1.000	0.878
Jhabua	1.000	1.000	1.000	0.768	1.000	1.000	1.000	0.953	1.000	0.969
Katni	0.898	1.000	1.000	1.000	1.000	0.979	1.000	1.000	0.864	0.971
Khandwa	0.974	0.683	0.797	0.731	0.858	0.767	1.000	0.907	0.877	0.844
Khargone	0.887	1.000	1.000	0.532	0.593	0.587	0.767	0.887	0.883	0.793
Mandla	1.000	1.000	0.999	0.972	1.000	1.000	1.000	1.000	1.000	0.997
Mandsaur	0.956	0.910	0.938	1.000	0.964	0.984	1.000	0.990	1.000	0.971
Morena	1.000	1.000	1.000	1.000	1.000	0.998	1.000	1.000	1.000	1.000
Narsinghpur	0.856	0.865	0.978	1.000	0.974	1.000	1.000	1.000	1.000	0.964
Neemuch	0.942	0.934	0.965	0.969	0.935	0.966	1.000	1.000	1.000	0.968
Panna	1.000	1.000	1.000	1.000	1.000	0.979	1.000	1.000	0.944	0.991
Raisen	1.000	1.000	1.000	1.000	1.000	0.970	1.000	0.869	0.836	0.964
Rajgarh	0.955	1.000	1.000	1.000	1.000	0.964	1.000	0.928	0.894	0.971
Ratlam	1.000	1.000	1.000	1.000	1.000	0.984	1.000	0.930	0.959	0.986

Rewa	1.000	0.981	1.000	1.000	1.000	0.986	1.000	1.000	1.000	0.996
Sagar	0.823	1.000	1.000	1.000	1.000	0.984	1.000	0.942	0.937	0.965
Satna	1.000	1.000	1.000	1.000	1.000	0.984	1.000	1.000	1.000	0.998
Sehore	1.000	1.000	1.000	1.000	1.000	0.993	1.000	0.953	0.897	0.983
Seoni	0.963	0.990	0.961	0.931	0.901	0.855	0.889	0.906	0.867	0.918
Shahdol	0.950	0.649	0.684	0.762	0.785	0.716	0.758	0.942	0.904	0.794
Shajapur	0.983	1.000	0.998	1.000	0.965	0.952	1.000	0.866	0.859	0.958
Sheopur	1.000	1.000	1.000	1.000	1.000	0.990	1.000	1.000	1.000	0.999
Shivpuri	1.000	1.000	1.000	1.000	1.000	0.987	1.000	1.000	0.987	0.997
Sidhi	1.000	1.000	1.000	0.673	0.652	0.589	1.000	0.992	0.994	0.878
Tikamgarh	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Ujjain	0.722	0.917	0.926	1.000	0.923	0.986	0.997	0.924	0.952	0.927
Umaria	1.000	1.000	1.000	1.000	1.000	0.978	1.000	0.984	0.961	0.991
Vidisha	1.000	1.000	1.000	1.000	1.000	0.982	1.000	0.912	0.906	0.978
Average	0.964	0.97	0.977	0.952	0.957	0.949	0.979	0.968	0.948	0.962

A3.10 Maharashtra	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ahmadnagar	0.903	0.895	0.943	0.891	0.903	0.857	0.959	0.965	1.000	0.924
Akola	0.921	0.917	0.935	0.908	0.894	0.899	0.890	0.910	0.968	0.916
Amravati	0.935	1.000	0.965	0.911	0.910	0.852	0.888	0.972	1.000	0.937
Aurangabad (MH)	0.888	0.961	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.983
Bhandara	1.000	0.834	1.000	1.000	0.919	0.835	0.933	1.000	1.000	0.947
Bid	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Buldana	0.966	1.000	0.985	1.000	0.979	0.987	1.000	1.000	1.000	0.991
Chandrapur	0.891	0.803	0.764	0.819	0.804	0.742	0.870	0.951	1.000	0.849
Dhule	0.975	1.000	1.000	1.000	1.000	1.000	1.000	0.896	0.911	0.976
Gadchiroli	0.959	0.999	1.000	1.000	0.954	0.980	0.961	0.959	0.943	0.973
Gondiya	0.979	0.882	0.864	0.904	0.877	0.850	1.000	1.000	1.000	0.928
Hingoli	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jalgaon	0.931	0.937	0.982	1.000	1.000	0.892	1.000	0.950	0.939	0.959
Jalna	1.000	0.975	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.997
Kolhapur	0.957	1.000	0.974	1.000	1.000	0.903	0.964	0.998	1.000	0.977
Latur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mumbai	1.000	0.886	1.000	0.824	0.807	1.000	1.000	1.000	1.000	0.946
Mumbai (Suburban)	1.000	0.806	1.000	1.000	0.769	1.000	1.000	1.000	1.000	0.953
Nagpur	0.881	0.839	0.846	0.792	0.769	1.000	0.745	0.970	0.953	0.866
Nanded	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Nandurbar	0.984	0.984	1.000	1.000	1.000	1.000	1.000	0.942	1.000	0.990
Nashik	1.000	0.838	0.969	0.927	0.992	1.000	1.000	0.931	0.991	0.961
Osmanabad	1.000	1.000	1.000	1.000	1.000	0.878	0.996	1.000	1.000	0.986
Parbhani	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Pune	0.814	0.844	0.874	0.878	0.827	0.806	0.850	0.968	0.992	0.873
Raigarh (MH)	0.827	0.836	0.904	0.880	0.886	0.908	0.956	0.957	1.000	0.906
Ratnagiri	0.844	0.856	0.917	0.878	0.879	0.871	1.000	1.000	1.000	0.916
Sangli	0.784	0.850	0.911	0.904	0.942	0.982	1.000	1.000	1.000	0.930
Satara	0.882	0.878	0.920	0.937	0.950	0.910	1.000	1.000	1.000	0.942
Sindhudurg	0.762	0.953	1.000	0.983	0.945	0.997	1.000	1.000	1.000	0.960
Solapur	0.932	0.953	0.953	0.970	0.955	0.968	0.988	1.000	1.000	0.969
Thane	0.844	0.940	0.920	0.970	1.000	1.000	1.000	1.000	1.000	0.964
Wardha	0.991	0.850	0.863	0.830	0.844	0.743	0.809	0.950	0.929	0.868
Washim	0.995	1.000	0.943	0.988	1.000	0.984	0.991	0.927	1.000	0.981
Yavatmal	0.917	0.961	0.796	0.973	0.947	0.932	1.000	1.000	1.000	0.947
Average	0.936	0.928	0.949	0.948	0.936	0.936	0.966	0.978	0.989	0.952

A3.11 Orissa	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Angul	1.000	0.780	0.971	0.934	0.903	0.893	1.000	1.000	0.971	0.939
Balasore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bargarh	0.840	0.894	0.536	0.753	1.000	0.665	0.821	1.000	0.876	0.821
Bhadrak	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bolangir	0.955	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.994
Boudh	1.000	0.300	0.456	1.000	1.000	0.932	1.000	1.000	1.000	0.854
Cuttack	0.794	1.000	1.000	1.000	1.000	1.000	0.838	0.875	0.868	0.931
Deogarh	1.000	0.797	1.000	1.000	1.000	0.984	1.000	1.000	1.000	0.976
Dhenkanal	0.915	0.866	1.000	0.928	0.918	0.851	0.949	0.874	0.912	0.913
Gajapati	1.000	0.807	1.000	1.000	1.000	0.974	1.000	1.000	1.000	0.976
Ganjam	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.954	0.891	0.983
Jagatsinghpur	0.952	0.971	1.000	0.916	0.964	0.688	0.796	0.912	0.899	0.900
Jajpur	1.000	0.859	0.966	0.968	0.959	0.940	0.999	1.000	1.000	0.966
Jharsuguda	0.905	0.858	0.951	0.884	1.000	0.748	0.890	0.995	0.947	0.909
Kalahandi	0.921	1.000	1.000	1.000	1.000	0.989	1.000	0.949	1.000	0.984
Kandhamal	1.000	0.946	1.000	1.000	1.000	0.975	1.000	1.000	0.959	0.987
Kendrapara	1.000	1.000	0.929	0.899	0.882	0.859	0.948	0.936	0.932	0.932
Keonjhar	0.990	0.812	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.978
Khordha	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Koraput	1.000	0.751	1.000	1.000	1.000	0.982	1.000	0.880	0.879	0.944
Malkangiri	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mayurbhanj	1.000	0.808	1.000	1.000	1.000	0.977	1.000	1.000	1.000	0.976
Nawarangapur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Nayagarh	0.853	0.664	0.857	0.883	0.887	0.906	1.000	0.915	0.882	0.872
Nuapada	1.000	0.965	1.000	1.000	1.000	0.995	1.000	1.000	1.000	0.996
Puri	0.939	0.923	1.000	0.845	0.934	0.821	1.000	0.971	0.946	0.931
Rayagada	0.986	0.795	1.000	1.000	1.000	0.984	1.000	0.916	0.976	0.962

Sambalpur	0.771	0.699	0.780	0.913	0.938	0.795	1.000	1.000	0.990	0.876
Sonepur	1.000	0.659	0.846	0.855	0.877	0.863	0.984	0.847	0.853	0.865
Sundargarh	1.000	1.000	1.000	0.859	1.000	1.000	0.883	0.931	1.000	0.964
Average	0.961	0.872	0.943	0.955	0.975	0.927	0.97	0.965	0.959	0.948

A3.12 Punjab	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Amritsar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bathinda	1.000	1.000	1.000	1.000	1.000	1.000	0.912	1.000	1.000	0.990
Faridkot	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Fatehgarh Sahib	0.595	0.664	0.874	0.785	0.785	0.712	0.693	0.959	1.000	0.785
Ferozepur	1.000	0.925	0.893	0.929	1.000	1.000	1.000	1.000	1.000	0.972
Gurdaspur	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.999
Hoshiarpur	0.996	1.000	0.958	0.881	0.747	0.638	0.620	0.984	0.962	0.865
Jalandhar	0.691	0.634	0.638	0.512	0.677	0.488	0.802	0.972	0.886	0.700
Kapurthala	0.648	0.810	0.776	0.628	0.883	0.596	0.580	1.000	0.936	0.762
Ludhiana	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mansa	1.000	0.944	0.806	0.936	0.878	0.991	0.915	0.966	0.982	0.935
Moga	1.000	1.000	1.000	1.000	1.000	0.978	1.000	1.000	1.000	0.998
Muktsar	0.940	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993
Nawanshahr	0.621	0.854	0.787	0.772	0.942	0.604	0.495	0.941	0.892	0.768
Patiala	0.689	0.622	0.819	0.802	0.879	1.000	0.672	0.995	0.930	0.823
Ropar	0.865	0.642	0.844	0.791	0.823	0.602	0.558	1.000	0.858	0.776
Sangrur	1.000	0.692	1.000	1.000	1.000	1.000	1.000	0.922	0.884	0.944
Average	0.885	0.870	0.906	0.884	0.918	0.859	0.838	0.985	0.961	0.901

A3.13 Rajasthan	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ajmer	1.000	0.982	1.000	1.000	0.888	0.904	0.869	0.949	0.945	0.949
Alwar	0.800	0.954	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.973
Banswara	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991	0.999
Baran	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Barmer	1.000	1.000	1.000	1.000	1.000	0.996	1.000	0.865	0.875	0.971
Bharatpur	1.000	1.000	1.000	1.000	1.000	0.966	0.979	1.000	0.985	0.992
Bhilwara	0.827	1.000	0.888	0.923	0.816	0.882	0.854	0.893	0.875	0.884
Bikaner	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.834	0.808	0.960
Bundi	0.892	0.889	0.865	0.941	0.855	0.881	0.885	0.907	0.890	0.889
Chittaurgarh	0.765	0.788	0.747	0.644	0.624	0.567	0.600	0.863	0.843	0.716
Churu	1.000	1.000	0.990	1.000	0.917	0.921	1.000	0.972	0.895	0.966
Dausa	0.957	0.993	1.000	1.000	1.000	1.000	1.000	0.994	1.000	0.994
Dhaulpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Dungarpur	0.978	0.988	0.983	1.000	1.000	1.000	1.000	0.880	0.870	0.967

Ganganagar	1.000	1.000	1.000	1.000	0.871	0.862	1.000	1.000	1.000	0.970
Hanumangarh	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jaipur	1.000	1.000	1.000	0.972	0.861	0.963	0.974	0.880	0.910	0.951
Jaisalmer	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jalor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.903	0.797	0.967
Jhalawar	0.942	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.980	0.991
Jhunjhunun	0.889	0.897	0.906	0.968	0.775	0.851	0.882	0.881	0.840	0.877
Jodhpur	0.825	0.883	0.821	1.000	0.836	0.932	0.918	0.817	1.000	0.892
Karauli	1.000	0.912	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.990
Kota	1.000	1.000	1.000	0.969	0.796	0.871	0.791	1.000	1.000	0.936
Nagaur	0.887	1.000	0.992	1.000	0.896	0.941	1.000	0.893	0.891	0.944
Pali	0.857	0.859	0.903	1.000	0.860	0.909	0.882	0.903	0.891	0.896
Rajsamand	0.922	1.000	1.000	1.000	1.000	1.000	1.000	0.927	0.904	0.973
Sawai Madhopur	0.823	0.953	0.946	1.000	0.937	1.000	1.000	0.983	1.000	0.960
Sikar	0.937	0.997	0.958	1.000	0.809	0.847	0.856	0.798	0.762	0.885
Sirohi	0.871	0.933	0.944	0.973	0.875	0.933	0.901	1.000	1.000	0.937
Tonk	0.838	0.925	0.941	0.996	0.845	0.948	0.943	0.911	0.884	0.915
Udaipur	0.807	0.887	0.901	0.930	0.862	0.929	0.928	1.000	0.856	0.900
Average	0.932	0.964	0.962	0.979	0.916	0.941	0.946	0.939	0.928	0.945

A3.14 Tamil Nadu	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Chennai	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Coimbatore	0.970	0.978	0.964	0.977	0.994	0.990	1.000	1.000	1.000	0.986
Cuddalore	0.993	1.000	1.000	1.000	0.978	0.985	0.977	0.898	0.867	0.966
Dharamapuri	0.930	0.928	1.000	1.000	1.000	0.930	0.827	0.873	0.866	0.928
Dindigul	1.000	1.000	0.962	0.996	1.000	0.990	1.000	1.000	1.000	0.994
Erode	0.851	0.909	0.858	0.909	0.957	0.917	0.891	1.000	1.000	0.921
Kancheepuram	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.988	0.999
Kanniyakumari	1.000	0.993	0.980	0.970	0.957	0.934	0.950	0.941	0.934	0.962
Karur	0.923	0.919	0.908	0.916	0.952	0.961	0.983	1.000	0.989	0.950
Krishanagari	1.000	1.000	1.000	1.000	0.974	1.000	1.000	0.967	0.901	0.982
Madurai	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Nagapattinam	1.000	1.000	0.992	0.987	1.000	0.992	0.983	0.996	0.922	0.986
Namakkal	0.975	0.993	1.000	1.000	0.956	0.930	0.926	0.944	0.907	0.959
Perambalur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pudukkottai	1.000	0.982	1.000	1.000	1.000	1.000	1.000	0.972	0.933	0.987
Ramanathapuram	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.964	0.996
Salem	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.930	0.916	0.983
Sivaganga	1.000	0.980	0.986	1.000	0.998	0.998	1.000	0.935	0.908	0.978
Thanjavur	0.963	0.945	0.951	0.949	0.944	0.920	0.924	0.931	0.901	0.936
The Nilgiris	0.883	0.897	0.910	0.954	0.889	0.994	0.947	0.969	0.935	0.931

Theni	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Thiruvallur	0.881	1.000	1.000	1.000	1.000	1.000	1.000	0.990	0.974	0.983
Thiruvarur	1.000	1.000	1.000	1.000	1.000	1.000	0.929	0.992	0.930	0.983
Thoothukkudi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Tiruchirappalli	0.912	0.913	0.941	0.950	0.996	1.000	1.000	1.000	1.000	0.968
Tirunelveli	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Tiruvannamalai	0.931	0.937	0.955	0.941	0.949	0.954	0.921	0.868	0.856	0.924
Vellore	0.972	0.968	1.000	1.000	1.000	1.000	1.000	0.766	0.807	0.946
Vilippuram	0.981	1.000	0.989	0.980	0.985	0.984	0.982	0.780	0.783	0.940
Virudhunagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.967	0.996
Average	0.972	0.978	0.980	0.984	0.984	0.983	0.975	0.958	0.942	0.973

A3.15 Uttar Pradesh	**TEOUT at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Agra	0.822	0.872	0.889	0.844	0.669	0.629	0.439	1.000	0.957	0.791
Aligarh	0.854	0.971	0.819	0.761	0.711	0.604	0.403	0.772	0.737	0.737
Allahabad	0.831	1.000	1.000	1.000	0.910	0.934	0.762	0.932	0.951	0.924
Ambedkar Nagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Auraiya	0.999	1.000	1.000	1.000	0.945	0.955	0.937	1.000	1.000	0.982
Azamgarh	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.941	0.921	0.985
Baghpat	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bahraich	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.783	0.785	0.952
Ballia	1.000	1.000	1.000	1.000	0.995	0.996	0.994	0.887	0.875	0.972
Balarampur	1.000	1.000	1.000	1.000	0.816	0.819	0.750	0.986	0.867	0.915
Banda	1.000	1.000	1.000	1.000	1.000	0.999	1.000	0.954	0.941	0.988
Barabanki	1.000	1.000	1.000	0.968	0.939	0.934	0.911	0.778	0.748	0.920
Bareilly	0.950	1.000	1.000	0.997	1.000	1.000	1.000	1.000	1.000	0.994
Basti	1.000	1.000	1.000	1.000	0.936	0.942	0.918	0.955	0.979	0.970
Bhadohi	1.000	1.000	1.000	0.840	0.689	0.609	0.514	0.934	0.910	0.833
Bijnor	0.918	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.944	0.985
Budaun	1.000	1.000	0.998	1.000	0.933	0.945	0.923	0.716	0.783	0.922
Bulandshahr	0.764	0.778	0.931	0.968	0.875	1.000	1.000	0.800	0.743	0.873
Chandauli	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Chitrakoot	1.000	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000	1.000
Deoria	0.954	1.000	0.933	0.880	0.868	0.812	0.787	0.823	0.826	0.876
Etah	0.943	1.000	1.000	0.953	0.782	1.000	0.741	0.943	0.937	0.922
Etawah	1.000	1.000	0.927	0.900	0.902	0.856	0.824	1.000	1.000	0.934
Faizabad	0.848	0.886	0.825	0.909	0.970	0.980	1.000	0.960	0.914	0.921
Farrukhabad	1.000	1.000	1.000	0.948	1.000	0.973	0.969	1.000	1.000	0.988
Fatehpur	1.000	1.000	1.000	1.000	0.972	0.969	0.955	0.861	0.854	0.957
Firozabad	0.921	1.000	0.998	1.000	0.994	1.000	1.000	0.901	0.898	0.968
Gautam Buddha Nagar	0.878	0.814	0.847	0.689	0.805	0.748	0.644	1.000	1.000	0.825

Ghaziabad	1.000	1.000	1.000	1.000	1.000	1.000	0.718	1.000	1.000	0.969
Ghazipur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Gonda	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.800	0.855	0.962
Gorakhpur	0.886	0.930	1.000	1.000	0.898	0.955	1.000	0.911	0.874	0.939
Hamirpur	1.000	1.000	1.000	0.995	0.968	0.971	0.961	1.000	1.000	0.988
Hardoi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Hathras	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jalaun	0.987	1.000	1.000	0.881	0.970	0.922	0.898	1.000	0.918	0.953
Jaunpur	0.962	1.000	1.000	1.000	0.815	0.852	1.000	1.000	1.000	0.959
Jhansi	0.915	0.887	0.862	0.978	0.955	0.972	1.000	1.000	1.000	0.952
Jyotiba Phule Nagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kannauj	0.921	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Kanpur Dehat	1.000	1.000	0.901	0.799	0.725	0.659	0.559	0.753	0.716	0.790
Kanpur Nagar	0.762	0.766	0.746	0.829	0.827	0.876	0.857	1.000	1.000	0.851
Kaushambi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.805	0.796	0.956
Kheri	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.910	0.990
Kushinagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.883	0.903	0.976
Lalitpur	1.000	1.000	1.000	1.000	1.000	0.999	1.000	0.997	0.999	0.999
Lucknow	0.974	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.997
Maharajganj	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.959	0.995
Mahoba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mainpuri	1.000	1.000	1.000	1.000	1.000	0.999	1.000	0.962	0.998	0.995
Mathura	0.861	0.915	0.902	0.932	0.844	0.885	0.860	1.000	1.000	0.911
Mau	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Meerut	0.863	0.883	0.805	0.708	0.769	0.740	0.621	1.000	1.000	0.821
Mirzapur	1.000	1.000	1.000	1.000	1.000	0.999	1.000	1.000	0.973	0.997
Moradabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.932	0.992
Muzaffarnagar	1.000	0.898	0.938	0.862	0.822	0.794	0.744	0.949	0.905	0.879
Pilbhit	1.000	1.000	1.000	0.963	0.945	0.931	0.906	0.953	0.818	0.946
Pratapgarh	1.000	1.000	0.902	1.000	1.000	0.980	0.994	1.000	1.000	0.986
Rae Bareli	0.997	1.000	0.923	0.882	0.912	0.816	1.000	1.000	0.861	0.932
Rampur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Saharanpur	0.830	0.859	0.821	0.777	1.000	1.000	1.000	1.000	1.000	0.921
Sant Kabir Nagar	0.912	1.000	0.974	0.937	0.905	0.938	0.895	0.857	0.747	0.907
Shahjahanpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Shrawasti	1.000	1.000	1.000	0.918	0.829	0.746	0.743	0.881	0.884	0.889
Siddharthnagar	1.000	1.000	1.000	1.000	0.994	0.968	0.961	0.847	0.806	0.953
Sitapur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sonbhadra	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.923	0.980	0.989
Sultanpur	1.000	1.000	0.907	0.893	0.904	0.850	0.821	0.863	0.761	0.889
Unnao	1.000	1.000	1.000	1.000	0.967	0.974	0.962	1.000	1.000	0.989
Varanasi	0.887	1.000	1.000	1.000	1.000	0.914	0.647	1.000	0.996	0.938
Average	0.963	0.978	0.969	0.957	0.939	0.935	0.909	0.947	0.931	0.948

A3.16 West Bengal	TEOUT at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Bankura	0.918	0.928	0.923	0.926	0.924	1.000	1.000	0.970	0.885	0.942
Burdwan	0.868	0.750	0.809	0.780	0.794	1.000	1.000	1.000	1.000	0.889
Birbhum	0.967	0.962	0.965	0.963	0.964	1.000	0.927	1.000	1.000	0.972
Dakshin Dinajpur	1.000	0.982	0.991	0.987	0.989	1.000	1.000	1.000	1.000	0.994
Darjeeling	1.000	0.385	0.692	0.538	0.615	0.847	1.000	1.000	1.000	0.786
Howrah	0.971	1.000	0.986	0.993	0.989	0.992	0.904	1.000	1.000	0.982
Hooghly	0.950	0.725	0.838	0.781	0.809	0.968	0.934	1.000	0.986	0.888
Jalpaiguri	0.905	1.000	0.953	0.976	0.964	1.000	0.830	1.000	0.966	0.955
Cooch Bihar	0.988	1.000	0.994	0.997	0.996	1.000	0.936	1.000	1.000	0.990
Kolkata	1.000	0.676	0.838	0.757	0.797	1.000	0.965	1.000	1.000	0.892
Malda	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.997	1.000	1.000
Murshidabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Nadia	0.839	0.923	0.881	0.902	0.892	1.000	0.836	1.000	0.964	0.915
North Twenty Four Parganas	1.000	1.000	1.000	1.000	1.000	1.000	0.964	1.000	1.000	0.996
Paschim Midnapore	1.000	0.997	0.999	0.998	0.998	1.000	1.000	1.000	1.000	0.999
Purba Midnapore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.915	0.883	0.978
Purulia	0.972	1.000	0.986	0.993	0.990	1.000	1.000	0.992	0.920	0.984
Siliguri	1.000	1.000	1.000	1.000	1.000	1.000	0.874	0.820	1.000	0.966
South Twenty Four Pargans	1.000	0.894	0.947	0.921	0.934	1.000	1.000	1.000	1.000	0.966
Uttar Dinajpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.969	0.911	0.940	0.926	0.933	0.990	0.959	0.985	0.980	0.955

District wise Output Oriented Technical Efficiency Scores at Upper Primary Level of Education

A3.17 Andhra Pradesh	TEOUT at Upper Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Adilabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Anantpur	0.830	0.657	0.827	0.803	0.913	0.981	0.918	1.000	0.949	0.875
Chittor	0.712	0.780	0.840	0.845	0.903	1.000	1.000	1.000	1.000	0.898
Cuddapah	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.918	0.991
East Godavari	0.872	0.783	0.668	0.814	1.000	1.000	0.706	1.000	0.889	0.859
Guntur	0.856	1.000	0.741	1.000	1.000	0.751	0.738	1.000	0.780	0.874
Hyderabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karimnagar	0.936	0.917	0.998	0.939	0.993	1.000	0.964	1.000	1.000	0.972
Khammam	0.897	0.872	0.956	0.874	0.953	0.995	0.963	1.000	0.958	0.941
Krishna	0.769	0.803	1.000	0.800	0.956	0.993	0.921	1.000	1.000	0.916
Kurnool	0.671	0.673	0.753	0.924	0.931	0.985	1.000	1.000	1.000	0.882
Mahbubnagar	0.880	0.832	0.956	0.887	0.929	0.894	0.825	1.000	1.000	0.911
Medak	0.883	0.799	1.000	1.000	1.000	0.860	0.914	1.000	0.880	0.926

Nalgonda	1.000	1.000	1.000	0.938	1.000	0.948	0.965	1.000	0.953	0.978
Nellore	0.618	0.614	0.732	0.760	0.895	0.934	1.000	1.000	1.000	0.839
Nizamabad	0.876	0.886	1.000	0.926	0.959	1.000	0.926	1.000	0.930	0.945
Prakasam	0.789	0.882	1.000	0.928	0.945	0.885	0.847	1.000	0.830	0.901
Rangareddi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Srikakulam	0.794	0.742	0.845	0.794	0.871	0.841	0.826	1.000	0.882	0.844
Visakhapatnam	1.000	1.000	1.000	0.938	0.980	0.830	0.868	1.000	0.905	0.947
Vizianagaram	0.729	0.725	0.799	0.737	0.853	0.925	0.872	1.000	0.946	0.843
Warangal	1.000	0.927	0.969	0.968	0.995	0.952	0.909	1.000	1.000	0.969
West Godavari	1.000	1.000	0.890	0.863	0.994	0.846	1.000	1.000	0.923	0.946
Average	0.874	0.865	0.912	0.902	0.960	0.940	0.920	1.000	0.945	0.924

A3.18 Assam	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Baperta	0.994	0.954	0.996	1.000	0.993	1.000	1.000	0.881	0.915	0.970
Bongaigaon	0.984	0.889	1.000	0.976	0.908	0.906	0.963	0.825	0.847	0.922
Cachar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Darrang	0.986	0.963	0.957	0.898	0.907	0.900	0.923	1.000	1.000	0.948
Dhemaji	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Dhubri	0.739	0.920	0.930	1.000	1.000	1.000	1.000	0.979	0.998	0.952
Dibrugarh	0.937	0.706	0.880	0.797	0.813	0.828	0.735	0.886	1.000	0.842
Goalpara	1.000	1.000	1.000	1.000	0.942	0.986	1.000	0.991	1.000	0.991
Golaghat	0.974	0.969	0.871	0.903	0.965	0.935	0.949	0.941	0.970	0.942
Hailakandi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jorhat	1.000	0.986	0.938	0.865	0.854	0.890	0.839	0.906	0.927	0.912
Kamrup	1.000	1.000	0.973	0.931	0.944	0.996	1.000	1.000	1.000	0.983
Karbi Anglong	1.000	0.846	1.000	1.000	1.000	1.000	1.000	1.000	0.856	0.967
Karimganj	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998	1.000
Kokrajhar	0.884	0.811	0.973	0.863	0.933	0.956	0.992	0.985	0.978	0.931
Lakhimpur	1.000	1.000	0.894	1.000	0.944	1.000	1.000	0.934	1.000	0.975
Marigaon	0.979	0.937	1.000	0.997	1.000	1.000	1.000	0.849	0.791	0.950
Nagaon	0.950	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.994
Nalbari	1.000	1.000	0.887	0.944	0.946	0.923	1.000	0.997	1.000	0.966
Sibsagar	0.958	0.917	1.000	0.838	0.872	1.000	0.798	0.917	0.939	0.915
Sonitpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Tinsukia	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.972	0.95	0.968	0.955	0.955	0.969	0.964	0.959	0.965	0.962

A3.19 Bihar	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Araria	1.000	1.000	0.834	0.791	0.929	0.954	0.931	0.924	0.827	0.910

Aurangabad (Bihar)	0.855	0.886	0.879	0.975	0.709	0.826	0.875	0.948	1.000	0.884
Banka	0.361	0.520	1.000	1.000	0.815	0.846	1.000	0.824	0.871	0.804
Begusarai	0.686	0.781	1.000	1.000	0.984	1.000	0.940	1.000	1.000	0.932
Bhagalpur	1.000	0.406	0.653	0.770	0.871	0.912	0.846	0.888	0.961	0.812
Bhojpur	0.865	1.000	1.000	1.000	0.800	0.760	0.701	0.682	0.699	0.834
Buxar	0.966	1.000	1.000	0.914	0.732	0.787	0.700	0.810	0.852	0.862
Darbhanga	0.653	0.730	0.935	0.920	0.867	0.906	0.784	0.819	0.799	0.824
Gaya	1.000	1.000	0.815	1.000	0.765	0.833	1.000	0.868	0.889	0.908
Gopalganj	1.000	0.925	0.925	0.987	0.760	0.843	0.714	0.766	0.725	0.849
Jamui	0.616	0.557	0.718	0.762	1.000	1.000	1.000	1.000	1.000	0.850
Jehanabad	0.886	0.961	0.913	0.981	0.844	1.000	1.000	1.000	0.990	0.953
Kaimur (Bhabua)	1.000	1.000	0.916	0.929	0.656	0.704	0.778	0.757	0.910	0.850
Katihar	0.808	0.792	0.991	1.000	1.000	1.000	1.000	1.000	1.000	0.955
Khagaria	0.692	0.941	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.959
Kishanganj	0.716	0.948	0.924	1.000	0.920	0.830	1.000	1.000	1.000	0.926
Lakhisarai	0.937	1.000	1.000	1.000	0.895	0.834	0.938	1.000	1.000	0.956
Madhepura	0.672	0.917	0.940	0.912	0.838	0.970	1.000	1.000	1.000	0.917
Madhubani	0.788	0.886	0.880	1.000	0.717	1.000	0.764	0.760	1.000	0.866
Munger	0.856	0.830	0.805	0.867	0.770	0.809	0.862	0.881	0.845	0.836
Muzaffarpur	0.912	0.911	1.000	1.000	1.000	1.000	0.803	0.790	0.843	0.918
Nalanda	0.939	1.000	0.650	0.792	0.800	0.759	1.000	0.716	0.680	0.815
Nawada	0.866	0.673	0.768	0.722	0.805	0.839	0.865	0.818	1.000	0.817
Paschim Champaran	0.834	0.727	0.809	0.702	0.806	0.857	1.000	0.858	0.853	0.827
Patna	0.679	1.000	0.614	0.745	0.864	0.812	1.000	0.724	0.743	0.798
Purba Champaran	0.926	0.938	1.000	1.000	0.752	0.866	0.946	0.894	0.913	0.915
Purnia	1.000	1.000	1.000	1.000	0.919	0.975	1.000	1.000	1.000	0.988
Rohtas	1.000	0.942	0.905	0.965	1.000	0.745	1.000	0.909	1.000	0.941
Saharsa	0.647	0.908	0.798	0.939	1.000	1.000	1.000	1.000	1.000	0.921
Samastipur	0.880	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.987
Saran	0.815	0.884	0.783	0.859	0.790	0.806	0.640	0.717	0.816	0.790
Sheikhpura	1.000	0.862	0.884	0.810	0.865	0.978	0.940	1.000	1.000	0.927
Sheohar	0.921	0.732	0.917	0.827	1.000	1.000	0.935	1.000	1.000	0.926
Sitamarhi	0.713	0.559	0.759	0.698	1.000	0.937	0.886	0.990	1.000	0.838
Siwan	0.814	1.000	0.850	0.909	0.847	0.913	0.715	0.955	0.964	0.885
Supaul	0.555	0.706	0.763	0.962	0.931	0.935	0.933	1.000	1.000	0.865
Vaishali	0.952	1.000	1.000	0.984	0.985	0.942	0.736	0.946	0.936	0.942
Average	0.833	0.863	0.882	0.911	0.871	0.897	0.898	0.898	0.922	0.886

A3.20 Gujarat	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ahmedabad	1.000	0.841	1.000	1.000	1.000	1.000	0.818	1.000	1.000	0.962
Amreli	0.869	0.938	0.894	0.885	0.930	0.949	0.945	0.952	0.923	0.921

Anand	0.955	0.981	0.896	0.988	1.000	1.000	0.974	1.000	1.000	0.977
Banas Kantha	1.000	0.975	0.878	0.913	0.941	1.000	0.909	0.932	0.930	0.942
Bharuch	0.778	1.000	0.908	0.911	0.932	0.972	0.931	1.000	1.000	0.937
Bhavnagar	0.913	1.000	0.986	1.000	1.000	1.000	1.000	1.000	1.000	0.989
Dohad	0.916	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Gandhinagar	0.887	0.991	0.887	1.000	0.913	0.944	0.965	1.000	0.890	0.942
Jamnagar	1.000	1.000	1.000	1.000	0.948	1.000	0.948	0.848	0.835	0.953
Junagadh	1.000	1.000	0.991	1.000	0.988	1.000	0.990	0.985	0.984	0.993
Kachchh	1.000	0.755	0.781	0.834	0.829	0.821	0.816	0.821	0.858	0.835
Kheda	0.958	1.000	0.967	1.000	1.000	1.000	1.000	1.000	1.000	0.992
Mahesana	0.922	0.964	1.000	0.961	1.000	0.981	0.923	0.969	0.996	0.968
Narmada	1.000	1.000	1.000	1.000	0.974	0.977	0.959	0.856	0.836	0.956
Navsari	0.896	1.000	1.000	1.000	1.000	1.000	0.926	1.000	1.000	0.980
Panch Mahals	1.000	1.000	1.000	1.000	1.000	1.000	0.885	1.000	1.000	0.987
Patan	0.643	0.909	0.789	1.000	1.000	1.000	1.000	1.000	0.963	0.923
Porbandar	1.000	1.000	1.000	1.000	0.928	0.887	0.852	0.928	0.935	0.948
Rajkot	0.937	0.971	1.000	1.000	0.969	1.000	0.907	1.000	1.000	0.976
Sabar Kantha	1.000	1.000	1.000	1.000	1.000	1.000	0.956	0.990	0.970	0.991
Surat	0.844	1.000	1.000	1.000	1.000	0.818	0.748	1.000	1.000	0.934
Surendranagar	0.969	1.000	0.932	0.960	0.973	0.948	0.927	0.904	0.900	0.946
The Dangs	1.000	1.000	1.000	0.987	1.000	1.000	1.000	0.872	0.916	0.975
Vadodara	1.000	1.000	1.000	0.864	1.000	1.000	0.720	1.000	1.000	0.954
Valsad	1.000	1.000	0.958	1.000	1.000	1.000	1.000	1.000	1.000	0.995
Average	0.939	0.973	0.955	0.972	0.973	0.972	0.924	0.962	0.957	0.959

A3.21 Haryana	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ambala	1.000	1.000	0.807	0.787	0.882	0.796	0.785	1.000	0.992	0.894
Bhiwani	0.435	0.921	0.926	0.958	1.000	1.000	1.000	1.000	1.000	0.916
Faridabad	0.976	1.000	0.577	0.505	0.680	1.000	0.577	0.754	1.000	0.785
Fatehabad	1.000	1.000	1.000	1.000	0.880	1.000	1.000	0.931	1.000	0.979
Gurgaon	1.000	0.811	1.000	0.751	0.893	1.000	0.504	0.839	1.000	0.866
Hisar	0.567	0.520	0.888	1.000	0.947	0.957	0.929	1.000	1.000	0.868
Jhajjar	1.000	0.776	1.000	0.995	1.000	1.000	1.000	1.000	1.000	0.975
Jind	0.713	0.880	0.996	1.000	0.994	1.000	1.000	1.000	1.000	0.954
Kaithal	1.000	1.000	1.000	1.000	1.000	0.939	0.873	0.976	1.000	0.976
Karnal	0.578	1.000	0.644	1.000	0.888	0.829	0.807	0.863	0.892	0.833
Kurukshetra	0.931	0.688	0.869	0.872	1.000	0.904	0.910	0.965	1.000	0.904
Mahendragarh	0.512	1.000	0.972	0.956	0.974	1.000	0.883	0.945	0.914	0.906
Panchkula	0.552	0.756	0.708	0.808	0.877	0.779	0.712	0.920	0.948	0.784
Panipat	0.474	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.942
Rewari	0.937	1.000	1.000	1.000	0.907	0.800	0.710	0.868	0.880	0.900

Rohtak	0.933	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993
Sirsa	1.000	1.000	0.955	0.928	1.000	1.000	0.877	1.000	1.000	0.973
Sonipat	1.000	1.000	0.983	0.915	0.944	0.948	0.922	0.939	0.962	0.957
Yamunanagar	1.000	1.000	1.000	1.000	1.000	1.000	0.803	0.919	0.766	0.943
Average	0.822	0.913	0.912	0.92	0.94	0.945	0.857	0.943	0.966	0.913

A3.22 Himachal Pradesh	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Bilaspur (H.P)	0.916	0.930	0.902	0.927	1.000	0.952	0.948	0.964	0.984	0.947
Chamba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Hamirpur (H.P)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kangra	1.000	1.000	0.993	0.995	0.935	1.000	0.897	1.000	1.000	0.980
Kinnaur	1.000	1.000	0.806	0.792	0.864	0.806	1.000	0.969	0.913	0.906
Kullu	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lahul & Spiti	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mandi	0.964	0.983	0.971	1.000	1.000	1.000	0.972	1.000	1.000	0.988
Shimla	0.886	0.841	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.970
Sirmaur	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Solan	0.892	0.928	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.980
Una	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.970	0.973	0.973	0.976	0.983	0.980	0.985	0.994	0.991	0.981

A3.23 Karnataka	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Bagalkot	1.000	1.000	0.777	0.984	0.999	1.000	0.880	1.000	1.000	0.960
Bangalore	0.883	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.987
Bangalore Rural	1.000	1.000	1.000	1.000	1.000	0.874	0.773	0.858	0.833	0.926
Balgaum	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bellary	0.930	1.000	1.000	1.000	0.965	0.922	0.875	0.744	0.857	0.921
Bidar	0.933	1.000	1.000	1.000	1.000	1.000	1.000	0.825	1.000	0.973
Bijapur	1.000	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	0.999
Chamrajnagar	1.000	0.937	1.000	1.000	1.000	0.701	0.547	0.895	0.829	0.879
Chikmagalur	0.885	0.953	1.000	1.000	1.000	1.000	1.000	1.000	0.869	0.967
Chitradurga	0.917	1.000	1.000	0.993	1.000	0.974	0.819	0.837	0.877	0.935
Dakshina Kannada	0.811	0.898	0.840	1.000	1.000	0.908	0.788	1.000	0.978	0.914
Davangere	0.931	0.755	1.000	0.989	1.000	1.000	1.000	0.825	0.928	0.936
Dharwad	0.840	1.000	0.920	1.000	1.000	1.000	1.000	1.000	1.000	0.973
Gadag	0.962	0.949	1.000	1.000	1.000	1.000	1.000	0.972	1.000	0.987
Gulbarga	0.797	0.853	1.000	1.000	1.000	1.000	0.732	1.000	0.933	0.924
Hassan	0.960	1.000	1.000	1.000	1.000	1.000	0.787	0.801	0.865	0.935
Haveri	0.969	0.893	0.937	0.959	0.918	0.911	0.906	0.845	0.924	0.918

Kodagu	0.821	0.778	0.509	0.989	0.976	0.836	0.901	1.000	1.000	0.868
Kolar	0.947	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.994
Koppal	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.761	0.813	0.953
Mandya	0.897	0.921	0.559	1.000	0.946	0.882	1.000	1.000	0.850	0.895
Mysore	0.916	1.000	0.708	1.000	1.000	1.000	0.862	1.000	0.989	0.942
Raichur	0.777	1.000	1.000	1.000	0.940	0.936	0.921	0.805	0.824	0.911
Shimoga	0.906	0.879	0.900	1.000	1.000	1.000	0.992	1.000	1.000	0.964
Tumkur	0.951	0.925	0.983	0.996	0.920	0.958	0.957	0.936	0.928	0.950
Udupi	1.000	0.877	0.679	0.955	1.000	0.936	0.816	1.000	0.987	0.917
Uttara Kannada	0.928	0.950	0.819	0.906	0.939	1.000	1.000	1.000	1.000	0.949
Average	0.924	0.947	0.912	0.992	0.985	0.957	0.909	0.930	0.936	0.944

A3.24 Kerala	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Alappuzha	0.787	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.976
Ernakulam	0.958	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995
Idukki	1.000	0.916	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Kannur	1.000	0.942	1.000	0.919	0.917	0.919	1.000	1.000	1.000	0.966
Kasaragod	0.962	1.000	0.908	0.947	0.936	1.000	1.000	0.921	0.918	0.955
Kollam	1.000	1.000	1.000	1.000	1.000	0.928	1.000	1.000	1.000	0.992
Kottayam	0.945	0.921	0.954	0.887	0.843	0.808	0.889	0.945	1.000	0.910
Kozhikode	0.929	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992
Malappuram	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Palakkad	0.920	1.000	1.000	1.000	1.000	1.000	0.982	1.000	0.973	0.986
Pathanamthitta	1.000	1.000	0.928	0.960	1.000	0.683	0.690	0.970	0.968	0.911
Thiruvananthapuram	1.000	1.000	1.000	1.000	1.000	1.000	0.911	1.000	1.000	0.990
Thrissur	1.000	1.000	0.965	0.949	1.000	1.000	0.925	0.989	1.000	0.981
Wayanad	1.000	1.000	1.000	0.937	0.885	0.967	1.000	0.990	1.000	0.975
Average	0.964	0.984	0.982	0.971	0.970	0.950	0.957	0.987	0.990	0.973

A3.25 Madhya Pradesh	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Anuppur	0.898	1.000	1.000	1.000	1.000	1.000	0.700	0.807	0.805	0.912
Ashoknagar	1.000	1.000	1.000	1.000	1.000	1.000	0.569	0.679	0.710	0.884
Balaghat	0.743	0.754	0.758	0.790	0.972	1.000	0.944	1.000	1.000	0.885
Barwani	0.524	0.405	0.537	0.675	1.000	1.000	1.000	0.932	0.967	0.782
Betul	0.743	0.684	0.661	0.860	0.846	0.842	0.868	0.866	0.830	0.800
Bhind	1.000	1.000	1.000	1.000	0.886	0.927	0.898	1.000	0.821	0.948
Bhopal	1.000	0.846	0.804	0.820	0.939	0.907	0.792	0.877	0.908	0.877
Burhanpur	1.000	0.832	0.904	1.000	0.950	0.951	0.871	0.681	0.723	0.879
Chhatarpur	0.944	0.702	0.691	0.859	0.916	1.000	0.816	1.000	1.000	0.881
Chhindwara	0.728	0.612	0.634	0.827	0.864	0.840	0.898	0.857	0.864	0.792

Damoh	0.838	0.706	0.701	0.700	0.938	1.000	1.000	0.842	0.894	0.847
Datia	0.733	0.658	0.604	0.920	0.949	0.910	0.970	0.939	0.950	0.848
Dewas	0.868	0.916	0.841	0.914	0.823	0.871	0.696	1.000	0.814	0.860
Dhar	0.442	0.767	1.000	1.000	1.000	1.000	1.000	1.000	0.949	0.906
Dindori	0.665	0.567	0.612	0.594	0.735	0.649	0.766	1.000	0.776	0.707
Guna	1.000	0.755	0.512	0.839	0.913	1.000	0.690	0.835	0.801	0.816
Gwalior	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Harda	1.000	0.807	0.708	0.901	0.846	1.000	1.000	0.809	0.817	0.876
Hoshangabad	0.938	0.709	0.649	0.868	0.814	0.750	0.818	0.804	0.781	0.792
Indore	0.600	1.000	0.928	0.906	1.000	1.000	1.000	1.000	1.000	0.937
Jabalpur	0.754	0.824	0.784	0.783	1.000	0.935	0.800	0.863	0.917	0.851
Jhabua	0.516	0.645	0.571	0.537	1.000	0.900	0.606	0.520	0.613	0.656
Katni	1.000	0.997	0.934	0.705	0.920	0.865	0.873	0.888	0.898	0.898
Khandwa	0.842	0.984	0.861	1.000	1.000	1.000	0.745	0.703	0.640	0.864
Khargone	0.532	0.594	0.617	0.684	0.737	0.717	0.764	0.718	0.683	0.672
Mandla	0.576	0.701	0.553	0.694	0.996	0.868	1.000	1.000	1.000	0.821
Mandsaur	0.749	0.768	0.680	1.000	0.885	0.960	0.868	1.000	1.000	0.879
Morena	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.940	0.993
Narsinghpur	0.806	0.651	0.719	0.965	1.000	1.000	1.000	1.000	1.000	0.905
Neemuch	0.689	0.649	0.606	1.000	1.000	1.000	1.000	1.000	1.000	0.883
Panna	0.889	0.789	0.675	0.758	0.816	0.751	0.780	0.707	0.704	0.763
Raisen	1.000	0.826	0.780	0.830	0.869	0.874	0.926	0.789	0.734	0.848
Rajgarh	0.559	0.775	0.621	0.814	0.754	0.799	0.777	0.719	0.721	0.727
Ratlam	0.526	0.570	0.636	0.692	0.761	0.733	0.776	0.798	0.768	0.696
Rewa	0.837	1.000	0.685	0.699	0.775	0.747	0.865	0.811	0.806	0.803
Sagar	0.756	0.947	0.758	0.764	0.931	1.000	1.000	0.897	0.928	0.887
Satna	1.000	0.763	0.750	0.860	0.946	0.856	0.958	0.931	0.935	0.889
Sehore	0.978	1.000	0.709	0.982	0.957	1.000	1.000	0.888	0.950	0.940
Seoni	0.651	0.659	0.619	0.721	0.739	0.715	0.794	0.805	0.793	0.722
Shahdol	0.764	0.841	0.715	0.692	1.000	0.853	0.899	1.000	1.000	0.863
Shajapur	0.703	0.887	0.640	0.879	0.722	0.696	0.568	0.776	0.719	0.732
Sheopur	0.809	0.518	0.689	0.760	0.942	0.876	1.000	0.865	0.936	0.822
Shivpuri	0.905	0.711	0.599	0.802	1.000	1.000	1.000	1.000	1.000	0.891
Sidhi	1.000	0.841	0.699	0.519	0.563	0.553	1.000	0.731	0.735	0.738
Tikamgarh	0.753	0.723	1.000	0.754	0.963	0.892	1.000	1.000	1.000	0.898
Ujjain	0.491	0.524	0.538	0.759	0.766	0.831	0.780	0.819	0.815	0.703
Umaria	0.912	0.984	1.000	1.000	0.814	0.873	1.000	0.789	1.000	0.930
Vidisha	0.715	0.600	0.565	0.648	0.737	0.682	0.751	0.743	0.721	0.685
Average	0.8	0.781	0.741	0.829	0.896	0.888	0.871	0.869	0.862	0.837

A3.26 Maharashtra	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ahmadnagar	0.815	1.000	0.939	0.884	0.942	1.000	1.000	0.992	0.997	0.952

Akola	0.922	0.900	1.000	0.944	0.901	0.900	1.000	0.939	0.963	0.941
Amravati	0.836	1.000	0.983	0.906	0.994	0.974	1.000	1.000	1.000	0.966
Aurangabad (MH)	0.955	0.875	0.896	0.990	0.978	1.000	1.000	0.952	0.987	0.959
Bhandara	0.838	0.925	0.924	0.940	0.955	0.937	1.000	1.000	1.000	0.947
Bid	0.971	0.968	1.000	0.984	0.969	1.000	1.000	1.000	1.000	0.988
Buldana	1.000	0.951	0.983	1.000	0.988	0.942	1.000	1.000	1.000	0.985
Chandrapur	1.000	0.800	0.766	0.802	0.811	0.791	0.845	0.929	0.966	0.857
Dhule	0.899	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.989
Gadchiroli	0.767	0.907	0.820	0.792	0.803	0.799	0.838	0.914	1.000	0.849
Gondiya	0.951	0.946	0.907	0.899	0.920	0.871	0.985	0.986	1.000	0.941
Hingoli	1.000	0.809	1.000	1.000	1.000	1.000	1.000	1.000	0.942	0.972
Jalgaon	0.750	0.962	0.996	0.952	0.904	1.000	0.796	1.000	1.000	0.929
Jalna	0.877	0.907	0.966	0.877	0.946	0.876	0.869	0.846	0.874	0.893
Kolhapur	1.000	1.000	1.000	0.948	0.979	0.988	0.906	1.000	1.000	0.980
Latur	1.000	1.000	1.000	1.000	1.000	0.993	1.000	1.000	1.000	0.999
Mumbai	0.896	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.988
Mumbai (Suburban)	0.836	1.000	1.000	0.942	0.833	1.000	1.000	1.000	1.000	0.957
Nagpur	0.772	1.000	0.923	0.892	0.895	0.875	0.820	1.000	1.000	0.909
Nanded	0.844	0.947	0.849	0.837	0.883	0.836	0.806	0.853	0.908	0.863
Nandurbar	0.951	0.995	1.000	1.000	0.893	0.896	0.896	1.000	0.807	0.938
Nashik	1.000	0.707	0.967	0.885	0.990	1.000	1.000	1.000	1.000	0.950
Osmanabad	1.000	0.897	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.989
Parbhani	0.745	0.798	0.883	0.935	0.906	0.872	0.899	0.911	0.939	0.876
Pune	0.712	0.981	0.963	0.971	0.915	0.847	0.793	0.977	1.000	0.907
Raigarh (MH)	1.000	0.805	0.881	0.834	0.863	0.809	0.866	0.913	0.924	0.877
Ratnagiri	0.749	0.877	0.863	0.847	0.860	0.910	0.883	1.000	1.000	0.888
Sangli	0.656	0.837	0.909	0.864	0.964	0.950	1.000	1.000	1.000	0.909
Satara	0.735	0.866	0.910	0.883	0.906	0.919	0.939	0.989	1.000	0.905
Sindhudurg	0.930	1.000	0.985	0.894	0.885	0.997	0.997	1.000	1.000	0.965
Solapur	0.894	0.988	0.938	0.915	0.921	0.927	0.893	0.994	1.000	0.941
Thane	0.695	0.982	0.885	0.878	0.911	1.000	1.000	0.923	0.938	0.912
Wardha	0.766	0.883	0.928	0.873	0.978	0.884	0.982	0.986	1.000	0.920
Washim	0.866	0.877	0.953	0.962	1.000	0.888	1.000	1.000	1.000	0.950
Yavatmal	0.973	0.909	0.818	0.824	0.862	0.918	0.845	0.966	0.984	0.900
Average	0.874	0.923	0.938	0.919	0.930	0.931	0.939	0.973	0.978	0.934

A3.27 Orissa	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Angul	1.000	0.761	0.771	0.943	0.900	0.983	0.856	1.000	1.000	0.913
Balasore	1.000	1.000	1.000	1.000	0.953	1.000	0.925	0.935	0.866	0.964
Bargarh	0.722	1.000	0.471	0.911	0.895	0.898	0.826	1.000	0.828	0.839
Bhadrak	0.981	0.750	1.000	1.000	1.000	0.978	1.000	0.945	1.000	0.962

Bolangir	0.778	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.957	0.971
Boudh	0.930	0.408	0.789	0.979	1.000	1.000	1.000	1.000	1.000	0.901
Cuttack	0.835	1.000	0.913	1.000	1.000	0.860	0.742	0.898	1.000	0.916
Deogarh	0.795	0.666	0.711	0.999	1.000	1.000	1.000	0.957	1.000	0.903
Dhenkanal	0.940	0.886	0.837	0.954	0.763	0.916	0.702	0.868	0.894	0.862
Gajapati	1.000	0.715	0.644	0.707	0.799	0.732	0.830	1.000	1.000	0.825
Ganjam	0.884	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.987
Jagatsinghpur	0.919	0.666	0.876	1.000	0.779	0.889	0.760	0.960	0.978	0.870
Jajpur	0.990	1.000	0.834	1.000	0.901	0.996	0.869	0.974	0.921	0.943
Jharsuguda	1.000	0.752	0.769	0.958	1.000	1.000	0.982	1.000	1.000	0.940
Kalahandi	0.820	0.771	1.000	1.000	0.972	1.000	1.000	1.000	1.000	0.951
Kandhamal	1.000	1.000	0.975	0.865	0.896	0.821	1.000	1.000	0.796	0.928
Kendrapara	0.835	0.886	0.886	0.999	0.815	0.920	0.822	0.919	0.962	0.894
Keonjhar	0.843	0.701	0.625	0.820	0.833	0.983	0.847	0.863	0.907	0.825
Khordha	0.996	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Koraput	1.000	1.000	1.000	1.000	0.709	0.709	0.574	1.000	0.621	0.846
Malkangiri	1.000	1.000	0.914	0.660	0.697	0.802	1.000	1.000	0.648	0.858
Mayurbhanj	1.000	0.648	0.619	0.791	0.741	1.000	0.718	1.000	1.000	0.835
Nawarangapur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.792	0.977
Nayagarh	0.851	0.773	0.728	0.900	0.819	0.931	0.790	0.877	0.909	0.842
Nuapada	0.751	0.658	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.934
Puri	0.817	0.849	1.000	0.947	0.801	0.917	0.712	0.916	0.893	0.872
Rayagada	0.859	1.000	0.963	1.000	0.749	0.877	1.000	1.000	1.000	0.939
Sambalpur	0.773	0.672	0.859	0.875	1.000	1.000	1.000	1.000	1.000	0.909
Sonepur	0.833	1.000	1.000	1.000	1.000	0.935	1.000	0.803	0.879	0.939
Sundargarh	0.714	1.000	1.000	1.000	1.000	1.000	0.891	1.000	1.000	0.956
Average	0.896	0.852	0.873	0.944	0.901	0.938	0.895	0.964	0.928	0.910

A3.28 Punjab	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Amritsar	0.799	1.000	1.000	1.000	1.000	1.000	0.626	1.000	1.000	0.936
Bathinda	1.000	1.000	1.000	1.000	1.000	0.944	0.929	1.000	1.000	0.986
Faridkot	1.000	1.000	1.000	1.000	1.000	1.000	0.976	1.000	1.000	0.997
Fatehgarh Sahib	0.459	0.604	1.000	0.887	1.000	0.884	0.952	1.000	0.974	0.862
Ferozepur	0.947	0.854	0.799	0.865	0.992	1.000	1.000	1.000	1.000	0.940
Gurdaspur	1.000	0.889	0.908	0.863	1.000	1.000	1.000	1.000	1.000	0.962
Hoshiarpur	1.000	1.000	1.000	1.000	1.000	0.868	0.860	1.000	0.993	0.969
Jalandhar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kapurthala	0.812	1.000	1.000	1.000	0.949	0.713	0.729	1.000	0.983	0.910
Ludhiana	0.895	0.902	0.652	1.000	1.000	1.000	1.000	1.000	1.000	0.939
Mansa	0.811	1.000	1.000	0.903	0.933	0.931	1.000	1.000	1.000	0.953
Moga	1.000	0.995	1.000	1.000	1.000	1.000	1.000	0.987	0.983	0.996

Muktsar	1.000	1.000	0.927	0.962	0.993	0.889	0.871	1.000	0.968	0.957
Nawanshahr	0.896	1.000	1.000	1.000	1.000	0.765	0.753	1.000	1.000	0.935
Patiala	0.761	1.000	1.000	1.000	1.000	1.000	0.808	1.000	1.000	0.952
Ropar	0.807	1.000	0.620	0.873	1.000	0.645	1.000	1.000	0.980	0.881
Sangrur	0.807	1.000	0.623	0.825	1.000	1.000	1.000	1.000	0.972	0.914
Average	0.882	0.956	0.913	0.952	0.992	0.920	0.912	0.999	0.991	0.946

A3.29 Rajasthan	**TEOUT at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ajmer	0.866	0.998	0.901	1.000	1.000	1.000	0.728	1.000	1.000	0.944
Alwar	0.902	0.893	0.947	0.964	0.970	1.000	1.000	1.000	1.000	0.964
Banswara	1.000	1.000	0.945	0.904	0.979	1.000	1.000	1.000	1.000	0.981
Baran	0.833	0.920	0.883	0.866	0.825	0.924	1.000	1.000	1.000	0.917
Barmer	0.574	0.978	0.953	1.000	1.000	1.000	1.000	1.000	1.000	0.945
Bharatpur	0.903	1.000	0.934	1.000	0.980	0.960	0.820	0.871	0.902	0.930
Bhilwara	1.000	0.896	0.839	0.839	0.770	0.865	0.734	0.768	0.822	0.837
Bikaner	1.000	0.958	0.913	0.953	0.868	0.857	0.784	0.741	0.772	0.872
Bundi	1.000	0.920	0.868	0.826	0.875	0.878	0.913	0.935	0.966	0.909
Chittaurgarh	1.000	1.000	0.777	0.691	0.822	0.775	0.565	0.792	0.849	0.808
Churu	1.000	0.924	0.909	0.917	0.842	0.915	0.853	0.850	0.887	0.900
Dausa	1.000	1.000	1.000	1.000	0.971	0.965	0.921	1.000	1.000	0.984
Dhaulpur	0.878	0.970	1.000	1.000	1.000	1.000	1.000	0.999	1.000	0.983
Dungarpur	1.000	0.970	0.947	0.870	0.900	1.000	1.000	1.000	1.000	0.965
Ganganagar	1.000	1.000	0.948	1.000	1.000	1.000	0.884	0.954	1.000	0.976
Hanumangarh	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jaipur	0.816	1.000	1.000	0.951	1.000	1.000	0.874	1.000	1.000	0.960
Jaisalmer	0.509	0.677	1.000	0.618	0.769	0.703	1.000	1.000	1.000	0.808
Jalor	0.820	0.863	0.790	0.817	0.755	1.000	0.810	0.849	0.816	0.836
Jhalawar	0.747	0.748	0.765	0.818	0.825	0.897	1.000	0.943	0.994	0.860
Jhunjhunun	1.000	1.000	1.000	1.000	1.000	0.997	0.883	1.000	1.000	0.987
Jodhpur	0.962	1.000	1.000	1.000	1.000	1.000	0.874	0.906	0.905	0.961
Karauli	0.821	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.980
Kota	1.000	0.980	0.981	0.899	0.963	1.000	0.772	1.000	1.000	0.955
Nagaur	0.852	1.000	0.942	0.894	0.923	1.000	0.822	0.951	0.962	0.927
Pali	0.710	0.846	0.794	0.791	0.784	0.865	1.000	0.835	0.919	0.838
Rajsamand	0.920	0.826	0.782	0.777	0.790	0.962	0.879	0.846	0.881	0.851
Sawai Madhopur	0.779	0.853	0.876	0.856	0.938	0.855	0.784	0.889	0.958	0.865
Sikar	1.000	1.000	1.000	1.000	0.942	1.000	0.817	0.932	0.976	0.963
Sirohi	1.000	1.000	1.000	1.000	1.000	0.875	1.000	0.712	0.722	0.923
Tonk	0.710	0.877	0.927	0.791	0.829	0.878	0.785	0.892	0.917	0.845
Udaipur	0.774	0.948	0.753	1.000	1.000	1.000	1.000	1.000	1.000	0.942
Average	0.887	0.939	0.918	0.908	0.916	0.943	0.891	0.927	0.945	0.919

A3.30 Tamil Nadu	TEOUT at Upper Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Chennai	0.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.989
Coimbatore	0.970	1.000	1.000	0.976	1.000	1.000	1.000	1.000	1.000	0.994
Cuddalore	0.971	1.000	1.000	0.997	0.939	0.896	1.000	0.833	0.802	0.938
Dharamapuri	0.958	1.000	1.000	0.875	1.000	0.926	0.948	0.993	1.000	0.967
Dindigul	0.909	1.000	1.000	0.930	0.986	0.932	1.000	0.882	0.900	0.949
Erode	0.853	1.000	1.000	0.898	1.000	0.954	0.951	1.000	1.000	0.962
Kancheepuram	0.879	1.000	1.000	0.941	0.958	0.962	0.913	0.882	0.854	0.932
Kanniyakumari	0.903	0.812	0.915	0.873	0.911	0.836	1.000	0.813	0.843	0.878
Karur	0.845	0.896	0.985	0.965	0.969	0.885	1.000	0.913	0.909	0.930
Krishanagari	0.901	1.000	1.000	1.000	0.742	0.740	1.000	0.731	0.736	0.872
Madurai	0.959	0.931	1.000	1.000	1.000	1.000	1.000	0.894	0.993	0.975
Nagapattinam	0.959	0.965	0.969	1.000	0.978	0.968	1.000	0.967	0.964	0.974
Namakkal	1.000	1.000	1.000	1.000	0.941	0.988	1.000	0.828	0.835	0.955
Perambalur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pudukkottai	0.911	0.932	0.946	0.918	0.889	0.919	0.918	0.759	0.765	0.884
Ramanathapuram	1.000	1.000	0.957	0.979	0.920	0.927	0.930	0.794	0.831	0.926
Salem	0.896	1.000	1.000	0.928	1.000	0.991	1.000	0.972	0.955	0.971
Sivaganga	1.000	0.901	1.000	0.980	0.962	1.000	1.000	0.840	0.858	0.949
Thanjavur	1.000	0.925	0.998	0.921	0.929	0.928	0.975	0.867	0.853	0.933
The Nilgiris	0.835	0.770	1.000	0.893	0.849	0.878	1.000	0.923	0.898	0.894
Theni	0.938	1.000	1.000	0.987	1.000	1.000	1.000	0.853	0.933	0.968
Thiruvallur	0.859	0.913	0.998	0.998	1.000	1.000	1.000	1.000	1.000	0.974
Thiruvarur	1.000	1.000	0.988	1.000	0.911	0.934	0.947	0.809	0.786	0.931
Thoothukkudi	1.000	0.966	1.000	1.000	0.943	0.978	1.000	0.863	0.977	0.970
Tiruchirappalli	0.877	0.961	1.000	0.921	0.966	1.000	1.000	0.814	0.868	0.934
Tirunelveli	0.990	1.000	1.000	1.000	1.000	1.000	1.000	0.895	0.961	0.983
Tiruvannamalai	0.967	0.958	0.959	0.841	0.838	0.797	0.810	0.700	0.717	0.843
Vellore	0.941	0.999	1.000	1.000	0.983	0.985	1.000	0.658	0.674	0.916
Vilippuram	0.926	0.967	1.000	0.938	0.844	0.804	0.798	0.742	0.699	0.858
Virudhunagar	0.999	1.000	1.000	1.000	0.933	0.964	1.000	0.817	0.913	0.958
Average	0.938	0.963	0.991	0.959	0.946	0.94	0.973	0.868	0.884	0.940

A3.31 Uttar Pradesh	TEOUT at Upper Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Agra	0.926	0.659	0.589	0.560	0.468	0.543	0.350	1.000	1.000	0.677
Aligarh	0.837	0.612	0.591	0.589	0.627	0.643	0.416	0.648	0.741	0.634
Allahabad	0.788	0.644	0.690	0.946	0.723	0.773	0.669	0.800	0.749	0.754
Ambedkar Nagar	1.000	0.746	0.743	0.943	0.953	0.900	0.841	0.841	0.919	0.876
Auraiya	1.000	0.798	0.822	0.953	0.813	0.785	0.763	0.956	1.000	0.877
Azamgarh	1.000	0.661	0.662	0.897	0.845	0.946	0.762	0.753	0.792	0.813

Baghpat	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bahraich	0.648	0.482	0.589	0.617	0.597	0.972	0.606	0.872	1.000	0.709
Ballia	1.000	0.776	0.819	0.731	0.781	0.880	0.749	0.776	0.803	0.813
Balarampur	0.637	0.461	0.408	0.431	0.415	0.425	0.283	0.504	0.369	0.437
Banda	0.812	0.710	0.693	0.738	0.802	0.727	0.817	0.759	0.831	0.765
Barabanki	0.924	0.702	0.693	0.703	0.607	0.601	0.566	0.612	0.600	0.668
Bareilly	0.772	0.439	0.550	0.684	0.676	0.752	0.656	0.695	0.705	0.659
Basti	0.861	0.939	0.834	0.891	0.622	0.716	0.553	0.596	0.728	0.749
Bhadohi	0.862	0.760	0.752	0.820	0.734	0.773	0.817	0.756	0.822	0.788
Bijnor	0.713	0.633	0.729	1.000	0.853	1.000	0.982	1.000	1.000	0.879
Budaun	0.580	0.696	0.609	0.605	0.609	0.669	0.741	0.718	0.694	0.658
Bulandshahr	0.732	0.586	0.700	0.577	0.576	0.635	0.546	0.616	0.617	0.621
Chandauli	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Chitrakoot	1.000	0.629	0.515	0.810	0.903	0.829	1.000	0.751	0.834	0.808
Deoria	1.000	0.667	0.651	0.643	0.668	0.827	0.616	0.713	0.774	0.729
Etah	0.565	0.831	0.896	0.617	0.727	1.000	0.597	0.726	0.846	0.756
Etawah	1.000	0.727	0.703	0.876	0.798	0.707	0.782	1.000	0.811	0.823
Faizabad	0.912	0.771	0.790	0.889	0.745	0.786	0.662	0.810	0.864	0.803
Farrukhabad	0.910	0.669	0.632	0.599	0.560	0.479	0.483	0.769	0.812	0.657
Fatehpur	1.000	0.800	0.849	0.775	0.864	0.984	0.778	0.946	1.000	0.888
Firozabad	0.912	0.824	0.751	0.784	0.871	0.800	0.767	0.807	0.777	0.810
Gautam Buddha Nagar	0.885	0.568	0.483	0.514	0.572	0.510	0.552	0.537	0.632	0.584
Ghaziabad	1.000	1.000	0.821	1.000	0.721	1.000	0.485	0.996	1.000	0.891
Ghazipur	1.000	1.000	1.000	1.000	0.608	1.000	0.512	1.000	1.000	0.902
Gonda	1.000	0.577	0.588	0.644	0.637	0.645	0.659	0.610	0.686	0.672
Gorakhpur	0.848	1.000	1.000	0.788	0.788	0.881	0.579	0.651	0.682	0.802
Hamirpur	0.890	0.634	0.593	0.890	0.900	0.823	1.000	0.846	0.903	0.831
Hardoi	0.676	1.000	1.000	1.000	0.748	1.000	1.000	1.000	1.000	0.936
Hathras	1.000	0.839	1.000	0.882	0.920	0.954	1.000	1.000	0.956	0.950
Jalaun	0.927	0.492	0.625	0.758	0.748	0.727	0.799	0.894	0.916	0.765
Jaunpur	1.000	1.000	1.000	0.824	0.642	0.905	0.462	1.000	0.948	0.865
Jhansi	0.856	0.695	0.715	0.886	0.931	0.924	0.853	0.874	0.965	0.855
Jyotiba Phule Nagar	0.955	0.832	0.725	0.838	1.000	1.000	1.000	1.000	1.000	0.928
Kannauj	0.884	0.777	0.983	1.000	1.000	0.901	1.000	0.857	0.837	0.915
Kanpur Dehat	0.815	0.699	0.556	0.707	0.607	0.650	0.704	0.581	0.591	0.657
Kanpur Nagar	0.973	1.000	1.000	0.935	0.739	0.898	0.482	0.943	0.875	0.872
Kaushambi	0.590	0.409	0.480	0.634	0.609	0.615	0.672	0.586	0.613	0.579
Kheri	0.807	0.573	0.823	0.982	0.910	0.731	1.000	0.889	1.000	0.857
Kushinagar	0.978	1.000	1.000	0.713	0.637	0.704	0.487	0.603	0.668	0.754
Lalitpur	0.738	0.254	0.314	0.853	0.947	0.877	1.000	0.765	0.893	0.738
Lucknow	1.000	0.875	0.961	1.000	0.638	1.000	0.468	1.000	1.000	0.882
Maharajganj	0.906	1.000	1.000	0.594	0.658	0.851	0.445	0.545	0.585	0.732
Mahoba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Mainpuri	0.492	0.567	0.456	0.574	0.677	0.690	0.660	0.734	0.843	0.633
Mathura	0.773	0.570	0.522	0.597	0.641	0.522	0.509	0.626	0.680	0.604
Mau	0.841	0.566	1.000	0.984	0.689	1.000	0.943	1.000	1.000	0.891
Meerut	0.744	0.655	0.669	0.610	0.596	0.773	0.475	0.667	0.764	0.661
Mirzapur	1.000	0.654	0.619	1.000	1.000	0.973	1.000	0.890	0.845	0.887
Moradabad	0.963	0.661	0.649	0.798	0.749	0.840	0.725	0.995	0.887	0.807
Muzaffarnagar	1.000	0.968	0.960	0.894	0.619	0.541	0.398	0.922	0.549	0.761
Pilbhit	0.815	0.561	0.795	0.785	0.823	0.798	0.872	0.902	1.000	0.817
Pratapgarh	1.000	1.000	1.000	1.000	1.000	1.000	0.737	1.000	1.000	0.971
Rae Bareli	0.876	1.000	1.000	0.827	1.000	1.000	1.000	1.000	1.000	0.967
Rampur	1.000	0.464	1.000	0.859	1.000	1.000	1.000	1.000	1.000	0.925
Saharanpur	0.825	0.808	0.838	0.657	0.682	0.806	0.537	0.701	0.729	0.731
Sant Kabir Nagar	0.850	0.661	0.658	0.653	0.627	0.728	1.000	0.785	0.709	0.741
Shahjahanpur	0.611	0.503	0.605	0.626	0.635	0.819	0.678	0.833	0.888	0.689
Shrawasti	0.760	0.485	0.494	0.476	0.466	0.476	0.417	0.567	0.619	0.529
Siddharthnagar	0.495	0.445	0.489	0.491	0.547	0.655	0.497	0.667	0.672	0.551
Sitapur	0.756	0.637	0.700	1.000	1.000	1.000	1.000	0.854	0.939	0.876
Sonbhadra	0.838	0.740	0.732	0.910	0.959	0.888	1.000	0.820	0.859	0.861
Sultanpur	0.896	0.794	0.757	0.772	0.741	0.810	0.861	0.886	0.823	0.816
Unnao	0.854	0.716	0.616	0.733	0.659	0.647	0.570	0.533	0.613	0.660
Varanasi	1.000	0.992	0.822	1.000	1.000	1.000	0.531	0.708	0.772	0.869
Average	0.864	0.727	0.747	0.791	0.756	0.810	0.720	0.810	0.829	0.784

A3.32 West Bengal	**TEOUT at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Bankura	0.917	1.000	0.875	0.811	0.740	0.830	0.778	0.846	0.817	0.846
Burdwan	1.000	0.842	1.000	0.922	1.000	0.836	0.867	1.000	1.000	0.941
Birbhum	0.798	0.736	0.847	0.825	0.692	0.871	0.732	0.839	0.796	0.793
Dakshin Dinajpur	1.000	1.000	1.000	0.876	0.880	1.000	1.000	0.987	0.941	0.965
Darjeeling	0.592	0.505	0.367	0.367	0.366	0.388	1.000	0.347	0.363	0.477
Howrah	0.836	1.000	1.000	0.880	0.780	1.000	1.000	0.955	1.000	0.939
Hooghly	0.764	0.860	0.895	0.863	1.000	1.000	1.000	1.000	1.000	0.931
Jalpaiguri	1.000	1.000	0.795	0.590	0.752	0.796	1.000	1.000	1.000	0.881
Cooch Bihar	0.878	1.000	0.715	0.704	0.825	0.859	0.931	1.000	1.000	0.879
Kolkata	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Malda	0.788	0.584	0.694	0.615	0.707	0.879	1.000	1.000	0.909	0.797
Murshidabad	0.896	0.731	0.824	0.657	1.000	0.841	0.716	0.718	0.990	0.819
Nadia	1.000	1.000	1.000	0.790	0.785	0.803	0.823	1.000	0.966	0.907
North Twenty Four Parganas	1.000	1.000	1.000	1.000	0.859	0.952	0.953	1.000	1.000	0.974
Paschim Midnapore	0.988	0.947	1.000	0.993	0.888	0.972	0.981	1.000	0.934	0.967
Purba Midnapore	0.997	1.000	1.000	1.000	0.643	1.000	0.887	0.844	0.807	0.909
Purulia	0.739	1.000	0.670	0.663	0.668	0.750	0.803	0.751	0.776	0.758
Siliguri	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

South Twenty Four Pargans	0.783	0.845	0.775	0.810	0.670	1.000	1.000	0.908	1.000	0.866
Uttar Dinajpur	0.654	0.834	1.000	1.000	0.653	0.853	0.984	0.810	1.000	0.865
Average	0.882	0.894	0.873	0.818	0.795	0.882	0.923	0.900	0.915	0.876

A3.33	**Mean TEOUT at Primary and Upper Primary Levels over Different Years**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Primary level	0.940	0.950	0.962	0.961	0.961	0.948	0.954	0.966	0.964	0.956
Upper Primary level	0.895	0.906	0.906	0.920	0.923	0.929	0.909	0.936	0.938	0.918

Chapter 4

The Analysis of Input Oriented Technical Efficiency

4.1 Introduction

Another concept of measuring technical efficiency of the decision making unit is input oriented estimation of efficiency score. For measuring performance of education sector, at both primary and upper primary levels of education, analysis regarding the efficient utilization of inputs to produce the observed level of output is an essential matter. The fundamental query is whether there is any chance in improving efficiency? Given this scenario, an analysis of measuring district wise input oriented technical (TEINP) score for the selected states is required in Indian context. This study basically helps to recognize the districts that fall below the respective state specific average (SSA) value of TEINP score and thereafter suggests suitable policies for improving the efficiency score.

The present chapter devotes to estimate the extent of TEINP score and also indicates the factors responsible for variation in measured efficiency score. The district wise estimate of the TEINP score over time in different states for elementary level of education in India is still not much covered in the existing literature. The contributions of the work in this present chapter to the existing literature are as follows:

(i) Considering variable returns to scale (VRS), it computes TEINP score for nine consecutive years from 2005-06 to 2013-14 corresponding to both primary as well as upper primary levels of education. This study intends to find out inter-district variation of TEINP score for different states over time. It also figures out that the inputs employed to produce output are utilised efficiently or not. It is important to know whether there is more usage of different inputs over the optimum or not.

(ii) At the time of figuring out the determinants of efficiency score, it intends to take into account the following aspects- (a) factors from poor infrastructure to see whether this discourages the attainment of TEINP, (b) the indicators from favourable infrastructure to analyse whether this has any positive impact on TEINP, (c) social indicators are included to figure out whether incorporation of the backward/disadvantageous classes into the education system facilities the attainment of TEINP score, (d) some policy indicators to see whether provision of public facilities improves technical efficiency score. Also, the present chapter intends to detect the individual effect of various explanatory variables rather than using a composite index. Because the fact is that, it may be the case that some of the determinants of any composite variables turned out to be significant while the others are not.

The present chapter is structured as follows. Section 4.2 discusses methodology and data sources. Section 4.3 deals with the empirical findings. Section 4.3.1 and 4.3.2 are devoted to illustrate the district wise estimated results on TEINP at primary and upper primary levels of education respectively. Section 4.3.3 presents the radial and slack movements for inputs used in the production process. The description of the determinants influencing TEINP score is depicted in the section 4.4. Section 4.4.1 and 4.4.2 illustrate the analysis of the factors behind the variation of efficiency score at primary and upper primary levels of education respectively. Finally the section 4.5 draws some concluding remarks.

4.2 Methodology and Data Sources

The methodology is discussed in two parts. Part 1 represents the study of district wise input oriented technical efficiency score for selected states, for both primary and upper primary levels of education using DEA for nine consecutive years. Next the extent of more usage of different inputs employed in the production process over the optimum is measured.

4.2.1 Estimation of Input Oriented Technical Efficiency using DEA

Let there are finite number (N) of DMUs with 'h' inputs. It is assumed that every DMU can produce 'g' outputs. For the t^{th} DMU let the inputs are expressed as

$x^t = \left(x_{1t,} x_{2t,\ldots,} x_{ht}\right)$ and the corresponding output set is expressed as $y^t = \left(y_{1t,} y_{2t,\ldots.} y_{gt}\right)$.

The specification of production possibility set under CRS and VRS are already discussed in chapter 3.

To estimate the TE (input oriented) corresponding to t^{th} DMU in case of CRS it is required to solve the following linear programming problem.

$$\begin{aligned} &\min \theta \\ &\text{s.t.} \sum_{j=1}^{N} \lambda_j y_{rj} \geq y_{rt}; \quad (r = 1, 2, \ldots, g) \\ &\sum_{j=1}^{N} \lambda_j x_{ij} \leq \theta\, x_{it}; \quad (i = 1, 2, \ldots, h) \\ &\theta \text{ free}, \quad \lambda_j \geq 0, \quad (j = 1, 2, \ldots, N) \end{aligned} \qquad (4.1)$$

TE (input oriented) of t^{th} DMU under CRS will be obtained by solving equation (4.2).

$$TE_{IN}^{ct}(x^t, y^t) = \theta^* \in T^{CRS} \qquad (4.2)$$

Here θ^*= min θ: (θx^t, y^t)

θ^* is the estimate obtained from equation (4.1).

TE in case of VRS can be similarly obtained at any DMU with the additional assumption $\sum_{j=1}^{N} \lambda_j = 1$.

4.2.2 Radial and Slack Movements in Inputs

Efficiencies are calculated in the linear programming (LP) methods along a ray from the origin to the observed output point. Radial measurement of performance is derived in LP technique. It can be the case that it is not possible to contract the use of inputs always. The horizontal or vertical part of an isoquant considers the inefficient measurement in terms of use of inputs. Therefore, it may be the result of the presence of input slack for the multiple input output production process.

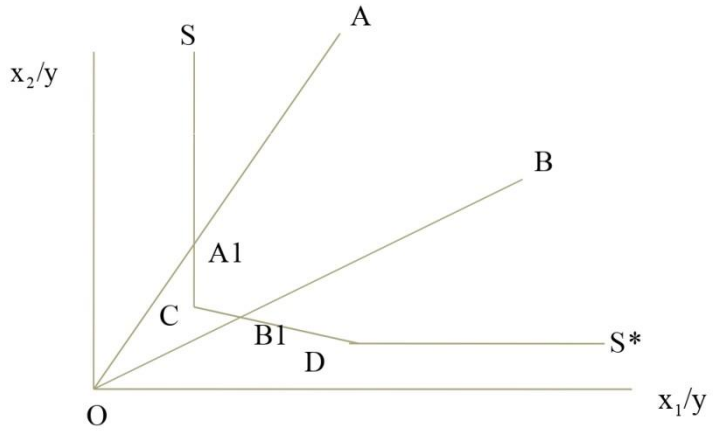
Among the output produced by firm t, the firm may not entirely use up all the individual components of the input bundle to produce the expanded output bundle.

And the slack for the firm t may be defined as

S_i^- =x_{it}-x_{it}*, (i=1,2,…,h)

The input slack can be explained graphically as depicted in Fig. 4.1

Figure 4.1: Measurement of Input Slack and Radial Movement



If there is inefficiency in input utilization then it indicates the presence of radial movement and/or slack movement. It is easy to observe from the above figure (Fig. 4.1) that both the C and D DMUs are efficient as they lie on the frontier. But the other two DMUs A and B are not on the frontier curve and hence they are inefficient. From the graph it is also evident that though A_1 lies on the frontier but at that point the firm is not efficient. The reason is that for this firm some amount

of x_2 input can be decreased to produce the same amount of output and this amount is represented by CA_1. Thus the slack movement is CA_1 corrsponding to input x_2. Here AA_1 represents the radial movement for the input x_2.

4.2.3 Data Sources

The set of input-output and determinants of TEINP and their data sources are same as in the previous chapter.

4.3 Results of Analysis

4.3.1 District wise TEINP Score at Primary Level of Education in India

The district wise input oriented technical efficiency score as well as the radial and slack movements of each input utilised in the study are obtained for the selected 16 major states employing data envelopment analysis programme (version 2.1) developed by Tim Coelli. The estimated results are presented in this section. The district wise estimates of TEINP score for the sample year 2005-06 to 2013-14 corresponding to the primary level are presented in Appendix A4 at the end of this chapter (see A4.1 to A4.16 of Appendix A4).

After observing the results, it can be said that not all the districts are appeared to be perfectly efficient over the study periods. Some of the districts are experiencing an increasing trend whereas some others are decreasing trend comparing the initial and final years of the study period. ***The description of the districts with increasing and decreasing trend, perfectly efficient, remained more or less stagnated and inconclusive (due to fluctuation) over the years are given in tables 4.1, 4.2, 4.3, 4.4 and 4.5 respectively.***

Table 4.1: Districts showing Increasing Trend of TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantpur ,Chittor,Guntur,Khammam,Krishna,Nalgonda,Nellore,Prakasam,Srikakulam,Vizianagaram,West Godavari
Assam	Baperta,Bongaigaon,Darrang,Dibrugarh,Golaghat,Jorhat,Lakhimpur,Nalbari
Bihar	Banka,Bhagalpur,Gaya,Jamui,Jehanabad,Khagaria,Kishanganj,Lakhisarai,Munger,Nawada,Rohtas,Siwan, Vaishali
Gujarat	Amreli,Bharuch,Bhavnagar,Patan,Rajkot
Haryana	Bhiwani,Faridabad,Hisar,Karnal,Panchkula,Panipat,Rohtak
Himachal Pradesh	Mandi,Shimla,Sirmaur,Solan
Karnataka	Bijapur,Kodagu,Kolar,Shimoga,Uttara Kannada
Madhya Pradesh	Balaghat,Bhind,Damoh,Datia,Dewas,Harda,Jabalpur,Jhabua,Katni,Khargone,Mandla,Mandsaur,Narsinghpur,Neemuch,Ratlam,Sagar,Satna,Shajapur,Shivpuri,Tikamgarh,Ujjain
Maharashtra	Ahmadnagar,Akola,Aurangabad (MH),Dhule,Gadchiroli,Nagpur,Pune,Raigarh (MH),Ratnagiri,Sindhudurg,Thane,Washim
Orissa	Bolangir,Deogarh,Dhenkanal ,Gajapati,Jharsuguda,Kalahandi,Keonjhar,Rayagada,Sambalpur
Punjab	Fatehgarh Sahib,Hoshiarpur,Jalandhar,Kapurthala,Nawanshahr,Patiala,Ropar

Rajasthan	Alwar,Banswara,Baran,Chittaurgarh,Dausa,Dungarpur,Hanumangarh,Jaisalmer,Jodhpur,Pali,Sirohi,Udaipur
Tamil Nadu	Coimbatore,Dindigul,Erode,Madurai,Perambalur,Thoothukkudi,Tiruchirappalli,Tirunelveli
Uttar Pradesh	Agra,Allahabad,Banda,Bareilly,Basti,Bijnor,Budaun,Bulandshahr,Firozabad,Gautam Buddha Nagar,Hamirpur,Hardoi,Hathras,Jalaun,Jaunpur,Jhansi,Jyotiba Phule Nagar,Kanpur, Nagar,Kheri,Lalitpur,Lucknow,Mahoba,Mainpuri,Mathura,Meerut,Mirzapur,Pratapgarh,Rampur,Saharanpur,Shahjahanpur,Sitapur,Sonbhadra,Unnao,Varanasi
West Bengal	Burdwan,Birbhum,Howrah,Hooghly,Cooch Bihar

Table 4.2: Districts showing Decreasing Trend of TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Cuddapah,East Godavari,Warangal
Assam	Dhemaji,Goalpara,Karbi Anglong,Kokrajhar,Marigaon,Sonitpur,Tinsukia
Bihar	Araria,Bhojpur,Buxar,Darbhanga,Gopalganj,Kaimur (Bhabua),Muzaffarpur,Nalanda,Paschim Champaran,Patna,Purba Champaran,Saran
Gujart	Banas Kantha,Gandhinagar,Junagadh,Kachchh,Kheda,Narmada,Porbandar,Surat,Surendranagar,Vadodara,Valsad
Haryana	Ambala,Fatehabad,Jind,Kurukshetra,Mahendragarh,Rewari,Sonipat,Yamunanagar
Himachal Pradesh	Bilaspur (H.P),Lahul & Spiti
Karnataka	BangaloreRural,Bellary,Chamrajnagar,Chikmagalur,Chitradurga,Davangere,Gadag,Hassan,Haveri,Koppal, Mandya,Mysore,Raichur,Tumkur
Kerala	Alappuzha,Kasaragod,Kollam,Kottayam,Kozhikode,Palakkad,Pathanamthitta
Madhya Pradesh	Anuppur,Ashoknagar,Betul,Burhanpur,Chhatarpur,Chhindwara,Dhar,Dindori,Gwalior,Hoshangabad,Khandwa,Morena,Panna,Raisen,Rajgarh,Rewa,Sehore,Seoni,Shahdol,Sheopur,Sidhi,Umaria,Vidisha
Maharashtra	Amravati,Bhandara,Bid,Buldana,Chandrapur,Gondiya,Hingoli,Jalgaon,Jalna,Kolhapur,Nanded,Nandurbar, Nashik,Osmanabad,Parbhani,Sangli,Satara,Solapur,Wardha,Yavatmal
Orissa	Angul,Bargarh,Cuttack,Ganjam,Jagatsinghpur,Kandhamal,Kendrapara,Koraput,Nayagarh,Puri,Sonepur
Rajasthan	Ajmer,Barmer,Bharatpur,Bhilwara,Bikaner,Bundi,Churu,Ganganagar,Jaipur,Jalor,Jhalawar,Jhunjhunun,Karauli,Nagaur,Rajsamand,Sawai Madhopur,Sikar,Tonk
Tamil Nadu	Cuddalore,Dharamapuri,Kancheepuram,Kanniyakumari,Karur,Krishanagari,Nagapattinam,Namakkal,Pudukkottai,Ramanathapuram,Salem,Sivaganga,Thanjavur,The Nilgiris,Thiruvallur,Thiruvarur,Tiruvannamalai,Vellore,Vilippuram,Virudhunagar
Uttar Pradesh	Aligarh,Ambedkar Nagar,Auraiya,Azamgarh,Bahraich,Ballia,Balarampur,Barabanki,Bhadohi,Chitrakoot,Deoria,Etah,Etawah,Faizabad,Farrukhabad,Fatehpur,Ghazipur,Gonda,Gorakhpur,Kannauj,Kanpur Dehat,Kaushambi,Kushinagar,Maharajganj,Moradabad,Muzaffarnagar,Pilbhit,Rae Bareli,Sant Kabir Nagar,Shrawasti,Siddharthnagar,Sultanpur
West Bengal	Bankura,Jalpaiguri,Nadia,Purba Midnapore,Purulia

Table 4.3: Districts showing Perfectly Efficient all throughout the Study period of TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Adilabad,Hyderabad,Kurnool,Rangareddi,Visakhapatnam
Assam	Cachar,Dhubri,Kamrup,Karimganj,Sibsagar
Bihar	Samastipur
Gujarat	Mahesana
Haryana	Jhajjar

Himachal Pradesh	Chamba,Hamirpur (H.P),Kangra,Una
Karnataka	Bagalkot,Bangalore,Dakshina Kannada,Dharwad
Kerala	Ernakulam,Malappuram,Wayanad
Madhya Pradesh	Indore
Maharashtra	Latur
Orissa	Balasore,Khordha
Punjab	Amritsar,Faridkot,Ludhiana
Tamil Nadu	Chennai,Theni
Uttar Pradesh	Baghpat
West Bengal	Darjeeling,Malda,North Twenty Four Parganas,Uttar Dinajpur

Table 4.4: Districts showing TEINP More or Less Same at Primary Level of Education

States	Districts
Andhra Pradesh	Karimnagar,Mahbubnagar,Medak,Nizamabad
Assam	Nagaon
Bihar	Begusarai,Katihar,Purnia
Gujarat	Ahmedabad,Dohad,Panch Mahals,Sabar Kantha
Himachal Pradesh	Kinnaur,Kullu
Karnataka	Balgaum,Bidar,Udupi
Kerala	Idukki,Thrissur
Madhya Pradesh	Bhopal,Guna
Orissa	Bhadrak,Malkangiri,Nawarangapur,Nuapada,Sundargarh
Punjab	Bathinda,Ferozepur,Gurdaspur,Mansa,Moga,Muktsar
Rajasthan	Dhaulpur,Kota
Uttar Pradesh	Chandauli,Mau
West Bengal	Paschim Midnapore

For the districts with the TE equal to 1 in the initial and final years of the study periods, efficiency score may vary from 1 between these two periods and hence will fall in separate group. This type of nature of efficiency score over time cannot be explained either by increasing or decreasing trend. For these cases the level of TEINP is fluctuating over time, therefore they are to be treated as inconclusive in nature.

Table 4.5: Districts Fluctuating in TEINP at Primary Level of Education

States	Districts
Assam	Hailakandi
Bihar	Aurangabad(Bihar),Madhepura,Madhubani,Saharsa,Sheikhpura,Sheohar,Sitamarhi,Supaul
Gujarat	Anand,Jamnagar,Navsari,The Dangs
Haryana	Gurgaon,Kaithal,Sirsa
Karnataka	Gulbarga

Kerala	Kannur,Thiruvananthapuram
Madhya Pradesh	Barwani
Maharashtra	Mumbai,Mumbai (Suburban)
Orissa	Boudh,Jajpur,Mayurbhanj
Punjab	Sangrur
Uttar Pradesh	Ghaziabad
West Bengal	Dakshin Dinajpur,Kolkata,Murshidabad,Siliguri,South Twenty Four Pargans

State specific average (SSA) of input oriented technical efficiency score is obtained by taking the mean value of TEINP score of the districts considering all the sample time points for each state. The results suggest that there is a wide variation of input oriented technical efficiency score among the 16 major selected states of India. The districts, higher and lower than the SSA corresponding to primary level are listed in table 4.6.

Table 4.6: State wise list of Districts categorized having Higher and Lower TEINP compared to State Specific Average (SSA) at Primary Level of Education

States	SSA	Districts above State Specific Average (SSA)	Districts below State Specific Average (SSA)
Andhra Pradesh	0.953	Adilabad,Hyderabad,Karimnagar,Khammam,Krishna,Kurnool,Mahbubnagar,Medak,Nizamabad,Rangareddi,Srikakulam,Visakhapatnam,West Godavari	Anantpur,Chittor,Cuddapah,East Godavari,Guntur,Nalgonda,Nellore,Prakasam,Vizianagaram,Warangal
Assam	0.921	Cachar,Darrang,Dhubri,Dibrugarh,Golaghat,Hailakandi,Kamrup,Karbi Anglong,Karimganj,Marigaon,Nagaon,Sibsagar,Sonitpur,Tinsukia	Baperta,Bongaigaon,Dhemaji,Goalpara,Jorhat,Kokrajhar,Lakhimpur,Nalbari
Bihar	0.893	Araria,Begusarai,Jamui,Jehanabad,Katihar,Khagaria,Kishanganj,Lakhisarai,Madhepura,Muzaffarpur,Purba Champaran,Purnia,Saharsa,Samastipur,Sheikhpura,Sheohar,Sitamarhi,Supaul	Aurangabad (Bihar),Banka,Bhagalpur,Bhojpur,Buxar,Darbhanga,Gaya,Gopalganj,Kaimur (Bhabua),Madhubani,Munger,Nalanda,Nawada,Paschim Champaran,Patna,Rohtas,Saran,Siwan,Vaishali
Gujarat	0.901	Ahmedabad,Amreli,Banas Kantha,Bhavnagar,Dohad,Jamnagar,Junagadh,Mahesana,Navsari,Panch Mahals,Patan,Rajkot,Sabar Kantha,Surat,Surendranagar	Anand,Bharuch,Gandhinagar,Kachchh,Kheda,Narmada,Porbandar,The Dangs,Vadodara,Valsad
Haryana	0.911	Ambala,Faridabad,Gurgaon,Hisar,Jhajjar,Kaithal,Panipat,Rohtak,Sirsa,Sonipat,Yamunanagar	Bhiwani,Fatehabad,Jind,Karnal,Kurukshetra,Mahendragarh,Panchkula,Rewari
Himachal Pradesh	0.974	Chamba,Hamirpur (H.P),Kangra,Kullu,Shimla,Sirmaur,Solan,Una	Bilaspur (H.P),Kinnaur,Lahul & Spiti,Mandi
Karnataka	0.908	Bagalkot,Bangalore,Balgaum,Bidar,Bijapur,Dakshina Kannada,Davangere,Dharwad,Gadag,Gulbarga,Kodagu,Udupi	Bangalore Rural,Bellary,Chamrajnagar,Chikmagalur,Chitradurga,Hassan,Haveri,Kolar,Koppal,Mandya,Mysore,Raichur,Shimoga,Tumkur,Uttara Kannada
Kerala	0.953	Alappuzha,Ernakulam,Idukki,Kasaragod,Kollam,Kozhikode,Malappuram,Palakkad,Thiruvananthapuram,Thrissur,Wayanad	Kannur,Kottayam,Pathanamthitta
Madhya Pradesh	0.892	Anuppur,Ashoknagar,Barwani,Bhind,Bhopal,Burhanpur,Chhatarpur,Dhar,Guna,Gwalior,Harda,Indore,Jhabua,Khandwa,Mandsaur,Morena,Narsinghpur,Satna,Sehore,Sheopur,Shivpuri,Tikamgarh	Balaghat,Betul,Chhindwara,Damoh,Datia,Dewas,Dindori,Hoshangabad,Jabalpur,Katni,Khargone,Mandla,Neemuch,Panna,Raisen,Rajgarh,Ratlam,Rewa,Sagar,Seoni,Shahdol,Shajapur,Sidhi,Ujjain,Umaria,Vidisha

Maharashtra	0.782	Amravati,Aurangabad (MH),Bid,Buldana,Hingoli,Jalgaon,Jalna,Kolhapur,Latur,Mumbai,Mumbai (Suburban),Nagpur,Nanded,Osmanabad,Parbhani,Thane	Ahmadnagar,Akola,Bhandara,Chandrapur,Dhule,Gadchiroli,Gondiya,Nandurbar,Nashik,Pune,Raigarh (MH),Ratnagiri,Sangli,Satara,Sindhudurg,Solapur,Wardha,Washim,Yavatmal
Orissa	0.936	Angul,Balasore,Bhadrak,Bolangir,Cuttack,Ganjam,Jajpur,Kalahandi,Keonjhar,Khordha,Malkangiri,Mayurbhanj,Nawarangapur,Nuapada,Sundargarh	Bargarh,Boudh,Deogarh,Dhenkanal, Gajapati,Jagatsinghpur,Jharsuguda,Kandhamal,Kendrapara,Koraput,Nayagarh,Puri,Rayagada,Sambalpur,Sonepur
Punjab	0.931	Amritsar,Bathinda,Faridkot,Ferozepur,Gurdaspur,Hoshiarpur,Ludhiana,Mansa,Moga,Muktsar,Sangrur	Fatehgarh Sahib,Jalandhar,Kapurthala,Nawanshahr,Patiala,Ropar
Rajasthan	0.937	Ajmer,Alwar,Baran,Barmer,Bharatpur,Bikaner,Churu,Dausa,Dhaulpur,Ganganagar,Hanumangarh,Jaisalmer,Jalor,Jhalawar,Jodhpur,Karauli,Kota,Rajsamand,Sirohi,Udaipur	Banswara,Bhilwara,Bundi,Chittaurgarh,Dungarpur,Jaipur,Jhunjhunun,Nagaur,Pali,Sawai Madhopur,Sikar,Tonk
Tamil Nadu	0.910	Chennai,Coimbatore,Dindigul,Kancheepuram,Krishanagari,Madurai,Nagapattinam,Pudukkottai,Ramanathapuram,Salem,Theni,Thiruvallur,Thoothukkudi,Tirunelveli,Virudhunagar	Cuddalore,Dharamapuri,Erode,Kanniyakumari,Karur,Namakkal, Perambalur,Sivaganga,Thanjavur,The Nilgiris,Thiruvarur,Tiruchirappalli,Tiruvannamalai,Vellore,Vilipuram
Uttar Pradesh	0.874	Agra,Allahabad,Azamgarh,Baghpat,Bahraich,Ballia,Balarampur,Bareilly,Basti,Chandauli,Deoria,Ghaziabad,Ghazipur,Gonda,Gorakhpur,Hathras,Jaunpur,Jyotiba Phule Nagar,Kannauj,Kheri,Kushinagar,Lucknow,Maharajganj,Mahoba,Mau,Moradabad,Muzaffarnagar, Pilbhit,Rae Bareli,Rampur,Sant Kabir Nagar,Shahjahanpur,Shrawasti,Siddharthnagar,Sitapur,Sonbhadra,Varanasi	Aligarh,Ambedkar Nagar,Auraiya,Banda,Barabanki,Bhadohi,Bijnor,Budaun,Bulandshahr,Chitrakoot,Etah,Etawah,Faizabad,Farrukhabad,Fatehpur,Firozabad,Gautam Buddha Nagar,Hamirpur,Hardoi,Jalaun,Jhansi,Kanpur Dehat,Kanpur Nagar,Kaushambi,Lalitpur,Mainpuri,Mathura,Meerut,Mirzapur,Pratapgarh,Saharanpur,Sultanpur,Unnao
West Bengal	0.953	Dakshin Dinajpur,Darjeeling,Howrah,Kolkata,Malda,Murshidabad,Nadia,North Twenty Four Parganas,Paschim Midnapore,Siliguri,South Twenty Four Pargans,Uttar Dinajpur	Bankura,Burdwan,Birbhum,Hooghly,Jalpaiguri,Cooch Bihar,Purba Midnapore,Purulia

The estimated summary findings of TEINP score corresponding to primary level of education for the 16 selected major states are reported in table 4.7.

Table 4.7: Summary Findings of TEINP at Primary Level of Education

States	Range of Mean TE	State Specific Average (SSA) of Mean TE	State Specific SD of Mean TE	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	% of Districts having TE=1	State Specific CV of Mean TE
Andhra Pradesh	0.861 to 1	0.953	0.045	56.52	43.48	56.52	4.77
Assam	0.727 to 1	0.921	0.073	66.63	33.37	3.30	7.89
Bihar	0.779 to 1	0.893	0.069	48.64	51.36	0.00	7.68
Gujarat	0.563 to 1	0.901	0.116	15.00	85.00	4.00	12.88
Haryana	0.794 to 1	0.911	0.065	57.89	42.11	10.53	7.09
Himachal Pradesh	0.820 to 1	0.974	0.052	66.67	33.33	33.33	5.30
Karnataka	0.747 to 1	0.908	0.075	44.44	55.56	14.81	8.25
Kerala	0.795 to 1	0.953	0.059	71.43	28.57	21.43	6.22
Madhya Pradesh	0.719 to 1	0.892	0.066	47.91	52.09	2.08	7.45
Maharashtra	0.610 to 1	0.782	0.114	45.71	54.29	2.88	14.59

Orissa	0.829 to 1	0.936	0.049	50.00	50.00	6.70	5.21
Punjab	0.800 to 1	0.931	0.079	64.71	35.29	17.65	8.47
Rajasthan	0.806 to 0.999	0.937	0.054	62.50	37.50	0.00	5.75
Tamil Nadu	0.790 to 1	0.910	0.057	46.88	53.12	6.25	6.22
Uttar Pradesh	0.626 to 1	0.874	0.089	50.00	50.00	1.43	10.20
West Bengal	0.779 to 1	0.953	0.052	60.00	40.00	20.00	5.44
Grand Mean	0.563 to 1	0.914	0.070	53.43	46.57	12.56	7.713

Among the sample of 16 states under the study period, the percentage of the districts with technical efficiency score equal to 1 is highest and lowest for AP (56.52%) and BH (0%) and RA (0%) respectively. Fully technically efficient implies that they are on the frontier indicating perfectly efficient in terms of input utilization. The range of average input oriented technical efficiency is lowest for AP (0.861 to 1) and highest for GJ (0.563 to 1). Coefficient of variation of average TEINP score is lowest for the state AP (4.77%). The states having CV lower than grand mean of CV are namely AP, HA, HP, KE, OR, RA, TN and WB. The state specific average of input oriented technical score is highest for HP (0.974) and lowest for MH (0.782). The grand mean consisting of the mean of SSA of TEINP is 0.914 suggesting that not all the districts as well as respective states are perfectly technically efficient. The states having SSA of TEINP higher than grand mean are AP, AS, HP, KE, OR, PN, RA and WB. The comparison of mean and CV of TEINP for primary level suggests that performance of AP, HP, KE, OR, RA and WB are good as they have higher mean and less variability of TEINP. The estimated value of mean TEINP for different years under the sample period suggests a marginal decrease (see A4.33 in the Appendix A4 at the end of this chapter). On an average percentage of the districts higher than SSA is 53.43. Also the percentage of the districts lying on the frontier is 12.56. The result reveals that a relatively smaller number of districts is fully technically efficient.

4.3.2 District wise TEINP Score at Upper Primary Level of Education

The input oriented measure of technical efficiency score corresponding to upper primary level of education for successive nine years of the study period is presented in this section. The district wise estimates of TEINP score for the sample year 2005-06 to 2013-14 corresponding to the upper primary level are presented in Appendix A4 at the end of this chapter (see A 4.17 to A 4.32 of Appendix A4).

Description of the districts classified according to the increasing, decreasing, perfectly efficient, more or less stagnated and inconclusive (due to fluctuation) in terms of the technical efficiency score is given in the following tables 4.8, 4.9, 4.10, 4.11 and 4.12 respectively.

Table 4.8: Districts showing Increasing Trend of TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Chittor,Karimnagar,Krishna,Kurnool,Mahbubnagar,Medak,Nellore,Nizamabad,Srikakulam,Vizianagaram
Assam	Darrang,Dhubri,Dibrugarh,Kokrajhar,Nagaon
Gujarat	Amreli,Bharuch,Bhavnagar,Kheda,Patan,Rajkot
Haryana	Bhiwani,Faridabad,Hisar,Jind,Karnal,Kurukshetra,Panchkula,Panipat,Rewari,Rohtak
Himachal Pradesh	Bilaspur (H.P),Mandi,Shimla,Sirmaur,Solan
Madhya Pradesh	Anuppur,Balaghat,Barwani,Betul,Chhatarpur,Chhindwara,Damoh,Dewas,Dhar,Hoshangabad,Indore,Jabalpur, Jhabua,Khandwa,Khargone,Mandla,Mandsaur,Narsinghpur,Neemuch,Rajgarh,Ratlam,Sagar,Seoni,Shahdol,Shajapur,Shivpuri,Tikamgarh,Ujjain,Umaria,Vidisha
Orissa	Bargarh,Bhadrak,Bolangir,Boudh,Cuttack,Deogarh,Ganjam,Jagatsinghpur,Kalahandi,Kendrapara,Keonjhar,Khordha,Nayagarh,Nuapada,Puri,Rayagada,Sambalpur,Sundargarh
Punjab	Amritsar,Fatehgarh Sahib,Ferozepur,Ludhiana,Mansa,Nawanshahr,Patiala,Ropar,Sangrur
Rajasthan	Ajmer,Alwar,Baran,Barmer,Bharatpur,Dhaulpur,Jaipur,Jaisalmer,Jhalawar,Karauli,Nagaur,Pali,Sawai Madhopur,Tonk
Tamil Nadu	Chennai,Coimbatore,Dharamapuri,Dindigul,Erode,Madurai,Salem,Theni,Thiruvallur
Uttar Pradesh	Agra,Allahabad,Bahraich,Balarampur,Banda,Bijnor,Budaun,Bulandshahr,Etah,Hardoi,Jhansi,Jyotiba Phule Nagar,Kaushambi,Kheri,Lalitpur,Mainpuri,Mathura,Mau,Meerut,Pilbhit,Rae Bareli,Shahjahanpur,Shrawasti,Siddharthnagar,Sitapur
West Bengal	Bankura,Birbhum,Darjeeling,Howrah,Hooghly,Cooch Bihar,Paschim Midnapore,Purulia,South Twenty Four Pargans,Uttar Dinajpur

Table 4.9: Districts showing Decreasing Trend of TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantpur,Cuddapah,East Godavari,Guntur,Khammam,Nalgonda,Prakasam,Visakhapatnam,West Godavari
Assam	Baperta,Bongaigaon,Golaghat,Jorhat,Karbi Anglong,Karimganj,Marigaon,Sibsagar
Bihar	Bhagalpur,Bhojpur,Gaya,Gopalganj,Jamui,Khagaria,Kishanganj,Munger,Nalanda,Nawada,Paschim Champaran,Patna,Purnia,Saharsa,Siwan,Vaishali
Gujarat	Banas Kantha,Gandhinagar,Jamnagar,Junagadh,Kachchh,Mahesana,Narmada,Porbandar,Surendranagar,The Dangs
Haryana	Ambala,Mahendragarh,Sonipat,Yamunanagar
Himachal Pradesh	Kinnaur
Karnataka	Bangalore Rural,Bellary,Chamrajnagar,Chikmagalur,Chitradurga,Dakshina Kannada,Davangere,Gulbarga,Hassan,Haveri,Koppal,Mandya,Mysore,Raichur,Tumkur,Udupi
Kerala	Kasaragod,Palakkad,Pathanamthitta
Madhya Pradesh	Ashoknagar,Bhind,Bhopal,Burhanpur,Datia,Dindori,Guna,Gwalior,Harda,Katni,Morena,Panna,Raisen, Rewa,Satna,Sehore,Sheopur,Sidhi
Maharashtra	Ahmadnagar,Akola,Aurangabad (MH),Chandrapur,Gondiya,Hingoli,Jalna,Nanded,Nandurbar,Osmanabad,Parbhani,Raigarh (MH),Ratnagiri,Satara,Thane,Yavatmal

Orissa	Balasore,Dhenkanal, Jajpur,Kandhamal,Koraput,Malkangiri,Nawarangapur,Sonepur
Punjab	Hoshiarpur,Kapurthala,Moga,Muktsar
Rajasthan	Bhilwara,Bikaner,Bundi,Chittaurgarh,Churu,Jalor,Jodhpur,Rajsamand,Sikar,Sirohi
Tamil Nadu	Cuddalore,Kancheepuram,Kanniyakumari,Karur,Krishanagari,Nagapattinam,Namakkal,Pudukkottai,Ramanathapuram,Sivaganga,Thanjavur,The Nilgiris,Thiruvarur,Thoothukkudi,Tiruchirappalli,Tirunelveli,Tiruvannamalai,Vellore,Vilippuram,Virudhunagar
Uttar Pradesh	Aligarh,Ambedkar Nagar,Azamgarh,Ballia,Barabanki,Bareilly,Basti,Bhadohi,Chitrakoot,Deoria,Etawah,Faizabad,Farrukhabad,Firozabad,Gautam Buddha Nagar,Gonda,Gorakhpur,Hamirpur,Hathras,Jalaun,Jaunpur,Kannauj,Kanpur Dehat,Kanpur Nagar,Kushinagar,Maharajganj,Mirzapur,Moradabad,Muzaffarnagar,Saharanpur,Sant Kabir Nagar,Sonbhadra,Sultanpur,Unnao,Varanasi
West Bengal	Dakshin Dinajpur,Nadia, Purba Midnapore

Table 4.10: Districts showing Perfectly Efficient all throughout the Study period of TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Adilabad,Hyderabad,Rangareddi
Assam	Cachar,Dhemaji,Hailakandi,Sonitpur,Tinsukia
Gujarat	Dohad
Himachal Pradesh	Chamba,Hamirpur (H.P),Kullu,Lahul & Spiti,Una
Karnataka	Bangalore,Kolar
Kerala	Alappuzha,Ernakulam,Kozhikode,Malappuram
Maharashtra	Dhule,Mumbai
Punjab	Jalandhar
Rajasthan	Hanumangarh
Uttar Pradesh	Baghpat,Chandauli,Mahoba
West Bengal	Kolkata,Siliguri

Table 4.11: Districts TEINP More or Less Same at Upper Primary Level of Education

States	Districts
Assam	Goalpara
Bihar	Araria,Begusarai,Darbhanga,Kaimur (Bhabua),Katihar,Samastipur
Gujarat	Navsari,Panch Mahals,Sabar Kantha,Surat,Valsad
Haryana	Sirsa
Karnataka	Bijapur, Gadag
Kerala	Kollam,Thrissur,Wayanad
Maharashtra	Bid,Jalgaon,Latur
Punjab	Bathinda,Gurdaspur
Rajasthan	Banswara,Dausa,Dungarpur,Jhunjhunun,Kota,Udaipur
Uttar Pradesh	Lucknow
West Bengal	Burdwan,North Twenty Four Parganas

Table 4.12: Districts Fluctuating in TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Warangal
Assam	Kamrup,Lakhimpur,Nalbari
Bihar	Aurangabad (Bihar),Banka,Buxar,Jehanabad,Lakhisarai,Madhepura,Madhubani,Muzaffarpur,Purba Champaran,Rohtas,Sheikhpura,Sheohar,Sitamarhi,Supaul
Gujarat	Ahmedabad,Anand,Vadodara
Haryana	Fatehabad,Gurgaon,Jhajjar,Kaithal
Himachal Pradesh	Kangra
Karnataka	Bagalkot,Balgaum,Bidar,Dharwad,Kodagu,Shimoga,Uttara Kannada
Kerala	Idukki,Kannur,Kottayam,Thiruvananthapuram
Maharashtra	Amravati,Bhandara,Buldana,Gadchiroli,Kolhapur,Mumbai (Suburban),Nagpur,Nashik,Pune,Sangli,Sindhudurg,Solapur,Wardha,Washim
Orissa	Angul,Gajapati,Jharsuguda,Mayurbhanj
Punjab	Faridkot
Rajasthan	Ganganagar
Tamil Nadu	Perambalur
Uttar Pradesh	Auraiya,Fatehpur,Ghaziabad,Ghazipur,Pratapgarh,Rampur
West Bengal	Jalpaiguri,Malda,Murshidabad

State specific average (SSA) of input oriented technical efficiency score at upper primary level of education is obtained by taking the mean value of TEINP score of the districts considering all the sample time points for each state. The results suggest that there is a wide variation of technical efficiency score among the 16 major selected states of India. The districts higher and lower than the SSA for each state are listed in table 4.13.

Table 4.13: State wise list of Districts categorized having Higher and Lower TEINP compared to State Specific Average (SSA) at Upper Primary Level of Education

States	SSA	Districts above State Specific Average (SSA)	Districts below State Specific Average (SSA)
Andhra Pradesh	0.944	Adilabad,Cuddapah,Guntur,Hyderabad,Khammam,Medak,Nalgonda,Nizamabad,Rangareddi,Visakhapatnam,Warangal,West Godavari	Anantpur,Chittor,East Godavari,Karimnagar,Krishna,Kurnool,Mahbubnagar,Nellore,Prakasam,Srikakulam,Vizianagaram
Assam	0.954	Baperta,Cachar,Dhemaji,Dhubri,Goalpara,Hailakandi,Kamrup,Karbi Anglong,Karimganj,Marigaon,Nagaon,Sonitpur,Tinsukia	Bongaigaon,Darrang,Dibrugarh,Golaghat,Jorhat,Kokrajhar,Lakhimpur,Nalbari,Sibsagar
Bihar	0.941	Araria,Aurangabad (Bihar),Banka,Begusarai,Bhojpur,Buxar,Darbhanga,Gaya,Jehanabad,Kaimur (Bhabua),Katihar,Lakhisarai,Madhepura,Madhubani,Muzaffarpur,Purba Champaran,Purnia,Rohtas,Samastipur,Supaul,Vaishali	Bhagalpur,Gopalganj,Jamui,Khagaria,Kishanganj,Munger,Nalanda,Nawada,Paschim Champaran,Patna,Saharsa,Saran,Sheikhpura,Sheohar,Sitamarhi,Siwan

Gujarat	0.933	Ahmedabad,Anand,Bhavnagar,Dohad,Junagadh,Kheda, Mahesana,Navsari,Panch Mahals,Patan,Rajkot,Sabar Kantha,Surat,The Dangs,Vadodara,Valsad	Amreli,Banas Kantha,Bharuch,Gandhinagar,Jamnagar,Kachchh,Narmada,Porbandar,Surendranagar
Haryana	0.928	Bhiwani,Faridabad,Fatehabad,Jhajjar,Jind,Kaithal,Panipat,Rohtak,Sirsa,Yamunanagar	Ambala,Gurgaon,Hisar,Karnal,Kurukshetra,Mahendragarh,Panchkula,Rewari,Sonipat
Himachal Pradesh	0.977	Chamba,Hamirpur (H.P),Kangra,Kullu,Lahul & Spiti,Shimla,Sirmaur,Solan,Una	Bilaspur (H.P),Kinnaur,Mandi
Karnataka	0.953	Bagalkot,Bangalore,Bangalore Rural,Balgaum,Bidar,Bijapur,Dakshina Kannada,Dharwad,Gadag,Gulbarga,Kolar,Koppal,Mysore,Raichur,Shimoga	Bellary,Chamrajnagar,Chikmagalur,Chitradurga,Davangere,Hassan,Haveri,Kodagu,Mandya,Tumkur,Udupi,Uttara Kannada
Kerala	0.978	Alappuzha,Ernakulam,Idukki,Kollam,Kozhikode,Malappuram,Palakkad,Thiruvananthapuram,Thrissur,Wayanad	Kannur,Kasaragod,Kottayam,Pathanamthitta
Madhya Pradesh	0.884	Anuppur,Ashoknagar,Balaghat,Barwani,Bhind,Burhanpur,Chhatarpur,Dhar,Gwalior,Harda,Indore,Jhabua,Katni,Khandwa,Morena,Narsinghpur,Neemuch,Rewa,Sagar,Sehore,Shahdol,Sheopur,Shivpuri,Tikamgarh,Umaria	Betul,Bhopal,Chhindwara,Damoh,Datia,Dewas,Dindori, Guna,Hoshangabad,Jabalpur,Khargone,Mandla,Mandsaur,Panna,Raisen,Rajgarh,Ratlam,Satna,Seoni,Shajapur,Sidhi,Ujjain,Vidisha
Maharashtra	0.912	Ahmadnagar,Amravati,Aurangabad (MH),Bhandara,Bid,Buldana,Dhule,Hingoli,Jalgaon,Kolhapur,Latur,Mumbai,Mumbai (Suburban),Nagpur,Nandurbar,Nashik,Osmanabad,Washim	Akola,Chandrapur,Gadchiroli,Gondiya,Jalna,Nanded,Parbhani,Pune,Raigarh (MH),Ratnagiri,Sangli,Satara,Sindhudurg,Solapur,Thane, Wardha,Yavatmal
Orissa	0.930	Angul,Balasore,Bhadrak,Bolangir,Boudh,Cuttack,Ganjam,Jharsuguda,Kalahandi,Khordha,Koraput,Malkangiri,Nawarangapur,Nuapada,Rayagada,Sonepur,Sundargarh	Bargarh,Deogarh,Dhenkanal ,Gajapati,Jagatsinghpur,Jajpur,Kandhamal,Kendrapara,Keonjhar,Mayurbhanj,Nayagarh,Puri,Sambalpur
Punjab	0.971	Amritsar,Bathinda,Faridkot,Gurdaspur,Jalandhar,Ludhiana,Mansa,Moga,Nawanshahr,Ropar	Fatehgarh Sahib,Ferozepur,Hoshiarpur,Kapurthala,Muktsar,Patiala, Sangrur
Rajasthan	0.959	Ajmer,Banswara,Barmer,Bhilwara,Bundi,Dausa,Dhaulpur,Dungarpur,Ganganagar,Hanumangarh,Jalor,Jhunjhunun ,Jodhpur,Karauli,Kota,Sikar,Sirohi,Udaipur	Alwar,Baran,Bharatpur,Bikaner,Chittaurgarh,Churu,Jaipur,Jaisalmer,Jhalawar,Nagaur,Pali,Rajsamand,Sawai Madhopur,Tonk
Tamil Nadu	0.868	Chennai,Coimbatore,Dharamapuri,Erode,Madurai,Nagapattinam,Perambalur,Theni,Thiruvallur,Thoothukkudi,Tiruchirappalli,Tirunelveli,Virudhunagar	Cuddalore,Dindigul,Kancheepuram,Kanniyakumari,Karur,Krishanagari,Namakkal,Pudukkottai,Ramanathapuram, Salem,Sivaganga,Thanjavur,The Nilgiris,Thiruvarur,Tiruvannamalai,Vellore,Vilippuram
Uttar Pradesh	0.834	Agra,Azamgarh,Baghpat,Bahraich,Ballia,Basti,Bijnor,Chandauli,Fatehpur,Ghaziabad,Ghazipur,Gorakhpur,Hardoi, Hathras,Jaunpur,Jyotiba Phule Nagar,Kannauj,Kanpur Nagar,Kheri,Lucknow,Maharajganj,Mahoba,Mau,Mirzapur,Muzaffarnagar,Pilbhit,Pratapgarh,Rae Bareli,Rampur,Sant Kabir Nagar,Sitapur,Sonbhadra,Sultanpur,Varanasi	Aligarh,Allahabad,Ambedkar Nagar,Auraiya,Balarampur,Banda,Barabanki,Bareilly,Bhadohi,Budaun,Bulandshahr,Chitrakoot,Deoria,Etah,Etawah,Faizabad,Farrukhabad,Firozabad,Gautam Buddha Nagar,Gonda,Hamirpur,Jalaun,Jhansi,Kanpur Dehat,Kaushambi,Kushinagar,Lalitpur,Mainpuri,Mathura,Meerut,Moradabad,Saharanpur,Shahjahanpur,Shrawasti, Siddharthnagar,Unnao
West Bengal	0.927	Burdwan,Dakshin Dinajpur,Howrah,Kolkata,Malda,Nadia,North Twenty Four Parganas,Paschim Midnapore,Purba Midnapore,Siliguri,Uttar Dinajpur	Bankura,Birbhum,Darjeeling,Hooghly,Jalpaiguri,Cooch Bihar,Murshidabad,Purulia,South Twenty Four Pargans

The estimated summary findings of input oriented technical efficiency score at upper primary level of education for the selected 16 major states are reported in table 4.14.

Table 4.14: Summary Findings of TEINP at Upper Primary Level of Education

States	Range of Mean TE	State Specific Average (SSA) of Mean TE	State Specific SD of Mean TE	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	% of Districts having TE=1	State Specific CV of Mean TE
Andhra Pradesh	0.842 to 1	0.944	0.039	52.17	47.83	13.04	4.16
Assam	0.837 to 1	0.954	0.046	59.09	40.91	18.18	4.80
Bihar	0.865 to 0.999	0.941	0.040	56.76	43.24	0.00	4.28
Gujarat	0.751 to 1	0.933	0.070	64.00	36.00	4.00	7.50
Haryana	0.808 to 0.998	0.928	0.049	52.63	47.37	0.00	5.32
Himachal Pradesh	0.894 to 1	0.977	0.038	75.00	25.00	41.67	3.88
Karnataka	0.878 to 1	0.953	0.031	51.85	48.15	7.41	3.27
Kerala	0.896 to 1	0.978	0.029	72.43	27.57	28.57	3.00
Madhya Pradesh	0.774 to 0.991	0.884	0.059	52.68	47.32	0.00	6.72
Maharashtra	0.740 to 1	0.912	0.063	51.43	48.57	5.71	6.87
Orissa	0.808 to 0.999	0.930	0.049	56.67	43.33	0.00	5.28
Punjab	0.907 to 1	0.971	0.108	58.82	41.18	5.89	11.13
Rajasthan	0.888 to 1	0.959	0.058	53.12	46.88	3.13	6.05
Tamil Nadu	0.733 to 0.985	0.868	0.027	37.50	62.50	0.00	3.06
Uttar Pradesh	0.676 to 1	0.834	0.090	48.57	51.43	4.29	10.79
West Bengal	0.779 to 1	0.927	0.062	50.00	50.00	10.00	6.73
Grand Mean	0.676 to 1	0.931	0.054	55.795	44.205	8.87	5.802

Observing the empirical findings it can be said that the percentage of the districts lying on the frontier is highest for HP (41.67%) and lowest for BH, HA, MP and TN (0.00) respectively. The mean input oriented technical efficiency of the districts ranges from 0.907 to 1 and from 0.676 to 1 for PN and UP respectively. The value of average state specific efficiency score computed considering the mean value of technical efficiency score of all the districts over the sample period is highest for KE (0.978) and lowest for UP (0.834). For upper primary level, the states for which SSA of TEINP is higher than grand mean are such as AP, AS, BH, GJ, HP, KA, KE, PN and RA. The performance assessed by the coefficient of variation (CV) presents that KE (3.00%) is in the first position among all the states. The states for which CV of TEINP is lower than grand mean of CV for upper primary level are namely AP, AS, BH, HA, HP, KA, KE, OR and TN. The comparison of mean and CV suggests that with respect to TEINP performance of the states such as AP, AS, BH**,** HP, KA and KE are good as they contain higher mean and less variability of TEINP. The value of grand mean comprising of the mean of SSA is 0.931 implying that not all the districts and the respective states are fully efficient. The estimated value of mean TEINP reveals that there is

marginal increment of efficiency score over the study period (see A4.33 in the Appendix A4 at the end of this chapter). On an average, percentage of the districts higher than SSA and districts having technical efficiency equal to 1 are 55.795 and 8.87 respectively. Thus the majority of the districts have their TEINP greater than the mean of SSA.

4.3.3 Description of Radial and Slack Movements

District wise distribution of the percentage of the ratios of average radial and slack movements to that of average of actual movements of the four inputs over the sample period from 2005-06 to 2013-14 is obtained under measurement of input oriented technical efficiency using nonparametric approach for primary and upper primary levels of education separately. The districts which are perfectly efficient with efficiency score equal to 1 have efficient and optimum utilization of all the inputs and their radial scores are zero, but there may be slack movements for the efficient districts which are on the frontier. Only for those districts the movement of inputs is defined by the slack measure. The rest of the districts have radial and or slack movements gives an estimate of their inefficient input utilization. Using the district level estimates of radial and slack movements, the state level figures are obtained. Radial movements along with the slack movements for various inputs included in the analysis in average percentage terms for the study periods are reported in this section.

4.3.3.1 Measures corresponding to Radial and Slack Movements for Different Inputs under TEINP at Primary Level of Education

Radial Movement

An insightful look at the table 4.15 gives the following details regarding the state wise average of radial movement of the four inputs used in the production process at primary level of education. The districts which are not technically efficient necessarily implying not on the frontier have non-zero radial movement for the four inputs. ***In DEA models, radial movement and slack movements are negative for inputs. Since all these values are indicating reduction of input usage, so they are expressed in negative sign.***

Table 4.15: Summary Findings of Average (District Average) Radial Movements (R.M) for Four Inputs at Primary Level of Education

States	State Specific Average (SSA) of Mean R.M				State Specific SD of Average R.M				State Specific CV of Average R.M			
	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above
Andhra Pradesh	-4.70	-4.63	-4.57	-4.70	4.54	4.52	4.58	4.54	-96.69	-97.70	-100.35	-96.69
Assam	-7.90	-7.86	-8.04	-7.90	7.27	7.33	7.36	7.27	-92.00	-93.35	-91.49	-92.00
Bihar	-10.72	-10.66	-10.57	-10.72	6.86	6.90	6.97	6.86	-63.96	-64.77	-65.92	-63.96
Gujarat	-10.08	-9.96	-10.08	-10.08	12.81	13.28	13.03	12.81	-127.08	-133.28	-129.20	-127.07
Haryana	-9.05	-9.10	-8.93	-9.05	7.13	7.05	7.10	7.13	-78.74	-77.46	-79.54	-78.74
Himachal Pradesh	-2.63	-2.64	-2.62	-2.63	5.44	5.47	5.45	5.44	-207.02	-207.45	-207.71	-207.02
Karnataka	-9.20	-9.03	-9.14	-9.20	7.33	7.28	7.39	7.33	-79.69	-80.53	-80.83	-79.69
Kerala	-4.77	-4.74	-4.71	-4.77	6.13	6.20	6.19	6.13	-128.53	-130.84	-131.56	-128.52
Madhya Pradesh	-10.52	-10.46	-10.50	-10.52	6.70	6.72	6.74	6.70	-63.65	-64.23	-64.21	-63.68
Maharashtra	-21.79	-21.88	-21.87	-21.79	11.41	11.36	11.30	11.41	-52.37	-51.89	-51.69	-52.37
Orrisa	-6.63	-6.63	-6.61	-6.63	4.81	4.78	4.81	4.81	-72.61	-72.05	-72.76	-72.61
Punjab	-6.95	-6.81	-6.96	-6.84	7.50	7.48	7.50	7.54	-107.85	-109.80	-107.76	-110.25
Rajasthan	-6.30	-6.30	-6.15	-6.29	5.39	5.51	5.44	5.39	-85.59	-87.55	-88.45	-85.75
Tamil Nadu	-6.94	-6.98	-7.00	-6.94	4.88	4.96	4.89	4.88	-70.42	-71.07	-69.86	-70.42
Uttar Pradesh	-12.59	-12.58	-12.55	-12.59	8.92	8.95	8.95	8.92	-70.82	-71.11	-71.26	-70.82
West Bengal	-4.68	-4.78	-4.80	-4.68	5.18	5.17	5.12	5.18	-110.76	-108.27	-106.55	-110.79

The state specific average of radial movement for number of schools per lakh population (i.e. mean of average radial movement for all the districts over sample period 2005-06 to 2013-14 for each state separately) is lowest for HP (2.63%) and

highest for MH (21.79%). The standard deviation is lowest for AP (4.54) and the lowest coefficient of variation is found for MH (52.37%).

In case of teacher-pupil ratio, SSA of radial movement is again lowest for HP (2.64%) and highest for MH (21.88%). Considering the rest of the two inputs, namely classroom-student ratio and percentage of teachers with qualification graduate and above, the SSA of radial movements is lowest for the state HP and highest for MH. Observing the outcome, it can be concluded that the level of inefficiency in terms of input utilization (only radial measure) is highest for MH and lowest for HP.

Now it can be the case that some districts are technically efficient indicating their input oriented efficiency score equal to 1, but not all of them have combined movement zero. The radial measures of these districts are appeared to be zero since they are on the frontier but they may have slack movement. Thus, for these districts one can further reduce some of the input keeping other inputs constant and can produce the same level of output as before. Therefore, for the efficient districts slack movements may not always be zero. The estimation results also find that slack movements for different inputs are zero also for the efficient districts. On the other hand, inefficient districts with zero slack movements have non-zero radial measures which solely give the extent of inefficient utilization of inputs.

The district wise percentage of the ratios of the average of the radial movement to that average of actual movement of the four inputs over time are presented in tables 4.16, 4.17, 4.18 and 4.19 corresponding to primary level of education. The districts with zero radial or slack movement are not reported here.

Table 4.16: Radial Movement (Average) for Input Number of Schools per lakh Population under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (6.67), Chittoor (13.85), Cuddapah(10.59), East Godavari (5.14), Guntur (8.2), Karimnagar (1.92), Khammam (3.21), Krishna (0.42), Mahbubnagar (1.03), Medak (0.75), Nalgonda (10.22), Nellore (10.92), Nizamabad (2.38), Prakasam (11.5), Srikakulam (1.84), Vizianagaram (5.49), Warangal (9.34), West Godavari (4.53)
Assam	Baperta (12.04), Bongaigaon (9.33), Darrang (3.16), Dhemji (14.60), Dibrugarh (7.27), Golpara (10.10), Golaghat (7), Hailakandi (3.62), Jorhat (14.98), Karbi Anglong (6.7), Kokarajhar (21.96), Lakhimpur (27.34), Marigaon (3.65), Nagaon (0.76), Nalbari (13.98), Sibsagar (4.85), Sonitpur (6.78), Tinsukia (5.66)
Bihar	Araria (4.84), Aurangabad (Bihar) (16.78), Banka (17.03), Begusarai (0.84), Bhagalpur (11.19), Bhojpur (22.08), Buxar (20.70), Darbhanga (11.81), Gaya (15.56), Gopalganj (17.9), Jamui (4.12), Jehanabad (8.3), Kaimur (Bhabua) (21.93), Katihar (0.88), Khagaria (5), Kisanganj (4.1), Lakhisarai (7.40), Madhepura (8.23), Madhubani (14.32), Munger (19.06), Muzaffarpur (10.5), Nalanda (20.7), Nawada (18.17), Paschim Champaran (13.82), Patna (14.91), Purba Champaran(9.03), Purnia (1.18), Rohtas (14.04), Saharsa (2.15), Saran(19.69), Seikhpura (4.82), Seohar (2.72), Sitamarhi (3.24), Siwan (12.06), Supaul (6.47), Vaishali (11.16)
Gujarat	Ahmadabad (.02), Amreli (.03), Anand (17.5), Banas Katha (9.72), Bharuch (25.53), Dohad (0.19), Gandhinagar (15.46), Jamnagar (7.64), Junagadh (2.97), Kachchh (14.93), Kheda (11.31), Narmada (47.36), Navsari (2.07), Panch Mahals (0.49), Porbandar (21.90), Rajkot (0.62), Sabar kantha (0.08), Surat (1.004), Surendranagar (0.68), The Dangs (16.41), Vadodara (37.95), Valsad (18.1)

Haryana	Ambala (11.05), Bhiwani (10.57), Fatehabad (16.27), Gurgaon (3.09), Hisar (3.76), Jind (13.43), Kaithal (7.59), Karnal (9.39), Kurukshetra (23.39), Mahendragarh (21.04), Panchkula (12.09), Rewari (18.48), Rohtak (1.78), Sirsa (5.78), Sonipat (6.88), Yamunanagar (6.68)
Himachal Pradesh	Bilaspur (19.05), Kinnaur (3.47), Kullu (0.05), Lahul & Spiti (5.04), Mandi(2.7), Shimla (0.69), Sirmaur (0.54),
Karnataka	Bangalore (3), Bangalore Rural (10.58), Belgaum (0.55), Bellary (16.3), Bidar (1.64), Bijapur (1.96), Chamrajnagar (13.74), Chikmagalur (25.32), Chitradurga (13.47), Davangee (8.27), Gadag (0.92), Gulbarga (2.3), Hassan (14.92), Haveri (16.88), Kodagu(7.43), Kolar (10.97), Koppal (9.76), Mandya (20.09), Mysore (11.56), Raichur (11.26), Shimoga (17.07), Tumkur (11.54), Udupi (0.53), Uttara Kannada (18.31)
Kerala	Allapuzha (3.78), Idduki (0.802), Kannur (10.31), Kasaragod (2.76), Kollam (4.48), Kottyama (12.46), Kozhikode (1.96), Palakkad (1.97), Pathanamthitta (21.41), Thiruvanantapuram(5.92), Thrissur (0.87)
Madhya Pradesh	Anuppur (7.11), Ashoknagar (3.09), Balaghat (11.27), Barwani (5.14), Betul (20.91), Bhind (1.53), Bhopal (0.49), Burhanpur (0.77), Chhatarpur (4.64), Chindwara (17.87), Damoh (15.64), Datia (17.27), Dewas (11.34), Dhar (8.59), Dindori (10.66), Guna (4), Gwalior (0.52), Harda (4.27), Hosangabad (17.91), Jabalpur (13.91), Jhabua (3.61), Katni (15.13), Khandwa (8.74), Khargone (2.57), Mandla (11.79), Mandsaur (8.75), Morena (2.42), Narshingpur (9.29), Neemuch (11.02), Panna (16.85), Raisen (15.12), Rajgarh (22.75), Ratlam (12.24), Rewa (13.41), Sagar (12.64), Satna (8.87), Sehore (7.77), Satni (28.07), Shahdol (22.67), Shajapur (17.99), Sheopur (4.7), Shivpuri (10.78), Sidhi (14.29), Tikamgarh (4.95), Ujjain (10.33), Umaria (12.91), Vidhisa (18.48)
Maharashtra	Ahmadnagar (40.11), Akola (27.03), Amravati (19.29), Aurangabad (MH) (13.33), Bhandara (24.07), Bid (18.49), Buldana (17.37), Chandrapur (34.30), Dhule (31.29), Gadchiroli (27.02), Gondya (24.01), Hingoli (2.69), Jalgaon (13.06), Jalna (10.13), Kolhapur (8.92), Mumbai (Suburban) (12.18), Nagpur (20.88), Nanded (16.93), Nandurbar (31.48), Nashik (23.53), Osmanabad (5.86), Parbhani (1.75), Pune (26.92), Raigarh (39.04), Ratnagiri (32.48), Sangli (33.29), Satara (34.90), Sindhudurg (33.45), Solapur (29.06), Thane (8.7), Wardha (36.05), Washim (26.52), Yavatmal (30.27)
Orissa	Angul (3.33), Bargarh (7.95), Bhadrak (0.16), Bolangir (3.12), Boudh (8.42), Cuttack (4.45), Deogarh (8.05), Dhenkanal (7.71), Gajapati (17.14), Ganjam (1.26), Jagatsingpur (11.83), Jajpur (5.03), Jharsuguda(8.77) , kalahandi (3.06), Kandhamal (11.42), Kendrapara (9.28), Keonjhar (5.41), Koraput (12.08), Malkangiri (0.32), Mayurbhanj (5.06), Nawarangapur (0.14), Nayagarh (9.42), Nuapada (1.28), Puri (9.3), Rayagada (15.45), Sambalpur (7.98), Sonepur (13.26), Sundargarh (1.55)
Punjab	Bhatinda (0.35), Fatehgarh Sahib (19.52), Ferozepur (2.04), Gurdaspur (0.31), Hossiarpur (6.45), Jalandhar (17.58), Kapurthala (11.48), Mansa (3.12), Moga (0.21), Mukstar (4.80), Nawanshahr (17.47), Patiala (11.51), Ropar (19.08), Sangrur (4.25)
Rajasthan	Ajmer (3.59), Alwar (2.33), Banswara (9.1), Baran (3.44), Barmer (1.01), Bharatpur (1.33), Bhilwara (7.99), Bikaner (5.31), Bundi (18.07), Chittaurgarh (9.97), Churu (2.40), Dausa (4.36), Dhaulpur (0.07), Dungarpur (19.45), Ganganagar (5.08), Hanumangar (0.23), Jaipur (9.87), Jaisalmer (1.52), Jalor (2.06), Jhalawar (1.78), Jhunjhunun (14.55), Jodhpur (2.93), Krauli (4.64), Kota (2.79), Nagaur (7.56), Pali (7.58), Rajsamand (2.01), Sawai Madhopur (14.15), Sikar (10.45), Sirohi (4.22), Tonk (16.75), Udaipur (4.96)
Tamil Nadu	Coimbatore (2.86), Cuddalore (9.32), Dharmapuri (8.87), Dindigul (3.5), Erode (10.5), Kancheepuram (0.51), Kannyiakumari (6.26), Karur (16.45), Krishanagiri (3.04), Madurai (3.56), Nagapattinam (4.31), Namakkal (7.61), Perambalur (10.66), Pudukkottai (6.85), Ramanathapuram (5.56), Salem (2.36), Sivaganga (14.45), Thanjavur (16.9), The Nilgiris (11.28), Thiruvallur (3.56), Thiruvarur (7.15), Thoothukkudi (1.39), Tiruchirappali (10.21), Tirunelveli (2.62), Tiruvannamalai (13.83), Vellore (13.4), Villupurram (6.67), Virudhanagar (4.39)
Uttar Pradesh	Agra (10.25), Aligarh (17.19), Allahabad (6.63), Ambedkar Nagar (20.05), Auraiya (36.09), Azamgarh (12.64), Bahraich (7.13), Balla (10.86), Balrampur (4.06), Banda (24.94), ,Barabanki (16.69), Bareilly (4.90), Basti (5.86), Bhadohi (13.73), Bijnor (18.83), Budaun (17.49), Bulandsahar (18.39), Chandauli (0.913), Chitrakoot (15.13), Deoria (6.82), Etah (15.78), Etah (36.33), Faizabad (25.50), Farukkabhad (18.73), Fatehpur (16.83), Firozabad (15.67), Gautam Buddha Nagar (15.57), Ghaziabad (2.53), Ghazipur (2.34), Gonda (7.26), Gorakhpur (6.71), Hamirpur (29.93), Hardoi (13.45), Hathras (5.32), Jalaun (27.25), Jaunpur (6.10), Jhansi (17.09), Jyotiba Phule Nagar(6.14), Kannauj (2.04), Kanpur Dehat (37.36), Kanpur Nagar (18.49), Kaushambi (13.42), Kheri (2.94), Kushinagar (4.10), Lalitpur (18.0), Lucknow (.03), Maharajganj (1.31), Mahoba (7.29), Mainpuri (27.62), Mathura (18.64), Mau (0.29), Meerut (14.21), Mirzapur (14.39), Moradabad (3.44), Muzaffarnagar (11.17), Pilbhit (10.29), Pratapgarh (15.21), Rae Bareli (12.61), Rampur (1.52), Saharanpur (14.44), Sant Kabir Nagar (6.86), Shahjahanpur (10.05), Shrawasti (11.3), Siddharthnagar (3.69), Sitapur (3.54), Sonbhadra (12.13), Sultanpur (22.05), Unnao (17.54), Varanasi (8.16)
West Bengal	Bankura (22.12), Burdwan (4.83), Birbhum (9.31), Dakshin Dinajpur (2.12), Howrah (1.82), Hooghly (4.96), Jalpaiguri (8.56), Cooch Bihar (8.95), Kolkata (2.67), Murshidabad (1.93), Nadia (4.75), Paschim Midnapore (0.74), Purba Midnapore (5.39), Purulia (8.78), Siliguri (3.75), South Twenty Four Pargana (2.88)

Table 4.17: Radial Movement (Average) for Input Teacher-Pupil Ratio under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (6.55), Chittoor (13.79), Cuddapah(10.59), East Godavari (4.51), Guntur (7.93), Karimnagar (1.89), Khammam (3.01), Krishna (0.37), Mahbubnagar (0.70), Medak (0.64), Nalgonda (10.07), Nellore (10.54), Nizamabad (2.70), Prakasam (11.43), Srikakulam (1.74), Vizianagaram (5.57), Warangal (9.60), West Godavari (4.75)
Assam	Baperta (11.60), Bongaigaon (9.47), Darrang (2.93), Dhemji (14.41), Dibrugarh (7.21), Golpara (9.81), Golaghat (6.62), Hailakandi (3.24), Jorhat (15.21), Karbi Anglong (6.53), Kokarajhar (22.33), Lakhimpur (27.47), Marigaon (3.75), Nagaon (0.62), Nalbari (14.09), Sibsagar (4.91), Sonitpur (6.71), Tinsukia (5.93)
Bihar	Araria (5.88), Aurangabad (Bihar) (16.48), Banka (16.69), Begusarai (1.20), Bhagalpur (9.92), Bhojpur (21.36), Buxar (21.78), Darbhanga (11.65), Gaya (15.14), Gopalganj (18.18), Jamui (4.24), Jehanabad (7.05), Kaimur (Bhabua) (22.17), Katihar (0.74), Khagaria (4.61), Kisanganj (3.32), Lakhisarai (6.97), Madhepura (7.95), Madhubani (13.59), Munger (18.62), Muzaffarpur (10.21), Nalanda (21.47), Nawada (17.96), Paschim Champaran (13.76), Patna (14.82), Purba Champaran(8.98), Purnia (1.11), Rohtas (13.88), Saharsa (2.40), Saran(19.81), Seikhpura (3.94), Seohar (2.49), Sitamarhi (3.93), Siwan (12.39), Supaul (6.69), Vaishali (12.88)
Gujarat	Anand (17.73), Banas Katha (9.73), Bharuch (28.43), Gandhinagar (15.68), Jamnagar (8.78), Kachchh (16.25), Kheda (9.70), Narmada (49.78), Navsari (1.54), Panch Mahals (1.81), Porbandar (21.14), The Dangs (16.10), Vadodara (38.37), Valsad (18.67)
Haryana	Ambala (11.35), Bhiwani (11.16), Fatehabad (16.15), Gurgaon (3.07), Hisar (4.03), Jind (12.72), Kaithal (7.67), Karnal (9.57), Kurukshetra (22.94), Mahendragarh (20.67), Panchkula (13.59), Rewari (18.59), Rohtak (1.83), Sirsa (5.64), Sonipat (6.99), Yamunanagar (6.94)
Himachal Pradesh	Bilaspur (19.17), Kinnaur (3.48), Lahul & Spiti (5.02), Mandi(2.72), Shimla (0.70), Sirmaur (0.57),
Karnataka	Bangalore (10.39), Bangalore Rural (3.05), Belgaum (0.93), Bellary (15.39), Bidar (1.10), Bijapur (0.97), Chamrajnagar (13.97), Chikmagalur (25.08), Chitradurga (13.87), Davangee (7.95), Gadag (1.06), Gulbarga (2.84), Hassan (15.15), Haveri (16.62), Kodagu(7.43), Kolar (10.82), Koppal (9.69), Mandya (20.22), Mysore (11.25), Raichur (10.73), Shimoga (15.95), Tumkur (11.33), Uttara Kannada (18.13)
Kerala	Allapuzha (3.45), Idduki (0.88), Kannur (10.39), Kasaragod (2.52), Kollam (4.08), Kottyama (12.45), Kozhikode (1.72), Palakkad (1.95), Pathanamthitta (21.62), Thiruvanantapuram(6.46), Thrissur (0.88)
Madhya Pradesh	Anuppur (7.49), Ashoknagar (3.07), Balaghat (11.06), Barwani (5.11), Betul (20.84), Bhind (1.53), Bhopal (0.57), Burhanpur (0.84), Chhatarpur (4.18), Chindwara (17.94), Damoh (15.52), Datia (17.12), Dewas (10.98), Dhar (7.91), Dindori (10.59), Guna (4.42), Gwalior (0.68), Harda (4.44), Hosangabad (18.05), Jabalpur (13.86), Jhabua (3.37), Katni (14.70), Khandwa (8.99), Khargone (1.89), Mandla (12.06), Mandsaur (8.62), Morena (2.46), Narshingpur (9.28), Neemuch (10.92), Panna (16.43), Raisen (14.99), Rajgarh (23.59), Ratlam (12.11), Rewa (13.63), Sagar (12.89), Satna (8.64), Sehore (7.48), Satni (27.88), Shahdol (23.09), Shajapur (17.73), Sheopur (4.09), Shivpuri (11.01), Sidhi (14.06), Tikamgarh (5.19), Ujjain (10.14), Umaria (12.78), Vidhisa (17.89)
Maharashtra	Ahmadnagar (40.52), Akola (27.15), Amravati (19.98), Aurangabad (MH) (13.08), Bhandara (23.45), Bid (17.85), Buldana (17.99), Chandrapur (35.08), Dhule (30.86), Gadchiroli (27.30), Gondya (24.08), Hingoli (2.98), Jalgaon (13.08), Jalna (10.87), Kolhapur (8.80), Mumbai (Suburban) (12.73), Nagpur (21.89), Nanded (16.58), Nandurbar (31.43), Nashik (23.51), Osmanabad (5.71), Parbhani (1.49), Pune (27.27), Raigarh (38.90), Ratnagiri (32.20), Sangli (33.02), Satara (34.57), Sindhudurg (33.58), Solapur (29.32), Thane (9.96), Wardha (35.66), Washim (27.36), Yavatmal (29.75)
Orissa	Angul (2.89), Bargarh (7.90), Bolangir (3.64), Boudh (8.26), Cuttack (4.44), Deogarh (7.85), Dhenkanal (7.88), Gajapati (17.10), Ganjam (1.39), Jagatsingpur (12.43), Jajpur (4.45), Jharsuguda(8.65) , kalahandi (3.80), Kandhamal (11.77), Kendrapara (9.12), Keonjhar (4.96), Koraput (11.55), Malkangiri (0.47), Mayurbhanj (4.80), Nayagarh (9.22), Nuapada (1.45), Puri (10), Rayagada (15.27), Sambalpur (8.05), Sonepur (12.69), Sundargarh (1.71)
Punjab	Bhatinda (0.63), Fatehgarh Sahib (19.81), Ferozepur (2.20), Gurdaspur (0.44), Hossiarpur (6.54), Jalandhar (16.97), Kapurthala (11.41), Mansa (2.64), Mukstar (3.76), Nawanshahr (17.85), Patiala (10.36), Ropar (18.95), Sangrur (4.20)
Rajasthan	Ajmer (3.22), Alwar (3.23), Banswara (9.11), Baran (3.89), Barmer (0.62), Bharatpur (0.95), Bhilwara (8.22), Bikaner (4.49), Bundi (18.25), Chittaurgarh (9.29), Churu (1.05), Dausa (3.32), Dungarpur (19.31), Ganganagar (5.11), Jaipur (10.19), Jaisalmer (1.68), Jalor (1.45), Jhalawar (2.63), Jhunjhunun (15.32), Jodhpur (3.54), Krauli (5.09), Kota (2.45), Nagaur (7.40), Pali (8.34), Rajsamand (1.83), Sawai Madhopur (13.91), Sikar (11.07), Sirohi (5.05), Tonk (17.01), Udaipur (4.55)

Tamil Nadu	Coimbatore (2.83), Cuddalore (9.11), Dharmapuri (8.87), Dindigul (3.05), Erode (10.90), Kancheepuram (0.45), Kannyiakumari (5.91), Karur (16.86), Krishanagiri (3.04), Madurai (4.10), Nagapattinam (4.54), Namakkal (7.79), Perambalur (11.12), Pudukkottai (7.11), Ramanathapuram (5.54), Salem (2.32), Sivaganga (14.28), Thanjavur (17.12), The Nilgiris (11.60), Thiruvallur (3.46), Thiruvarur (7.20), Thoothukkudi (1.03), Tiruchirappali (9.84), Tirunelveli (2.80), Tiruvannamalai (14.05), Vellore (13.42), Villupurram (6.63), Virudhanagar (4.59)
Uttar Pradesh	Agra (10.57), Aligarh (17.58), Allahabad (6.46), Ambedkar Nagar (19.71), Auraiya (35.70), Azamgarh (12.34), Bahraich (7.44), Balla (10.80), Balrampur (3.79), Banda (25.41), Barabanki (16.53), Bareilly (4.69), Basti (5.32), Bhadohi (14.25), Bijnor (18.31), Budaun (16.93), Bulandsahar (18.12), Chandauli (0.53), Chitrakoot (15.16), Deoria (6.65), Etah (15.67), Etah (36.09), Faizabad (25.29), Farukkabhad (19.28), Fatehpur (16.08), Firozabad (15.36), Gautam Buddha Nagar (16.22), Ghaziabad (2.33), Ghazipur (2.42), Gonda (7.11), Gorakhpur (6.71), Hamirpur (30.48), Hardoi (12.84), Hathras (5.26), Jalaun (29.93), Jaunpur (6.42), Jhansi (17.39), Jyotiba Phule Nagar(6.71), Kannauj (1.55), Kanpur Dehat (37.65), Kanpur Nagar (18.80), Kaushambi (13.46), Kheri (3.43), Kushinagar (3.99), Lalitpur (17.92), Maharajganj (1.81), Mahoba (7.56), Mainpuri (28.15), Mathura (18.32), Mau (0.54), Meerut (14.5), Mirzapur (13.70), Moradabad (3.51), Muzaffarnagar (11.26), Pilbhit (9.76), Pratapgarh (15.14), Rae Bareli (12.63), Rampur (1.57), Saharanpur (14.01), Sant Kabir Nagar (7.05), Shahjahanpur (9.79), Shrawasti (11.81), Siddharthnagar (4.02), Sitapur (2.64), Sonbhadra (12.27), Sultanpur (22.78), Unnao (18.05), Varanasi (8.03)
West Bengal	Bankura (22.07), Burdwan (5.7), Birbhum (10.55), Dakshin Dinajpur (2.53), Howrah (1.94), Hooghly (5.23), Jalpaiguri (8.24), Cooch Bihar (8.33), Kolkata (2.78), Murshidabad (1.98), Nadia (5.28), Paschim Midnapore (0.72), Purba Midnapore (5.25), Purulia (8.32), Siliguri (3.95), South Twenty Four Pargana (2.75)

Table 4.18: Radial Movement (Average) for Input Classroom-Student Ratio under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (6.02), Chittoor (14.03), Cuddapah(10.69), East Godavari (4.82), Guntur (8.56), Karimnagar (1.76), Khammam (2.85), Krishna (0.47), Mahbubnagar (0.39), Medak (0.33), Nalgonda (9.25), Nellore (10.17), Nizamabad (2.44), Prakasam (12.29), Srikakulam (1.64), Vizianagaram (5.84), Warangal (9.21), West Godavari (4.26)
Assam	Baperta (12.7), Bongaigaon (8.92), Darrang (3.59), Dhemji (14.49), Dibrugarh (7.34), Golpara (10.65), Golaghat (7.03), Hailakandi (3.74), Jorhat (15.18), Karbi Anglong (6.88), Kokarajhar (22.51), Lakhimpur (27.59), Marigaon (3.79), Nagaon (0.68), Nalbari (14.05), Sibsagar (4.95), Sonitpur (7.19), Tinsukia (5.69)
Bihar	Araria (4.66), Aurangabad (Bihar) (16.33), Banka (17.63), Bhagalpur (12.20), Bhojpur (25.31), Buxar (19.59), Darbhanga (11.16), Gaya (15.59), Gopalganj (15.51), Jamui (3.3), Jehanabad (9), Kaimur (Bhabua) (22), Khagaria (6.11), Kisanganj (5.67), Lakhisarai (7.86), Madhepura (6.85), Madhubani (14.28), Munger (20.12), Muzaffarpur (11.37), Nalanda (18.51), Nawada (15.74), Paschim Champaran (12.89), Patna (14.31), Purba Champaran(9.53), Rohtas (14.16), Saharsa (1.84), Saran(21.08), Seikhpura (4.93), Seohar (2.43), Sitamarhi (3.53), Siwan (11.33), Supaul (6.47), Vaishali (9.86)
Gujarat	Anand (18.26), Banas Katha (9.89), Bharuch (25.48), Dohad (0.19), Gandhinagar (18.59), Jamnagar (8.23), Kachchh (16.99), Kheda (10.63), Narmada (47.02), Navsari (1.46), Panch Mahals (0.91), Porbandar (22.47), Surendranagar (0.19), The Dangs (16.16), Vadodara (37.47), Valsad (18.35)
Haryana	Ambala (11.14), Bhiwani (10.23), Fatehabad (16.79), Gurgaon (3.14), Hisar (3.49), Jind (12.42), Kaithal (7.26), Karnal (9.21), Kurukshetra (22.92), Mahendragarh (21.15), Panchkula (12.89), Rewari (18.35), Rohtak (1.62), Sirsa (5.89), Sonipat (6.63), Yamunanagar (6.57)
Himachal Pradesh	Bilaspur (19.11), Kinnaur (3.43), Kullu (0.07), Lahul & Spiti (5.05), Mandi(2.53), Shimla (0.712), Sirmaur (0.60),
Karnataka	Bangalore (2.97), Bangalore Rural (10.36), Belgaum (0.86), Bellary (15.38), Bidar (1.85), Bijapur (1.58), Chamrajnagar (14.2), Chikmagalur (25.61), Chitradurga (14.7), Davangee (7.78), Gadag (0.82), Gulbarga (2.38), Hassan (14.5), Haveri (16.48), Kodagu(6.94), Kolar (10.86), Koppal (8.83), Mandya (20.67), Mysore (11.62), Raichur (11.26), Shimoga (16.95), Tumkur (12.21), Uttara Kannada (18.06)
Kerala	Allapuzha (3.44), Idduki (0.82), Kannur (10.14), Kasaragod (3.03), Kollam (3.46), Kottyama (12.98), Kozhikode (2.09), Palakkad (1.67), Pathanamthitta (21.46), Thiruvanantapuram(5.89), Thrissur (0.90)
Madhya Pradesh	Anuppur (7.02), Ashoknagar (3.22), Balaghat (11.13), Barwani (4.81), Betul (20.73), Bhind (1.59), Bhopal (0.52), Burhanpur (0.69), Chhatarpur (4.75), Chindwara (18.22), Damoh (15.91), Datia (17.59), Dewas (11.60), Dhar (9.17), Dindori (10.43), Guna (3.98), Gwalior (0.49), Harda (4.07), Hosangabad (18.42), Jabalpur (14.06), Jhabua (3.45), Katni (15.31), Khandwa (8.62), Khargone (2.63), Mandla (11.55), Mandsaur (8.36), Morena (2.38), Narshingpur (9.13), Neemuch (10.84), Panna (16.77), Raisen (14.98), Rajgarh (22.76), Ratlam (12.3), Rewa (13.41), Sagar (13.01), Satna (8.98), Sehore (7.46), Seoni (28.02), Shahdol (22.62), Shajapur (18.17), Sheopur (4.25), Shivpuri (10.57), Sidhi (14.07),

	Tikamgarh (4.97), Ujjain (9.64), Umaria (13.05), Vidhisa (18.15)
Maharashtra	Ahmadnagar (39.71), Akola (27.46), Amravati (18.91), Aurangabad (MH) (13.17), Bhandara (23.77), Bid (18.31), Buldana (17.74), Chandrapur (34.40), Dhule (30.05), Gadchiroli (27.03), Gondya (25.21), Hingoli (2.67), Jalgaon (13.44), Jalna (10.55), Kolhapur (9.05), Mumbai (12.60), Mumbai (Sub-Urban) (9.42),Nagpur (19.94), Nanded (16.84), Nandurbar (31.85), Nashik (23.72), Osmanabad (5.69), Parbhani (2.01), Pune (27.22), Raigarh (39.21), Ratnagiri (32.72), Sangli (33.41), Satara (34.86), Sindhudurg (33.16), Solapur (29.57), Thane (9.17), Wardha (35.77), Washim (26.86), Yavatmal (30.96)
Orissa	Angul (3.4), Bargarh (7.38), Bhadrak (0.25), Bolangir (3.30), Boudh (8.48), Cuttack (4.69), Deogarh (7.98), Dhenkanal (7.25), Gajapati (17.46), Ganjam (1.23), Jagatsingpur (12.02), Jajpur (4.92), Jharsuguda(8.58) , kalahandi (3.24), Kandhamal (11.29), Kendrapara (9.15), Keonjhar (5.53), Koraput (12.17), Malkangiri (0.43), Mayurbhanj (4.51), Nayagarh (9.27), Nuapada (1.44), Puri (9.64), Rayagada (15.55), Sambalpur (7.62), Sonepur (13.03), Sundargarh (1.57)
Punjab	Bhatinda (0.29), Fatehgarh Sahib (19.98), Ferozepur (2.27), Gurdaspur (0.31), Hossiarpur (6.75), Jalandhar (17.22), Kapurthala (11.58), Mansa (3.25), Moga (0.37), Mukstar (4.15), Nawanshahr (17.32), Patiala (12.01), Ropar (18.85), Sangrur (4)
Rajasthan	Ajmer (3.05), Alwar (2.73), Banswara (9.58), Baran (3.06), Barmer (0.79), Bharatpur (0.84), Bhilwara (7.95), Bikaner (5.24), Bundi (17.84), Chittaurgarh (8.95), Churu (2.42), Dausa (3.83), Dhaulpur (0.07), Dungarpur (18.48), Ganganagar (5.42), Hanumangar (0.33), Jaipur (10.63), Jaisalmer (1.43), Jalor (1.98), Jhalawar (2.45), Jhunjhunun (14.97), Jodhpur (2.17), Krauli (4.77), Kota (1.56), Nagaur (7.71), Pali (7.92), Rajsamand (1.47), Sawai Madhopur (14.2), Sikar (9.2), Sirohi (4.17), Tonk (17.34), Udaipur (4.19)
Tamil Nadu	Coimbatore (3.11), Cuddalore (9.16), Dharmapuri (9.10), Dindigul (3.55), Erode (10.72), Kancheepuram (0.42), Kannyiakumari (6.37), Karur (16.37), Krishanagiri (3.06), Madurai (3.82), Nagapattinam (4.61), Namakkal (7.76), Perambalur (10.68), Pudukkottai (6.86), Ramanathapuram (5.28), Salem (2.47), Sivaganga (16.66), Thanjavur (16.78), The Nilgiris (11.97), Thiruvallur (3.47), Thiruvarur (7.12), Thoothukkudi (1.64), Tiruchirappali (10.49), Tirunelveli (2.39), Tiruvannamalai (13.96), Vellore (13.68), Villupurram (6.93), Virudhanagar (4.48)
Uttar Pradesh	Agra (11.18), Aligarh (16.95), Allahabad (6.83), Ambedkar Nagar (20.69), Auraiya (35.92), Azamgarh (12.4), Bahraich (7.35), Balla (11.05), Balrampur (4.21), Banda (24.87), ,Barabanki (15.97), Bareilly (4.93), Basti (5.41), Bhadohi (13.58), Bijnor (19.29), Budaun (17.58), Bulandsahar (18.98), Chandauli (0.40), Chitrakoot (15.35), Deoria (6.14), Etah (15.48), Etawah (36.95), Faizabad (25.18), Farukkabhad (18.73), Fatehpur (16.76), Firozabad (16.27), Gautam Buddha Nagar (15.66), Ghaziabad (1.76), Ghazipur (2.27), Gonda (7.11), Gorakhpur (6.78), Hamirpur (29.60), Hardoi (12.51), Hathras (5.76), Jalaun (27.05), Jaunpur (6.17), Jhansi (17.11), Jyotiba Phule Nagar(5.5), Kannauj (1.62), Kanpur Dehat (37.28), Kanpur Nagar (19.25), Kaushambi (14.01), Kheri (3.4), Kushinagar (3.77), Lalitpur (17.33), Lucknow (.03), Maharajganj (1.32), Mahoba (7.41), Mainpuri (27.92), Mathura (18.39), Meerut (13.66), Mirzapur (14.18), Moradabad (2.73), Muzaffarnagar (11.55), Pilbhit (10.19), Pratapgarh (14.71), Rae Bareli (13), Rampur (1.21), Saharanpur (14.58), Sant Kabir Nagar (6.9), Shahjahanpur (11.15), Shrawasti (11.1), Siddharthnagar (3.7), Sitapur (3.61), Sonbhadra (12.78), Sultanpur (22.37), Unnao (17.16), Varanasi (7.83)
West Bengal	Bankura (21.98), Burdwan (5.16), Birbhum (8.88), Dakshin Dinajpur (1.91), Howrah (1.88), Hooghly (5.12), Jalpaiguri (9.09), Cooch Bihar (8.61), Kolkata (2.77), Murshidabad (1.51), Nadia (5.03), Paschim Midnapore (0.76), Purba Midnapore (5.36), Purulia (8.74), Siliguri (4.9), South Twenty Four Pargana (3.36)

Table 4.19: Radial Movement (Average) for Input Percentage of Teachers with Qualification Graduate and Above under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (6.67), Chittoor (13.85), Cuddapah(10.59), East Godavari (5.14), Guntur (8.2), Karimnagar (1.92), Khammam (3.21), Krishna (0.42), Mahbubnagar (1.03), Medak (0.75), Nalgonda (10.22), Nellore (10.92), Nizamabad (2.38), Prakasam (11.5), Srikakulam (1.84), Vizianagaram (5.49), Warangal (9.34), West Godavari (4.53)
Assam	Baperta (12.04), Bongaigaon (9.33), Darrang (3.16), Dhemji (14.60), Dibrugarh (7.27), Golpara (10.10), Golaghat (7), Hailakandi (3.62), Jorhat (14.98), Karbi Anglong (6.7), Kokarajhar (21.96), Lakhimpur (27.34), Marigaon (3.65), Nagaon (0.76), Nalbari (13.98), Sibsagar (4.85), Sonitpur (6.78), Tinsukia (5.66)
Bihar	Araria (4.84), Aurangabad (Bihar) (16.78), Banka (17.03), Begusarai (0.84), Bhagalpur (11.19), Bhojpur (22.08), Buxar (20.70), Darbhanga (11.81), Gaya (15.56), Gopalganj (17.9), Jamui (4.12), Jehanabad (8.3), Kaimur (Bhabua) (21.93), Katihar (0.88), Khagaria (5), Kisanganj (4.1), Lakhisarai (7.40), Madhepura (8.23), Madhubani (14.32), Munger (19.06), Muzaffarpur (10.5), Nalanda (20.7), Nawada (18.17), Paschim Champaran (13.82), Patna (14.91), Purba Champaran(9.03), Purnia (1.18), Rohtas (14.04), Saharsa (2.15), Saran(19.69), Seikhpura (4.82), Seohar (2.72), Sitamarhi (3.24), Siwan (12.06), Supaul (6.47), Vaishali (11.16)

Gujarat	Ahmadabad (0.02), Amreli (0.03), Anand (17.5), Banas Katha (9.72), Bharuch (25.53), Dohad (0.19), Gandhinagar (15.46), Jamnagar (7.64), Junagadh (2.97), Kachchh (14.93), Kheda (11.31), Narmada (47.36), Navsari (2.07), Panch Mahals (0.49), Porbandar (21.90), Rajkot (0.62), Sabar kantha (0.08), Surat (1.004), Surendranagar (0.68), The Dangs (16.41), Vadodara (37.95), Valsad (18.1)
Haryana	Ambala (11.05), Bhiwani (10.57), Fatehabad (16.27), Gurgaon (3.09), Hisar (3.76), Jind (13.43), Kaithal (7.59), Karnal (9.39), Kurukshetra (23.39), Mahendragarh (21.04), Panchkula (12.09), Rewari (18.48), Rohtak (1.78), Sirsa (5.78), Sonipat (6.88), Yamunanagar (6.68)
Himachal Pradesh	Bilaspur (19.05), Kinnaur (3.47), Kullu (0.05), Lahul & Spiti (5.04), Mandi(2.7), Shimla (0.69), Sirmaur (0.54),
Karnataka	Bangalore (3), Bangalore Rural (10.58), Belgaum (0.55), Bellary (16.3), Bidar (1.64), Bijapur (1.96), Chamrajnagar (13.74), Chikmagalur (25.32), Chitradurga (13.47), Davangee (8.27), Gadag (0.92), Gulbarga (2.3), Hassan (14.92), Haveri (16.88), Kodagu(7.43), Kolar (10.97), Koppal (9.76), Mandya (20.09), Mysore (11.56), Raichur (11.26), Shimoga (17.07), Tumkur (11.54), Udupi (0.53), Uttara Kannada (18.31)
Kerala	Allapuzha (3.78), Idduki (0.802), Kannur (10.31), Kasaragod (2.76), Kollam (4.48), Kottyama (12.46), Kozhikode (1.96), Palakkad (1.97), Pathanamthitta (21.41), Thiruvanantapuram(5.92), Thrissur (0.87)
Madhya Pradesh	Anuppur (7.11), Ashoknagar (3.09), Balaghat (11.27), Barwani (5.14), Betul (20.91), Bhind (1.53), Bhopal (0.49), Burhanpur (0.77), Chhatarpur (4.64), Chindwara (17.87), Damoh (15.64), Datia (17.27), Dewas (11.34), Dhar (8.59), Dindori (10.66), Guna (4), Gwalior (0.52), Harda (4.27), Hosangabad (17.91), Jabalpur (13.91), Jhabua (3.61), Katni (15.13), Khandwa (8.74), Khargone (2.57), Mandla (11.79), Mandsaur (8.75), Morena (2.42), Narshingpur (9.29), Neemuch (11.02), Panna (16.85), Raisen (15.12), Rajgarh (22.75), Ratlam (12.24), Rewa (13.41), Sagar (12.64), Satna (8.87), Sehore (7.77), Satni (28.07), Shahdol (22.67), Shajapur (17.99), Sheopur (4.7), Shivpuri (10.78), Sidhi (14.29), Tikamgarh (4.95), Ujjain (10.33), Umaria (12.91), Vidhisa (18.48)
Maharashtra	Ahmadnagar (40.11), Akola (27.03), Amravati (19.29), Aurangabad (MH) (13.33), Bhandara (24.07), Bid (18.49), Buldana (17.37), Chandrapur (34.30), Dhule (31.29), Gadchiroli (27.02), Gondya (24.01), Hingoli (2.69), Jalgaon (13.06), Jalna (10.13), Kolhapur (8.92), Mumbai (Suburban) (12.18), Nagpur (20.88), Nanded (16.93), Nandurbar (31.48), Nashik (23.53), Osmanabad (5.86), Parbhani (1.75), Pune (26.92), Raigarh (39.04), Ratnagiri (32.48), Sangli (33.29), Satara (34.90), Sindhudurg (33.45), Solapur (29.06), Thane (8.7), Wardha (36.05), Washim (26.52), Yavatmal (30.27)
Orissa	Angul (3.33), Bargarh (7.95), Bhadrak (0.16), Bolangir (3.12), Boudh (8.42), Cuttack (4.45), Deogarh (8.05), Dhenkanal (7.71), Gajapati (17.14), Ganjam (1.26), Jagatsingpur (11.83), Jajpur (5.03), Jharsuguda(8.77) , kalahandi (3.06), Kandhamal (11.42), Kendrapara (9.28), Keonjhar (5.41), Koraput (12.08), Malkangiri (0.32), Mayurbhanj (5.06), Nawarangapur (0.14), Nayagarh (9.42), Nuapada (1.28), Puri (9.3), Rayagada (15.45), Sambalpur (7.98), Sonepur (13.26), Sundargarh (1.55)
Punjab	Bhatinda (0.35), Fatehgarh Sahib (19.52), Ferozepur (2.04), Gurdaspur (0.31), Hossiarpur (6.45), Jalandhar (17.58), Kapurthala (11.48), Mansa (3.12), Moga (0.21), Mukstar (4.80), Nawanshahr (17.47), Patiala (11.51), Ropar (19.08), Sangrur (4.25)
Rajasthan	Ajmer (3.59), Alwar (2.33), Banswara (9.1), Baran (3.44), Barmer (1.01), Bharatpur (1.33), Bhilwara (7.99), Bikaner (5.31), Bundi (18.07), Chittaurgarh (9.97), Churu (2.40), Dausa (4.36), Dhaulpur (0.07), Dungarpur (19.45), Ganganagar (5.08), Hanumangar (0.23), Jaipur (9.87), Jaisalmer (1.52), Jalor (2.06), Jhalawar (1.78), Jhunjhunun (14.55), Jodhpur (2.93), Krauli (4.64), Kota (2.79), Nagaur (7.56), Pali (7.58), Rajsamand (2.01), Sawai Madhopur (14.15), Sikar (10.45), Sirohi (4.22), Tonk (16.75), Udaipur (4.96)
Tamil Nadu	Coimbatore (2.86), Cuddalore (9.32), Dharmapuri (8.87), Dindigul (3.5), Erode (10.5), Kancheepuram (0.51), Kannyiakumari (6.26), Karur (16.45), Krishanagiri (3.04), Madurai (3.56), Nagapattinam (4.31), Namakkal (7.61), Perambalur (10.66), Pudukkottai (6.85), Ramanathapuram (5.56), Salem (2.36), Sivaganga (14.45), Thanjavur (16.9), The Nilgiris (11.28), Thiruvallur (3.56), Thiruvarur (7.15), Thoothukkudi (1.39), Tiruchirappali (10.21), Tirunelveli (2.62), Tiruvannamalai (13.83), Vellore (13.4), Villupurram (6.67), Virudhanagar (4.39)
Uttar Pradesh	Agra (10.25), Aligarh (17.19), Allahabad (6.63), Ambedkar Nagar (20.05), Auraiya (36.09), Azamgarh (12.64), Bahraich (7.13), Balla (10.86), Balrampur (4.06), Banda (24.94), ,Barabanki (16.69), Bareilly (4.90), Basti (5.86), Bhadohi (13.73), Bijnor (18.83), Budaun (17.49), Bulandsahar (18.39), Chandauli (0.913), Chitrakoot (15.13), Deoria (6.82), Etah (15.78), Etah (36.33), Faizabad (25.50), Farukkabhad (18.73), Fatehpur (16.83), Firozabad (15.67), Gautam Buddha Nagar (15.57), Ghaziabad (2.53), Ghazipur (2.34), Gonda (7.26), Gorakhpur (6.71), Hamirpur (29.93), Hardoi (13.45), Hathras (5.32), Jalaun (27.25), Jaunpur (6.10), Jhansi (17.09), Jyotiba Phule Nagar(6.14), Kannauj (2.04), Kanpur Dehat (37.36), Kanpur Nagar (18.49), Kaushambi (13.42), Kheri (2.94), Kushinagar (4.10), Lalitpur (18.0), Lucknow (.03), Maharajganj (1.31), Mahoba (7.29), Mainpuri (27.62), Mathura (18.64), Mau (0.29), Meerut (14.21), Mirzapur (14.39), Moradabad (3.44), Muzaffarnagar (11.17), Pilbhit (10.29), Pratapgarh (15.21), Rae Bareli (12.61), Rampur (1.52), Saharanpur (14.44), Sant Kabir Nagar (6.86), Shahjahanpur (10.05), Shrawasti (11.3), Siddharthnagar (3.69), Sitapur (3.54), Sonbhadra (12.13), Sultanpur (22.05), Unnao (17.54), Varanasi (8.16)
West Bengal	Bankura (22.12), Burdwan (4.83), Birbhum (9.31), Dakshin Dinajpur (2.12), Howrah (1.82), Hooghly (4.96), Jalpaiguri (8.56), Cooch Bihar (8.95), Kolkata (2.67), Murshidabad (1.93), Nadia (4.75), Paschim Midnapore (0.74), Purba Midnapore (5.39), Purulia (8.78), Siliguri (3.75), South Twenty Four Pargana (2.88)

Slack Movement

Now summary findings for input wise slack movements (average value) for the selected 16 major states at primary level of education are reported in table 4.20.

Table 4.20: Summary Findings of Average (District Average) Slack Movements (S.M) for Four Inputs at Primary Level of Education

States	State Specific Average (SSA) of Mean S.M				State Specific SD of Average S.M				State Specific CV of Average S.M			
	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above
Andhra Pradesh	-3.00	-3.41	-3.64	-0.31	3.81	3.27	3.37	0.74	-126.93	-95.89	-92.64	-237.01
Assam	-1.41	-5.71	-4.83	-1.82	2.08	6.06	4.27	2.89	-147.48	-106.17	-88.36	-158.37
Bihar	-2.94	-4.97	-7.75	-3.20	3.03	4.19	6.49	3.97	-103.16	-84.15	-83.74	-123.95
Gujarat	-3.52	-1.60	-3.66	-0.40	3.78	1.90	3.90	1.07	-107.21	-118.83	-106.78	-265.46
Haryana	-4.35	-4.30	-3.35	-3.25	4.47	3.91	6.86	3.33	-102.76	-91.03	-204.85	-102.50
Himachal Pradesh	-2.75	-3.13	-3.59	-0.07	7.17	8.28	6.28	0.24	-261.16	-264.16	-174.80	-346.41
Karnataka	-4.13	-4.80	-3.34	-0.51	3.93	4.51	3.46	1.25	-95.22	-93.91	-103.56	-242.62
Kerala	-1.15	-2.22	-4.83	-1.29	2.08	3.00	5.93	2.58	-181.24	--135.14	-122.69	-199.86
Madhya Pradesh	-3.65	-4.18	-6.13	-0.15	4.40	3.41	4.65	0.51	-120.41	-81.52	-75.81	-345.81
Maharashtra	-6.05	-8.89	-8.92	-0.77	8.19	8.22	7.32	1.38	-135.43	-92.40	-82.06	-178.05
Orrisa	-2.68	-3.50	-1.88	-0.71	3.54	2.86	2.32	1.16	-132.17	-81.62	-123.46	-163.70
Punjab	-6.76	-2.32	-5.83	-0.72	7.37	3.37	6.57	1.37	-108.99	-145.14	-112.77	-190.92
Rajasthan	-3.13	-8.12	-5.69	-0.21	3.49	12.80	4.95	0.60	-111.55	-157.69	-86.89	-281.94
Tamil Nadu	-10.70	-2.72	-7.37	-1.85	9.13	2.88	11.29	3.05	-85.37	-105.80	-153.29	-165.24
Uttar Pradesh	-2.28	-5.73	-3.40	-2.01	3.17	4.82	4.04	3.31	-139.49	-84.05	-118.65	-165.24
West Bengal	-2.35	-4.03	-5.33	-1.28	4.74	4.01	5.99	1.74	-201.22	-99.60	-112.50	-135.64

Considering number of schools per lakh population, it is observed that the SSA of mean slack movement is lowest for the state KE (1.15%) and highest for TN (10.70%). In case of teacher-pupil ratio mean slack movement is appeared to be low for GJ (1.60%) and KE (2.22%) whereas for classroom-student ratio and the teachers with qualification graduate and above the SSA of slack movements are lowest in case of OR (1.88%) and HP (0.07%) respectively. For the last two inputs the highest value occurs for the state MH (8.92%) and HA (3.25%) respectively. So the empirical findings indicate that the range of average slack movement varies across states.

The computed slack movement (percentage ratios of slack measure to actual input usage expressed in average forms for nine successive years) is reported here. ***Districts under respective states are listed in tables 4.21, 4.22, 4.23 and 4.24 with their average slack value for four inputs, namely number of schools per lakh population, teacher-pupil ratio, classroom-student ratio and percentage of teachers with qualification graduate and above for primary level of education.*** The result suggests that it can be the case that for the inefficient districts having non-zero radial movements for different inputs, the slack movements are zero.

Table 4.21: Slack Movement (Average) for Input Number of Schools per lakh Population under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (2.76), Chittoor (0.13), Cuddapah(3.88), East Godavari (9.81), Guntur (1.16), Mahbubnagar (6.75), Medak (4.23), Nalgonda (4.13), Nellore (2.5), Nizamabad (5.13), Prakasam (15.31), Srikakulam (4.48), Vizianagaram (4.48), Warangal (3.97)
Assam	Dhemji (3.15), Dibrugarh (7.27), Golpara (3.93), Golaghat (0.7), Hailakandi (6.48), Jorhat (0.5), Karbi Anglong (2.55), Kokarajhar (0.28), Lakhimpur (1.12), Marigaon (2.45), Nagaon (0.76), Nalbari (3.51), Tinsukia (6.33)
Bihar	Araria (8.54), Aurangabad (Bihar) (7.89), Banka (11.95), Begusarai (0.68), Bhagalpur (0.28), Bhojpur (2.87), Buxar (1.49), Darbhanga (0.48), Gaya (1.18), Gopalganj (1.04), Jamui (4.73), Jehanabad (2.91), Kaimur (Bhabua) (2.74), Kisanganj (4.59), Lakhisarai (1.50), Madhepura (4.39), Madhubani (14.32), Munger (0.63), Muzaffarpur (5.40), Nalanda (4.07), Nawada (1.42), Paschim Champaran (0.8), Patna (1.69), Purnia (0.75), Rohtas (0.48), Saharsa (0.17), Samastipur (0.68), Saran(2.48), Seikhpura (2.33), Seohar (10.11), Sitamarhi (7.23), Siwan (4.18), Supaul (4.01), Vaishali (5.10)
Gujarat	Amreli (3.47), Anand (0.04), Banas Katha (7.72), Bharuch (0.27), Dohad (0.56), Gandhinagar (0.07), Jamnagar (6.79), Junagadh (4.72), Kachchh (11.71), Kheda (0.73), Narmada (5.45), Navsari (2.07), Panch Mahals (0.38), Porbandar (7.91), Rajkot (2.73), Sabar kantha (5.39), Surat (1.67), Surendranagar (8.10), The Dangs (11.64), Vadodara (2.99), Valsad (5.72)
Haryana	Ambala (13.44), Bhiwani (4.9), Fatehabad (3.75), Gurgaon (1.37), Hisar (.003), Jind (2.66), Kaithal (1.09), Karnal (1.95), Kurukshetra (13.08), Mahendragarh (11.74), Panchkula (8.48), Rewari (7.12), Rohtak (0.37), Sirsa (4.35), Sonipat (3.38), Yamunanagar (4.99)
Himachal Pradesh	Bilaspur (3.11), Kinnaur (0.09), Kullu (0.33), Lahul & Spiti (25.23), Mandi(3.05), Shimla (0.32), Sirmaur (0.82),
Karnataka	Bangalore (0.07), Bangalore Rural (3.68), Bellary (4.81), Bidar (8.74), Bijapur (12.36), Chamrajnagar (3.08), Chikmagalur (3.55), Chitradurga (5.53), Gulbarga (2.84), Hassan (5.63), Haveri (3.30), Kodagu(1.06), Kolar (5.56), Koppal (14.97), Mandya (2.91), Mysore (3.26), Raichur (6.33), Shimoga (10.45), Tumkur (2.88), Udupi (3.59), Uttara Kannada (6.90)
Kerala	Idduki (0.11), Kannur (2.91), Kasaragod (0.34), Kozhikode (0.72), Palakkad (3.85), Pathanamthitta (7.06), Thiruvanantapuram(0.24), Thrissur (0.82)

Madhya Pradesh	Anuppur (1.34), Ashoknagar (5.16), Barwani (11.04), Betul (0.17), Chhatarpur (12.59), Chindwara (.03), Damoh (0.24), Datia (0.28), Dewas (0.27), Dhar (13.67), Dindori (13.84), Guna (0.32), Gwalior (3.71), Harda (1.49), Hosangabad (7.37), Jhabua (11.99), Katni (1.42), Khargone (7.58), Mandla (6.33), Morena (6.04), Narshingpur (9.29), Neemuch (0.17), Panna (4.46), Raisen (3.7), Rajgarh (1.46), Ratlam (0.5), Rewa (9.77),Satna (3.14), Sehore (9.22), Satni (0.32), Shahdol (1.11), Shajapur (0.56), Sheopur (10.14), Shivpuri (3.92), Sidhi (11.34), Tikamgarh (4.98), Ujjain (0.97), Umaria (1.74), Vidhisa (2.98)
Maharashtra	Ahmadnagar (4.83), Akola (0.41), Amravati (0.51), Aurangabad (MH) (3.6), Bhandara (2.25), Bid (18.91), Buldana (1.81), Chandrapur (0.82), Dhule (8.70), Gadchiroli (34.46), Gondya (4.08), Hingoli (0.27), Jalgaon (1.89), Jalna (3.4), Kolhapur (0.001), Mumbai (Suburban) (4.08), Nagpur (2.37), Nanded (5.9), Nandurbar (22.86), Nashik (3.91), Osmanabad (5.86), Parbhani (1.24), Raigarh (16.07), Ratnagiri (22.90), Sangli (0.26), Satara (4.78), Sindhudurg (19.35), Solapur (4.24), Thane (1.98), Wardha (2.64), Washim (4.46), Yavatmal (4.56)
Orissa	Bargarh (5.13), Bolangir (0.38), Boudh (3.85), Cuttack (0.89), Deogarh (1.28), Dhenkanal (1.23), Gajapati (10.37), Jajpur (0.82), Jharsuguda(0.88) , Kandhamal (9.73), Keonjhar (1.94), Koraput (7.50), Malkangiri (3.45), Mayurbhanj (1.59), Nawarangapur (0.42), Nuapada (0.18), Puri (2.74), Rayagada (5.20), Sonepur (0.21), Sundargarh (1.02)
Punjab	Fatehgarh Sahib (17.51), Ferozepur (8.65), Gurdaspur (3.61), Hossiarpur (26.18), Jalandhar (5.10), Kapurthala (15.01), Mansa (4.46), Mukstar (6.21), Nawanshahr (11.47), Patiala (8.2), Ropar (7.4), Sangrur (1.09)
Rajasthan	Ajmer (8.67), Alwar (2.11), Banswara (6.67), Baran (4.31), Barmer (10.96), Bharatpur (1.97), Bikaner (3.47), Churu (1.24), Dausa (0.65), Dhaulpur (1.46), Dungarpur (1.34), Jaipur (8.90), Jalor (1.12), Jhunjhunun (7.43), Krauli (0.89), Kota (8.40), Nagaur (2.96), Pali (6.83), Sawai Madhopur (0.02), Sikar (1.15), Sirohi (8.11), Tonk (5.80), Udaipur (6.78)
Tamil Nadu	Coimbatore (9.05), Cuddalore (11.97), Dharmapuri (9.45), Dindigul (12.62), Erode (5.12), Kancheepuram (2.71), Kannyiakumari (2.1), Karur (12.29), Krishanagiri (14.9), Madurai (0.80), Nagapattinam (4.49), Namakkal (8.38), Perambalur (44.03), Pudukkottai (16.18), Ramanathapuram (25.68), Salem (2.13), Sivaganga (18.91), Thanjavur (5.65), The Nilgiris (8.27), Thiruvallur (9.17), Thiruvarur (5.15), Thoothukkudi (9.27), Tiruchirappali (6.36), Tirunelveli (11.09), Tiruvannamalai (17.54), Vellore (9.97), Villupurram (24.82), Virudhanagar (10.83)
Uttar Pradesh	Allahabad (4.49), Ambedkar Nagar (3.27), Azamgarh (1.67), Bahraich (6.22), Balla (0.99), Balrampur (4.05), Banda (1.21), , Bareilly (5.88), Basti (4.39), Bhadohi (3.49), Bijnor (6.54), Budaun (3.17), Chandauli (6.41), Chitrakoot (7.80), Etah (2.57), Etah (0.79), Farukkabhad (0.75), Firozabad (5.53), Ghaziabad (1.58), Hamirpur (0.09), Hardoi (7.68), Hathras (19.32), Jalaun (2.35), Jhansi (0.86), Jyotiba Phule Nagar(3.68), Kannauj (0.46), Kanpur Dehat (0.57), Kaushambi (2.6), Kheri (1.39), Kushinagar (5.13), Lalitpur (3.05), Maharajganj (6.03), Mahoba (8.58), Mainpuri (3.32), Mathura (1.2), Mirzapur (0.04), Moradabad (3.82), Rampur (3.02), Saharanpur (0.22), Sant Kabir Nagar (0.25), Shahjahanpur (1.94), Shrawasti (1.2), Sitapur (6.63), Sonbhadra (3.06), Unnao (1.69), Varanasi (0.3)
West Bengal	Bankura (2.05), Dakshin Dinajpur (0.53), Howrah (1.56), Hooghly (1.36), Jalpaiguri (0.46), Cooch Bihar (8.14), Malda (3.75)Murshidabad (0.05), Nadia (1.92), North Twenty Four parganas (2.69), Purulia (20.51), Siliguri (4.09)

Table 4.22: Slack Movement (Average) for Input Teacher-Pupil Ratio under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (1.73), Chittoor (2.16), Cuddapah(3.55), East Godavari (12.09), Guntur (6.99), Karimnagar (5.76), Khammam (5.28), Krishna (2.25), Mahbubnagar (0.36), Nalgonda (2.81), Nellore (2.48), Nizamabad (5.08), Prakasam (7.05), Srikakulam (1.58), Vizianagaram (4.53), Warangal (7.38), West Godavari (7.32)
Assam	Baperta (8.78), Bongaigaon (12.21), Darrang (2.68), Dhemji (8.73), Dibrugarh (6.78), Golpara (2.51), Golaghat (11.85), Hailakandi (4.88), Jorhat (2.45), Kokarajhar (3.23), Lakhimpur (21.41), Marigaon (4.09), Nagaon (1.24), Nalbari (16.59), Sibsagar (12.87), Sonitpur (5.14)
Bihar	Araria (3.94), Aurangabad (Bihar) (1.98), Begusarai (3.11), Bhagalpur (5.34), Bhojpur (1.62), Buxar (3.68), Darbhanga (15.50), Gaya (6.26), Gopalganj (9.13), Jamui (4.31), Jehanabad (0.94), Kaimur (Bhabua) (3.53), Khagaria (6.15), Kisanganj (7.66), Lakhisarai (5.69), Madhepura (8.89), Madhubani (3.98), Munger (2.92), Muzaffarpur (2.52), Nalanda (3.54), Paschim Champaran (6.48), Patna (2.54), Purba Champaran(8.33), Rohtas (2.94), Saharsa (8.80), Samastipur (1.00), Saran(13.56), Seohar (4.35), Sitamarhi (1.13), Siwan (15.25), Supaul (7.93), Vaishali (11.06)
Gujarat	Amreli (2.71), Anand (2.79), Banas Katha (1.35), Gandhinagar (1.31), Jamnagar (1.58), Kheda (3.40), Navsari (1.54), Panch Mahals (0.81), Porbandar (3.86), Sabar Kantha (3.72), Surat (2.41), The Dangs (3.09), Vadodara (7.38), Valsad (4.07)

Haryana	Ambala (0.48), Bhiwani (4.43), Fatehabad (9.78), Hisar (11.22), Jind (11.88), Kaithal (3.72), Karnal (5.51), Kurukshetra (5.27), Mahendragarh (6.04), Panchkula (7.59), Rewari (6.53), Rohtak (0.56), Sirsa (3.25), Sonipat (4.85), Yamunanagar (0.50)
Himachal Pradesh	Bilaspur (1.00), Kinnaur (4.89), Lahul & Spiti (29.07), Mandi(1.07), Shimla (0.53), Sirmaur (1.13),
Karnataka	Bangalore (4.69), Bangalore Rural (12.55), Belgaum (4.65), Bellary (1.96), Chamrajnagar (4.57), Chikmagalur (5.05), Chitradurga (3.58), Davangee (10.94), Gadag (1.06), Gulbarga (1.96), Hassan (7.62), Haveri (3.62), Kodagu(4.14), Kolar (12.58), Koppal (4.23), Mandya (4.25), Mysore (6.34), Raichur (5.20), Shimoga (7.58), Tumkur (18.19), Uttara Kannada (4.81)
Kerala	Allapuzha (1.26), Kannur (3.07), Kasaragod (1.00), Kollam (4.09), Kottyama (3.88), Kozhikode (2.60), Pathanamthitta (11.27), Thiruvanantapuram(2.64), Thrissur (1.31)
Madhya Pradesh	Anuppur (2.16), Balaghat (8.59), Betul (8.15), Bhind (1.14), Bhopal (0.57), Burhanpur (1.27), Chhatarpur (3.14), Chindwara (6.72), Damoh (7.38), Datia (9.06), Dewas (6.67), Dhar (6.81), Dindori (7.29), Guna (0.51), Harda (0.57), Hosangabad (7.30), Jabalpur (4.75), Jhabua (3.82), Katni (6.59), Khandwa (0.46), Khargone (2.37), Mandla (6.02), Mandsaur (4.10), Narshingpur (7.97), Neemuch (4.77), Panna (2.50), Raisen (5.70), Rajgarh (3.25), Ratlam (5.28), Rewa (3.50), Sagar (6.07), Satna (4.01), Sehore (3.76), Seoni (9.08), Shahdol (6.49), Shajapur (12.18), Sheopur (0.55), Tikamgarh (6.54), Ujjain (12.16), Umaria (0.47), Vidhisa (0.96)
Maharashtra	Ahmadnagar (17.16), Akola (5.93), Amravati (4.88), Aurangabad (MH) (1.34), Bhandara (10.99), Bid (12.46), Buldana (8.15), Chandrapur (6.59), Dhule (23.78), Gadchiroli (30.40), Gondya (5.51), Jalgaon (13.73), Jalna (1.75), Kolhapur (4.72), Mumbai (Suburban) (1.06), Nagpur (8.32), Nandurbar (25.05), Nashik (8.87), Osmanabad (3.30), Pune (0.67), Raigarh (16.66), Ratnagiri (21.72), Sangli (4.00), Satara (10.83), Sindhudurg (23.81), Solapur (11.01), Wardha (10.69), Washim (8.41), Yavatmal (4.23)
Orissa	Angul (0.94), Bargarh (1.76), Bolangir (2.72), Boudh (5.26), Cuttack (0.47), Deogarh (5.02), Dhenkanal (1.36), Gajapati (10.03), Ganjam (3.61), Jagatsingpur (5.21), Jajpur (7.79), Jharsuguda(3.80) , kalahandi (7.52), Kandhamal (3.64), Kendrapara (9.12), Keonjhar (4.96), Koraput (11.55), Malkangiri (0.47), Mayurbhanj (0.56), Nawarangapur (0.51), Nayagarh (4.97), Nuapada (4.23), Puri (6.26), Rayagada (7.35), Sambalpur (6.73), Sonepur (5.17), Sundargarh (3.83)
Punjab	Fatehgarh Sahib (1.45), Gurdaspur (0.88), Hossiarpur (9.33), Jalandhar (1.77), Kapurthala (5.88), Mansa (2.80),Moga(0.54), Mukstar (1.46), Nawanshahr (4.75), Ropar (10.64)
Rajasthan	Ajmer (12.20), Alwar (2.44), Banswara (15.89), Baran (7.88), Bharatpur (3.36), Bhilwara (9.24), Bundi (8.49), Chittaurgarh (19.06), Churu (2.98), Dausa (2.39), Dungarpur (10.53), Ganganagar (8.54),Hanumangarh(3.68), Jaipur (2.83), Jaisalmer (0.56), Jhalawar (3.14), Jhunjhunun (4.59), Jodhpur (2.93), Krauli (72.34), Kota (7.57), Nagaur (3.49), Pali (3.12), Rajsamand (4.11), Sawai Madhopur (7.91), Sikar (1.66), Sirohi (8.54), Tonk (14.23), Udaipur (16.12)
Tamil Nadu	Coimbatore (0.46), Cuddalore (2.22), Dharmapuri (4.87), Dindigul (4.71), Erode (0.37), Kannyiakumari (7.40), Karur (0.69), Krishanagiri (1.96), Madurai (3.12), Nagapattinam (2.49), Perambalur (1.47), Pudukkottai (2.85), Ramanathapuram (12.00), Salem (0.8), Sivaganga (3.84), Thanjavur (1.75), The Nilgiris (8.23), Thiruvallur (0.42), Thiruvarur (1.36), Thoothukkudi (5.34), Tirunelveli (2.64), Tiruvannamalai (1.06), Vellore (4.40), Villupurram (1.19), Virudhanagar (6.00)
Uttar Pradesh	Agra (7.43), Aligarh (9.34), Ambedkar Nagar (2.02), Auraiya (9.02), Azamgarh (10.02), Bahraich (2.64), Balla (10.25), Balrampur (0.70), Banda (5.72), Barabanki (11.59), Bareilly (4.33), Basti (9.81), Bhadohi (0.43), Bijnor (7.10), Budaun (10.17), Bulandsahar (15.47), Chandauli (1.64), Chitrakoot (5.42), Deoria (16.66), Etah (9.21), Etawah (4.22), Faizabad (6.12), Farukkabhad (6.71), Fatehpur (9.42), Firozabad (1.85), Gautam Buddha Nagar (2.11), Ghazipur (1.87), Gonda (4.37), Gorakhpur (8.34), Hamirpur (9.45), Hardoi (2.62), Hathras (2.71), Jalaun (1.28), Jaunpur (8.91), Jhansi (11.66), Kannauj (5.59), Kanpur Dehat (11.87), Kanpur Nagar (4.13), Kaushambi (1.14), Kheri (4.43), Lalitpur (10.71), Lucknow(1.99), Mahoba (7.30), Mainpuri (12.20), Mathura (9.89), Meerut (9.43), Mirzapur (10.94), Moradabad (1.12), Muzaffarnagar (11.23), Pilbhit (6.01), Pratapgarh (1.70), Rae Bareli (3.97), Saharanpur (5.47), Sant Kabir Nagar (1.62), Shahjahanpur (1.89), Shrawasti (2.80), Siddharthnagar (5.20), Sitapur (1.11), Sonbhadra (0.88), Sultanpur (6.16), Unnao (24.41), Varanasi (7.44)
West Bengal	Bankura (4.28), Burdwan (3.48), Birbhum (10.49), Dakshin Dinajpur (1.27), Howrah (6.12), Hooghly (6.10), Jalpaiguri (4.83), Cooch Bihar (2.50),Malda(1.43), Murshidabad (6.37), Nadia (16.57), North twenty four pargana (5.54), Paschim Midnapore (3.94), Purba Midnapore (1.78), Purulia (1.51), Siliguri (0.58), South Twenty Four Pargana (3.71)

Table 4.23: Slack Movement (Average) for Input Classroom-Student Ratio under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur (4.26), Chittoor (5.4), Cuddapah(7.51), East Godavari (7.64), Guntur (4.14), Karimnagar (8.44), Khammam (8.15), Mahbubnagar (0.40), Medak (2.18), Nalgonda (6.97), Nellore (1.8), Nizamabad (6.14), Srikakulam (0.29), Vizianagaram (5.46), Warangal (6.46), West Godavari (8.5)
Assam	Baperta (7.56), Bongaigaon (1.15), Darrang (0.72), Dhemji (7.88), Dibrugarh (9.36), Golpara (6.18), Golaghat (12.46), Jorhat (3.64), Karbi Anglong (4.96), Kokarajhar (2.57), Lakhimpur (7.57), Marigaon (9.6), Nalbari (12.76), Sibsagar (7.91), Sonitpur (7.24), Tinsukia (4.76)
Bihar	Araria (4.11), Aurangabad (Bihar) (7.59), Banka (14.97), Begusarai (2.27), Bhagalpur (7.84), Bhojpur (12.01), Buxar (22.61), Darbhanga (16.31), Gaya (17.17), Gopalganj (3.68), Jamui (6.37), Jehanabad (6.77), Kaimur (Bhabua) (11.07), Khagaria (1.43), Kisanganj (1.29), Lakhisarai (7.21), Madhubani (2.33), Munger (15.8), Nalanda (18.97), Nawada (9.27), Paschim Champaran (1.48), Patna (8.4), Rohtas (10.44), Saran(14.54), Seikhpura (16.65), Seohar (9.52), Sitamarhi (4.1), Siwan (13.86), Supaul (5.33), Vaishali (13.15)
Gujarat	Anand (1.67), Banas Katha (2.92), Bharuch (4.94), Gandhinagar (13.14), Jamnagar (8.82), Junagadh (2.79), Kachchh (8.6), Kheda (2.11), Narmada (5.96), Navsari (2.92), Panch Mahals (0.91), Porbandar (13.25), Sabar kantha (2.6), Surat (4.53), Surendranagar (0.96), The Dangs (4.75), Vadodara (5.99), Valsad (4.56)
Haryana	Ambala (6.09), Bhiwani (1.99), Fatehabad (5.94), Gurgaon (1.09), Hisar (7.33), Jind (3.44), Kaithal (1.60), Karnal (5.71), Kurukshetra (10.42), Mahendragarh (16.40), Panchkula (8.11), Rewari (8.34), Rohtak (1.1), Sirsa (2.98), Sonipat (6.04), Yamunanagar (3.42)
Himachal Pradesh	Bilaspur (4.23), Kinnaur (6.74), Kullu (6.44), Lahul & Spiti (21.7), Mandi(3.54), Shimla (0.69), Sirmaur (0.45)
Karnataka	Bangalore (4.58), Bangalore Rural (7.39), Belgaum (3.44), Bellary (0.92), Bidar (1.85), Bijapur (2.43), Chamrajnagar (1.90), Chikmagalur (7.50), Chitradurga (0.56), Davangee (10.38), Gadag (0.82), Hassan (3.55), Kodagu(4.87), Kolar (7.46), Koppal (0.82), Mandya (5.32), Mysore (0.73), Raichur (1.70), Shimoga (6.72), Tumkur (12.73), Udupi (0.76), Uttara Kannada (3.76)
Kerala	Allapuzha (5.35), Idduki (9.06), Kannur (5.97), Kollam (3.20), Kottyama (6.85), Kozhikode (2.47), Palakkad (5.29), Pathanamthitta (22.60), Thiruvanantapuram(5.94), Thrissur (0.96)
Madhya Pradesh	Anuppur (3.93), Balaghat (3.86), Barwani (8.84), Betul (9.14), Bhind (5.36), Burhanpur (0.34), Chhatarpur (1.9), Chindwara (11.98), Damoh (4.62), Datia (6.65), Dewas (7.81), Dhar (11.54), Dindori (15.91), Guna (1.01), Gwalior (1.48), Harda (10.62), Hosangabad (4.20), Jabalpur (4.84), Jhabua (2.59), Katni (5.26), Khandwa (5.17), Khargone (10.3), Mandla (12.23), Mandsaur (7.95), Morena (7.18), Narshingpur (4.04), Neemuch (6.19), Panna (11.03), Raisen (0.63), Rajgarh (2.53), Ratlam (12.24), Rewa (12.37), Sagar (2.35), Satna (5.35), Sehore (0.78), Seoni (12.59), Shahdol (13.88), Shajapur (4.27), Sheopur (5), Shivpuri (4.28), Sidhi (15.33), Tikamgarh (1.84), Ujjain (4.17), Umaria (16.53), Vidhisa (4.51)
Maharashtra	Ahmadnagar (10.42), Akola (12.02), Amravati (10.91), Aurangabad (MH) (3.41), Bhandara (8.76), Bid (6.42), Buldana (10.51), Chandrapur (4.83), Dhule (18.25), Gadchiroli (28.04), Gondya (4.37), Jalgaon (10.54), Jalna (1.43), Kolhapur (19.18), Mumbai (6.23), Nagpur (9.33), Nanded (1.90), Nandurbar (13.31), Nashik (5.08), Osmanabad (4.41), Prabhani (7.76), Pune (1.22), Raigarh (8.03), Ratnagiri (19,69), Sangli (4.61), Satara (10.72), Sindhudurg (22.35), Solapur (7.01), Thane(0.96), Wardha (8.42), Washim (8.69), Yavatmal (1.42)
Orissa	Angul (1.21), Bargarh (5.41), Cuttack (3.16), Deogarh (3.57), Dhenkanal (1.96), Gajapati (0.73), Ganjam (8.98), Jagatsingpur (8.98), Jajpur (0.46), Jharsuguda(3.13) , kalahandi (0.48), Kandhamal (5.37), Keonjhar (2.01), Koraput (0.43), Malkangiri (0.85), Nayagarh (1.02), Nuapada (1.88), Rayagada (1.48), Sambalpur (6.04), Sonepur (2.96), Sundargarh (5.24)
Punjab	Bhatinda (2.63), Fatehgarh Sahib (11.48), Ferozepur (2.00), Gurdaspur (3.08), Hossiarpur (17.68), Jalandhar (4.96), Kapurthala (9.72), Mansa (5.36),Moga(1.47), Mukstar (1.90), Nawanshahr (18.81), Patiala (1.80), Ropar (17.1), Sangrur (1.12)
Rajasthan	Ajmer (19.45), Banswara (5.15), Baran (4.58), Barmer (3.73), Bhilwara (5.40), Bikaner (8.16), Bundi (3.12), Chittaurgarh (11.86), Churu (2.51), Dausa (0.66), Dungarpur (6.38), Ganganagar (3.59),Hanumangarh(4.34), Jaipur (2.04), Jaisalmer (1.08), Jalor (5.56), Jhalawar (1.13), Jhunjhunun (10.12), Jodhpur (4.07), Krauli (4.01), Kota (7.12), Nagaur (0.62), Pali (9.17), Rajsamand (3.84), Sawai Madhopur (5.02), Sikar (7.62), Sirohi (16.49), Tonk (8.78), Udaipur (16.64)

Tamil Nadu	Coimbatore (2.61), Cuddalore (1.75), Dharmapuri (9.91), Dindigul (13.10), Erode (3.00), Kancheepuram (1.65), Kannyiakumari (9.90), Karur (3.82), Krishanagiri (6.06), Madurai (1.45), Nagapattinam (1.52), Namakkal (2.85), Perambalur (3.31), Pudukkottai (6.14), Ramanathapuram (5.19), Salem (1.75), Sivaganga (18.41), Thanjavur (13.05), The Nilgiris (20.11), Thiruvallur (2.47), Thiruvarur (3.70), Thoothukkudi (4.57), Tiruchirappali (0.61), Tirunelveli (5.82), Tiruvannamalai (5.22), Vellore (2.34), Villupurram (2.96), Virudhanagar (7.42)
Uttar Pradesh	Agra (4.67), Aligarh (0.94), Allahabad (7.78), Ambedkar Nagar (6.76), Auraiya (3.64), Azamgarh (0.54), Bahraich (10.68), Balla (2.29), Balrampur (8.78), Banda (4.29), Barabanki (3.29), Basti (22.27), Bhadohi (6.78), Bijnor (2.59), Bulandsahar (1.16), Chandauli (1.61), Chitrakoot (4.46), Etawah (0.81), Faizabad (0.79), farukkabhad (0.9), Fatehpur (1.80), Firozabad (0.74), Gautam Buddha Nagar (0.45), Ghazipur (2.20), Gonda (3.06), Gorakhpur (1.39), Hamirpur (0.85), Hardoi (3.19), Hathras (11.32), Jalaun (0.67), Jaunpur (0.69), Jhansi (10.74), Kannauj (1.62), Kanpur Dehat (2.98), Kanpur Nagar (6.43), Kaushambi (1.87), Kheri (1.91), Kushinagar (6.86), Lalitpur (3.23), Lucknow(0.65), Maharajganj (1.68), Mahoba (5.73), Mainpuri (1.05), Meerut (0.73), Mirzapur (4.57), Muzaffarnagar (8.41), Pilbhit (7.20), Pratapgarh (2.10), Rae Bareli (0.90), Saharanpur (2.26), Sant Kabir Nagar (16.58), Shahjahanpur (3.87), Shrawasti (9.78), Siddharthnagar (2.85), Sitapur (2.24), Sonbhadra (6.47), Sultanpur (1.96), Unnao (7.67), Varanasi (4.54)
West Bengal	Bankura (8.16), Burdwan (3.32), Birbhum (2.14), Dakshin Dinajpur (1.43), Hooghly (8.26), Jalpaiguri (16.96), Cooch Bihar (11.07), Kolkata (4.74), Malda(1.19), Murshidabad (7.68), Nadia (21.43), Paschim Midnapore (4.17), Purba Midnapore (7.76), Purulia (8.24)

Table 4.24: Slack Movement (Average) for Input Percentage of Teachers with Qualification Graduate and Above under TEINP at Primary Level of Education

States	Districts
Andhra Pradesh	East Godavari (0.82), Guntur (0.90), Karimnagar (0.66), Nalgonda (0.50), Nellore (0.39), Prakasam (0.47), West Godavari (3.41)
Assam	Baperta (4.23), Bongaigaon (3.76), Darrang (2.85), Dhemji (2.38), Dibrugarh (0.70), Golpara (2.85), Jorhat (1.70), Kokarajhar (1.31), Lakhimpur (1.50), Marigaon (12.22), Nalbari (6.12), Sonitpur (0.49)
Bihar	Aurangabad (Bihar) (5.47), Begusarai (0.46), Bhagalpur (0.27), Bhojpur (2.59), Buxar (8.79), Darbhanga (4.56), Gaya (2.61), Gopalganj (5.03), Jehanabad (2.26), Kaimur (Bhabua) (6.05), Khagaria (4.32), Kisanganj (1.30), Lakhisarai (0.73), Madhepura (2.34), Madhubani (0.09), Munger (0.38), Muzaffarpur (1.13), Nalanda (2.55), Paschim Champaran (0.80), Patna (10.09), Purba Champaran(1.88), Rohtas (2.84), Saharsa (0.71), Samastipur (4.09), Saran(6.96), Seohar (2.42), Sitamarhi (4.25), Siwan (16.08), Supaul (2.05), Vaishali (15.42)
Gujarat	Amreli (1.72), Jamnagar (4.69), Kachchh (2.30), Narmada (0.02), Porbandar (3.20), Surendranagar (1.00)
Haryana	Ambala (0.14), Bhiwani (2.08), Fatehabad (2.72), Gurgaon (4.65), Hisar (9.57), Jind (2.11), Kaithal (6.64), Karnal (2.89), Kurukshetra (3.64), Mahendragarh (10.09), Panchkula (3.61), Rewari (9.07), Rohtak (1.16), Sirsa (0.93), Sonipat (2.47)
Himachal Pradesh	Simaur (0.84)
Karnataka	Bellary (4.85), Gadag (1.20), Kodagu(2.37), Koppal (3.77), Uttara Kannada (1.70)
Kerala	Allapuzha (3.87), Kasaragod (0.70), Kollam (1.92), Thiruvanantapuram(9.24), Thrissur (2.38)
Madhya Pradesh	Bhind (0.17), Datia (0.30), Hosangabad (2.53), Jabalpur (1.16), Khargone (2.27), Mandsaur (0.59), Satna (0.08)
Maharashtra	Aurangabad (MH) (2.27), Chandrapur (0.50), Gadchiroli (0.541), Gondya (5.51), Jalna (1.12), Kolhapur (6.04), Mumbai (Suburban) (1.05), Nanded (3.20), Pune (2.09), Raigarh (0.29), Sangli (0.99), Thane (0.54), Wardha (0.05), Washim (0.87), Yavatmal (0.70)
Orissa	Balasore(1.45), Bargarh (3.63), Boudh (0.54), Cuttack (3.05), Ganjam (1.73), Jagatsingpur (4.00), Jajpur (1.74), Jharsuguda(0.78) , Kendrapara (0.85), Keonjhar (0.70), Koraput (0.53), Puri (2.21)
Punjab	Ferozepur (1.14), Jalandhar (0.61), Mansa (3.59), Mukstar (0.86), Patiala (4.65), Sangrur (1.34)
Rajasthan	Alwar (0.73), Bharatpur (0.013), Churu (2.33), Dausa (0.53), Hanumangarh(0.83), Jaipur (2.41)
Tamil Nadu	Coimbatore (7.25), Cuddalore (4.70), Dharmapuri (0.92), Erode (0.72), Kancheepuram (3.62), Kannyiakumari (3.80), Madurai (4.62), Nagapattinam (0.16), Namakkal (4.25), Perambalur (2.16), Salem (1.22), Thanjavur (0.47), Thiruvallur (2.87), Thiruvarur (1.25),Tiruchirappali (0.09), Tiruvannamalai (1.14), Vellore (1.70), Villupurram (14.45)

Uttar Pradesh	Agra (0.50), Allahabad (2.11), Ambedkar Nagar (10.11), Auraiya (0.39), Azamgarh (15.17), Balla (3.89), Banda (0.21), Barabanki (0.50), Bareilly (6.99), Bhadohi (7.75), Bijnor (3.28), Budaun (1.33), Chandauli (3.11), Etah (9.88), Etawah (1.25), Faizabad (0.24), Farukkabhad (4.89, Fatehpur (1.13), Firozabad (7.65), Ghaziabad (2.38), Hamirpur (0.37), Hardoi (3.36), Jalaun (2.20), Jaunpur (4.51), Jhansi (1.54), Jyotiba Phule Nagar(2.23), Kaushambi (4.00), Kushinagar (2.08), Lalitpur (0.80), Maharajganj (0.28), Mainpuri (1.09), Mathura (1.25), Meerut (2.19), Mirzapur (5.68), Moradabad (15.12), Pratapgarh (4.31), Shrawasti (1.01), Siddharthnagar (0.74), Sitapur (3.50), Sultanpur (0.83), Unnao (0.53), Varanasi (0.01)
West Bengal	Birbhum (1.03), Howrah (1.55), Jalpaiguri (2.71), Cooch Bihar (3.52), Kolkata (0.84), Malda(4.91), Murshidabad (0.05), Nadia (3.29), North twenty four pargana (2.67), Purulia (4.94), Siliguri (0.15)

4.3.3.2 Measures corresponding to Radial and Slack Movements for Different Inputs under TEINP at Upper Primary Level of Education

Radial Movement

The state wise findings about radial and slack movements in terms of average percentage for nine consecutive years of study period are summarized in table 4.25 along with the extent of inefficiency of input utilization of different inputs employed in the production process at upper primary level of education.

Table 4.25: Summary Findings of Average (District Average) Radial Movements (R.M) for Four Inputs at Upper Primary Level of Education

States	State Specific Average (SSA) of Mean R.M				State Specific SD of Average R.M				State Specific CV of Average R.M			
	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Class room-Student ratio	% of Teachers with graduate and above
Andhra Pradesh	-5.64	-5.53	-5.56	-5.64	3.93	3.98	3.99	3.93	-69.64	-71.99	-71.84	-69.64
Assam	-4.51	-4.48	-4.48	-4.51	4.53	4.50	4.55	4.53	-100.48	-100.58	-101.77	-100.48
Bihar	-5.93	-5.84	-5.95	-5.93	4.02	3.93	4.08	4.02	-67.85	-67.29	-68.51	-67.86
Gujarat	-6.99	-6.74	-7.52	-6.68	6.79	6.79	7.64	6.76	-97.10	-100.75	-101.57	-101.30
Haryana	-7.18	-7.17	-6.99	-7.39	4.94	5.23	4.85	5.54	-68.80	-72.98	-69.35	-74.90
Himachal Pradesh	-2.33	-2.21	-2.35	-2.33	3.79	3.66	3.72	3.79	-162.74	-165.38	-158.40	-162.74
Karnataka	-4.65	-4.64	-4.64	-4.65	3.06	3.07	3.04	3.05	-65.63	-66.11	-65.41	-65.63
Kerala	-2.23	-2.18	-2.21	-2.23	2.94	2.88	3.00	2.94	-131.73	-132.22	-135.75	-131.73
Madhya Pradesh	-11.61	-11.57	-11.62	-11.61	5.94	6.00	5.96	5.94	-51.16	-51.88	-51.28	-51.16

Maharashtra	-8.83	-8.83	-8.79	-8.83	6.27	6.22	6.34	6.27	-70.95	-70.43	-72.08	-70.95
Orrisa	-7.02	-6.89	-7.05	-7.02	4.91	4.96	5.14	4.91	-69.91	-72.10	-72.86	-69.91
Punjab	-2.22	-1.84	-2.12	-2.22	1.74	1.84	1.77	1.74	-78.35	-100.29	-83.72	-78.35
Rajasthan	-4.12	-4.16	-4.03	-4.12	2.68	2.76	2.86	2.68	-65.05	-66.20	-70.97	-64.99
Tamil Nadu	-13.15	-13.14	-13.15	-13.15	7.01	7.11	7.03	7.01	-53.32	-54.09	-53.48	-53.32
Uttar Pradesh	-13.77	-13.72	-13.76	-13.77	7.56	7.72	7.63	7.56	-54.93	-56.29	-55.46	-54.93
West Bengal	-7.24	-6.23	-6.28	-7.28	6.40	6.34	6.03	6.24	-88.40	-101.69	-95.92	-85.67

Observing the result, it is found that the SSA of mean radial movement of four inputs is lower for the state KE and PN implying that the extent of inefficient utilization of these inputs in the production process for these two states is lower compared to others. The value is highest in the state UP for all the inputs considered in the analysis.

The input wise distribution of the extent of inefficient utilization (radial measure) for the different districts of the selected states is presented corresponding to upper primary level of education in tables 4.26, 4.27, 4.28 and 4.29. For the efficient districts the radial movements must be zero, but the slack movements not necessarily always are zero.

Table 4.26: Radial Movement (Average) for Input Number of Schools per lakh Population under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(8.61), Chittoor(5.98),Cuddapah(1.33), East Godavari(8.57),Guntur(4.66), Karimnagar(6.01), Khammam (4.94), Krishna (8.03), Kurnool (6.74), Mahbubnagar(5.70), Medak(2.38), Nalgonda(2.87), Nellore(12.86), Nizamabad (4.59), Prakasam(9.30), Srikakulam (15.77), Visakhapatnam (3.37), Vizianagaram(7.99), Warangal(5.24), West Godavari(4.73)
Assam	Barpeta(4.02), Bongaigaon(7.09), Darrang (7.56), Dhubri (4.09), Dibrugarh(11.38), Goalpara(1.14),Golaghat(8.69), Jorhat(16.29), Kamrup(3.28), Karbi Anglong (1.17), Karimganj(0.04) , Kokrajhar(7.08) , Lakhimpur(5.73), Marigaon(4.16), Nagaon(0.57) , Nalbari(6.11) , Sibsagar(10.77)
Bihar	Araria (0.86), Aurangabad (3.25), Banka (1.98), Begusarai(0.91), Bhagalpur(11.76), Bhojpur (1.03), Buxar (5.82), Darbhanga (4.87), Gaya (4.39), Gopalganj (11.77), Jamui(11.51), Jehanabad (3.99),Kaimur (Bhabua) (1.32), Katihar (1.14), Khagaria(6.87), Kishanganj (6.10), Lakhisarai (2.74), Madhepura(5.22), Madhubani (2.48), Munger (10.72), Muzaffarpur (2.97), Nalanda (12.16), Nawada (6.90), Pashchim Champaran (13.48), Patna(9.30), Purba Champaran(3.88), Purnia (1.73), Rohtas (3.54), Saharsa (8.40), Samastipur(0.06), Saran (6.93), Sheikhpura (10.68),Heohar (8.81), Sitamarhi(11.39), Siwan (11.77), Supaul (5.17), Vaishali (3.45)
Gujrat	Ahmadabad (3.43), Amreli (20.78), Anand (2.44), Banas Kantha (7.62), Bharuch (10.79), Bhavnagar (2.84),Gandhinagar (8.88), Jamnagar (11.80), Junagadh(5.23), Kachchh (24.92) Kheda (2.00), Mahesana (3.80), Narmada (13.09), Navsari (0.73), Panch Mahals (0.61), Patan (6.29), Porbandar(15.32),Rajkot (6.11), Sabar Kantha (1.06),Surat (0.34), Surendranagar(14.15), The Dangs (2.39),Vadodara (2.01), Valsad (0.28)

Haryana	Ambala(6.83),Bhiwani (6.33),Faridabad(6.27),Fatehabad(3.49), Gurgaon(4.84), Hisar(8.94),Jhajjar(1.65),Jind (2.74),Kaithal(5.04),Karnal (7.02),Kurukshetra (12.18), Mahendragarh(9.87), Panchkula (21.78),Panipat (2.31), Rewari (12.97), Rohtak(0.21), Sirsa(1.19), Sonipat(10.01), Yamunanagar(4.12)
Himachal Pradesh	Bilaspur (9.58), Kangra (1.62), Kinnaur (10.56), Mandi(3.86), Shimla (1.01), Sirmaur (0.10), Solan (1.24)
Karnatak	Bagalkot (4.60),Bangalore Rural(5.01), Belgaum(1.68), Bellary (5.59), Bidar(2.48), Bijapur (0.4), Chamrajnagar (7.14), Chikmagalur (5.91), Chitradurga (5.37), Dakshina Kannada (4.21), Davangere(5.33),Dharwad (1.37), Gadag (1.36), Gulbarga(1.91),Hassan(7.48), Haveri(12.18), Kodagu(7.68),Koppal (3.69), Mandya(7.81), Mysore(2.34), Raichur (3.39), Shimoga(3.52), Tumkur (8.78), Udupi (7.03), Uttara Kannada (9.38)
Kerala	Idukki (2.02), Kannur (3.94),Kasaragod(2.73),Kollam(0.78),Kottayam (6.26),Palakkad(0.86), Pathanamthitta (10.38),Thiruvananthapuram (1.91), Thrissur (1.02), Wayanad(1.32)
Madhya Pradesh	Anuppur(8.00),Ashoknagar(4.96),Balaghat(8.83),Barwani (7.53),Betul (18.82),Bhind(4.77),Bhopal (14.84),Burhanpur (7.00),Chhatarpur(7.02),Chhindwarar(15.56),Damoh r(14.56),Datia(15.02),Dewas (11.99),Dhar(6.12),Dindori (15.47),Guna (14.19),Gwalior (0.93),Harda (10.34),Hoshangabad (22.60),Indore(4.51),Jabalpur(17.56),Jhabua (10.63),Katni(6.14),Khanda (2.89),Khargoni (17.91),Mandla(15.47),Mandsaur(12.66),Morena (1.01),Narsinghpur (9.66),Nimuch(10.23),Panna (13.93),Raisen(18.51),Rajgarh(21.99),Ratlam(21.54),Rewa (9.45),Sagar(7.64),Satna (15.03),Sehorei (6.73),Shajapur(21.43),Sheopur r(8.36),Shajapur(21.28),Sheopuri(7.68),Shivpurii(6.37),Sidhi (12.06),Tikamgarh(3.41),Ujjain(21.12),Umaria(8.7),Vidisha(14.65)
Maharasttra	Ahmadnagar (5.57), Akola (9.55), Amravati(4.12), Aurangabad (6.98), Bhandara (6.65), Bid (1.97), Buldana(3.52), Chandrapur(26), Gadchiroli (11.93), Gondiya(12.18), Hingoli(3.85), Jalgaon (2.71), Jalna (8.90), Kolhapur (6.27), Latur (0.12), Mumbai (Suburban) (4.81), Nagpur (5.76), Nanded (15.73), Nandurbar (2.95), Nashik(5.24), Osmanabad (5.36),Parbhani (15.95),Pune (14.68), Raigarh (21.60), Ratnagiri (18.32), Sangli (12.02), Satara (17.41),Sindhudurg (11.16), Solapur (9.13),Thane (9.43),Wardha(10.17), Washim (5.13), Yavatmal (14.02)
Orrisa	Angul (6.30), Balasore(4.29), Bargarh (12.20), Bhadrak(2.42), Bolangir (1.05), Boudh (3.27), Cuttack (6.72), Deogarh (9.29), Dhenkanal (13.08), Gajapati (9.60), Ganjam (3.11), Jagatsinghpur (9.94), Jajpur (7.43), Jharsuguda (4.02), Kalahandi (2.90), Kandhamal (10.68), Kendrapara(15.20), Keonjhar(13.86), Khordha (0.15), Koraput (3.25), Malkangiri(3.24), Mayurbhanj (10.32), Nawarangapur (0.11),Nayagarh(14.16), Nuapada(4.36), Puri (19.15), Rayagada (3.92), Sambalpur (7.59), Sonepur(6.19), Sundargarh(2.86)
Punjub	Amritsar(0.29),Bathinda(0.85),FatehgarhSahib(7.03),Ferozepur(4.50),Gurdaspur(1.88),Hoshiarpur(2.74),Kapurthala(2.61),Ludhiana(2.20),Mansa(2.34),Moga(0.68),Muktsar(3.15),Nawanshahr(2.07),Patiala(1.91),Ropar (2.45),Sangrur(3.04)
Rajastan	Ajmer(2.67), Alwar(5.40),Banswara (1.16), Baran(5.67),Barmer(4.22), Bharatpur(4.77),Bhilwara (4.14), Bikaner (6.34), Bundi(3.46),Chittaurgarh(5.07), Churu (5.45), Dausa(1.66),Dhaulpur(2.63),Dungarpur(2.15), Ganganagar(2.50),Jaipur (4.67), Jaisalmer (8.44), Jalor(2.73), Jhalawar(7.08), Jhunjhunun (1.03), Jodhpur(1.16), Karauli(2.42),Kota(2.31), Nagaur (6.78),Pali(6.71), Rajsamand(5.50), Sawai Madhopur (11.23), Sikar (2.92), Sirohi(2.23), Tonk (9.17), Udaipur (0.08)
Tamil Nadu	Chennai(4.80), Coimbatore(3.94), Cuddalore(19.02), Dharmapuri (12.69), Dindigul (13.90), Erode (9.71), Kancheepuram (21.44), Kanniyakumari(17.74),Karur (13.28), Krishanagiri (14.59),Madurai(6.13), Nagapattinam(12.39), Namakkal(14.49), Perambalur(3.41), Pudukkottai(22.65), Ramanathapuram (20.18), Salem (13.71), Sivaganga (16.68), Thanjavur (17.40),The Nilgiris(16.24), Theni (6.14), Thiruvallur (5.43),Thiruvarur (20.10), Thoothukkudi (1.50),Tiruchirappalli (10.81), Tirunelveli (2.69), Tiruvannamalai (26.72),Vellore (13.75), Viluppuram (26.29), Virudhunagar (6.72)
Uttar Pradesh	Agra (11.09), Aligarh(24.66) ,Allahabad (22.15), Ambedkar Nagar(15.17), Auraiya (14.70), Azamgarh (9.56), Bahraich (11.17), Ballia(11.49), Balrampur (18.87), Banda (19.05), Barabanki (21.68), Bareilly (18.31), Basti (11.31), Bhadohi(19.23), Bijnor (7.72), Budaun (15.44), Bulandshahr(22.25), Chitrakoot(13.11), Deoria (15.15), Etah (23.33), Etawah (18.46),Faizabad (20.77), Farrukhabad (23.21), Fatehpur (10.62), Firozabad (22.55), Gautam Buddha Nagar (24.05), Ghaziabad (5.83), Ghazipur(2.98), Gonda (23.79), Gorakhpur(12.86), Hamirpur (18.70), Hardoi (3.12) Hathras (4.22), Jalaun(20.35), Jaunpur(5.51), Jhansi (15.73), Jyotiba Phule Nagar(7.29), Kannauj (8.52), Kanpur Dehat (27.48), Kanpur Nagar (15.61), Kaushambi (24.80), Kheri (3.01), Kushinagar (17.80), Lalitpur(17.22), Lucknow (2.06), Maharajganj(15.05), Mainpuri (22.44), Mathura(24.00), Mau(4.87), Meerut (22.98), Mirzapur (5.20), Moradabad(21.64), Muzaffarnagar (8.63), Pilibhit (9.51), Pratapgarh (1.80), Rae Bareli (2.01), Rampur (2.47), Saharanpur (20.26), Sant Kabir Nagar(11.48), Shahjahanpur (16.94), Shrawasti (17.01), Siddharthnagar(18.06),Sitapur(4.48),Sonbhadra (12.00), Sultanpur (12.84), Unnao (16.85), Varanasi (11.07)
West Bengal	Bankura(11.00),Burdwan(1.16),Birbhum(12.47),DakshinDinajpur(0.24),Darjeeling(23.21),Howrah(6.37),Hooghly(9.78),Jalpaiguri(7.41), Cooch Bihar(12.30),Malda(3.10),Murshidabad(8.79),Nadia(5.41),North Twenty Four Parganas(0.59),Paschim Midnapore(4.84),Purba Midnapore(2.39),Purulia(16.97),South Twenty Four Pargans(14.71),Uttar Dinajpur(3.98)

Table 4.27: Radial Movement (Average) for Input Teacher-Pupil Ratio under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(8.64), Chittoor(5.87), Cuddapah(1.45), East Godavari(8.83), Guntur(3.45), Karimnagar(5.80), Khammam (5.05), Krishna (7.22), Kurnool (6.67), Mahbubnagar(5.21), Medak(2.89), Nalgonda(2.09), Nellore(13.12), Nizamabad (4.17), Prakasam(8.28), Srikakulam (16.20), Visakhapatnam (3.17), Vizianagaram(7.72), Warangal(6.02), West Godavari(5.30)
Assam	Barpeta(3.87), Bongaigaon(7.31), Darrang (6.74), Dhubri (4.45), Dibrugarh(10.71), Goalpara(1.22), Golaghat(9.05) , Jorhat(16.38) , Kamrup(3.27), Karbi Anglong (1.09) , Kokrajhar(7.53) , Lakhimpur(5.79), Marigaon(3.77) , Nagaon(0.64), Nalbari(5.98), Sibsagar(10.6)
Bihar	Araria (1.21), Aurangabad (3.55), Banka (2.77), Begusarai(0.89), Bhagalpur(11.54), Bhojpur (1.15), Buxar (5.79), Darbhanga (5.11), Gaya(3.96), Gopalganj (11.23), Jamui(11.59), Jehanabad (3.98),Kaimur (Bhabua) (1.31), Katihar (0.98), Khagaria(6.52), Kishanganj (5.68), Lakhisarai (2.36), Madhepura(5.44), Madhubani (2.34), Munger (10.65), Muzaffarpur (3.38), Nalanda (11.34), Nawada (5.96), Pashchim Champaran (13.12), Patna(8.38), Purba Champaran(4.65), Purnia (0.79), Rohtas (3.03), Saharsa(7.91), Saran (7.13), Sheikhpura (10.31),Heohar (9.16), Sitamarhi(11.50), Siwan (12.13), Supaul (5.81), Vaishali (3.40)
Gujrat	Ahmadabad (5.09), Amreli (20.91), Anand (2.42), Banas Kantha (7.60), Bharuch (10.77), Bhavnagar (2.64),Gandhinagar (8.94), Jamnagar (11.96), Junagadh(5.25), Kachchh (25.03) Kheda (2.03), Mahesana (3.55), Narmada (13.15), Navsari (0.71), Panch Mahals (0.53), Patan (6.31), Porbandar(15.56),Rajkot (6.15), Sabar Kantha (1.21),Surat (0.21), Surendranagar(14.04), The Dangs (2.38),Vadodara (1.98), Valsad (0.20)
Haryana	Ambala(7.28),Bhiwani (5.48),Faridabad(6.17),Fatehabad(4.10), Gurgaon(3.78), Hisar(10.83),Jhajjar(0.95),Jind (2.18),Kaithal(4.79),Karnal (7.91),Kurukshetra (11.91), Mahendragarh(9.91), Panchkula (22.32),Panipat (2.22), Rewari (13.88), Sirsa(0.86), Sonipat (8.78), Yamunanagar(4.73)
Himachal Pradesh	Bilaspur (8.92), Kangra (1.25), Kinnaur (10.40), Mandi(3.72), Shimla (0.90), Solan (1.33)
Karnatak	Bagalkot (4.54),Bangalore Rural(5.01), Belgaum(1.78), Bellary (5.75), Bidar(2.59), Bijapur (0.33), Chamrajnagar (7.03), Chikmagalur (5.94), Chitradurga (5.21), Dakshina Kannada (3.70), Davangere(5.28),Dharwad (1.31), Gadag (1.33), Gulbarga(1.94),Hassan(7.44), Haveri(12.36), Kodagu(7.79),Koppal (3.82), Mandya(7.66), Mysore(2.37), Raichur (3.32), Shimoga(3.65), Tumkur (8.87), Udupi (6.74), Uttara Kannada (9.44)
Kerala	Idukki (1.98), Kannur (3.79),Kasaragod(2.69),Kollam(0.92),Kottayam (6.20),Palakkad(0.89), Pathanamthitta (10.16),Thiruvananthapuram (1.73), Thrissur (0.85), Wayanad(1.27)
Madhya Pradesh	Anuppur(8.08),Ashoknagar(4.78),Balaghat(9.38),Barwani (7.01),Betul (18.20),Bhind(5.00),Bhopal (14.59),Burhanpur(6.97),Chhatarpur(6.26),Chhindwarar(15.99),Damoh r(14.84),Datia(14.70),Dewas (11.56),Dhar(6.38),Dindori (15.45),Guna (14.58),Gwalior (0.80),Harda (10.41),Hoshangabad (23.36),Indore(4.47),Jabalpur(16.59),Jhabua (10.89),Katni(6.46),Khanda (2.95),Khargoni (17.16),Mandla(15.10),Mandsaur(12.82),Morena (1.08),Narsinghpur (9.32),Nimuch(10.45),Panna (13.89),Raisen(18.24),Rajgarh(22.89),Ratlam(21.91),Rewa (8.66),Sagar(7.48),Satna (15.32),Sehorei (6.59),Shajapur(21.43),Sheopur r(6.71),Shajapur(21.09),Sheopuri(7.83),Shivpurii(6.57),Sidhi (12.67),Tikamgarh(3.95),Ujjain(21.59),Umaria(8.34),Vidisha(14.50)
Maharasttra	Ahmadnagar (4.92), Akola(9.98), Amravati(4.29), Aurangabad (7.21), Bhandara (6.96), Bid (2.02), Buldana(3.24), Chandrapur(26.11), Gadchiroli (12.32), Gondiya (12.13), Hingoli (3.62), Jalgaon (2.61), Jalna (9.10), Kolhapur(6.55),Mumbai (Suburban) (4.80), Nagpur(6.07), Nanded (15.42), Nandurbar(2.83), Nashik(4.91), Osmanabad (5.12),Parbhani (15.78), Pune (14.70), Raigarh (20.50), Ratnagiri(18.54), Sangli(11.55), Satara (17.07),Sindhudurg (11.17), Solapur (9.57),Thane (9.70),Wardha(10.34), Washim (5.83), Yavatmal(14.23)
Orrisa	Angul (6.71), Balasore(4.32), Bargarh (12.48), Bhadrak(1.47), Bolangir (0.34), Boudh (3.00), Cuttack (7.22), Deogarh (8.86), Dhenkanal (13.20), Gajapati (9.64), Ganjam (3.82), Jagatsinghpur (9.41), Jajpur (6.61), Jharsuguda (3.80), Kalahandi (2.88), Kandhamal (10.80), Kendrapara(15.05), Keonjhar(14.09), Koraput (3.37), Malkangiri(3.36), Mayurbhanj (10.13),Nayagarh(14.28), Nuapada(4.81), Puri(18.66), Rayagada (3.27), Sambalpur (6.53), Sonepur(6.22), Sundargarh(2.25)
Punjub	FatehgarhSahib(7.09),Ferozepur(3.69),Gurdaspur(1.17),Hoshiarpur(1.93),Kapurthala(1.21),Ludhiana(1.69), Mansa(0.86),Moga(0.80),Muktsar(3.76),Nawanshahr(2.22),Patiala(1.32),Ropar(1.98),Sangrur(3.51)
Rajastan	Ajmer(2.32), Alwar(5.21),Banswara (1.06), Baran(5.06),Barmer(4.92), Bharatpur(5.41),Bhilwara (4.31), Bikaner (6.12), Bundi(3.48),Chittaurgarh(5.39), Churu (5.50), Dausa(1.61),Dhaulpur(2.76),Dungarpur(2.03), Ganganagar(2.47),Jaipur (4.91), Jaisalmer (9.27), Jalor(2.70), Jhalawar(6.64), Jhunjhunun (0.97), Jodhpur(1.24), Karauli(2.22),Kota(2.36), Nagaur (6.58),Pali(6.98), Rajsamand(5.51), Sawai Madhopur (11.50), Sikar (3.05), Sirohi(2.42), Tonk (9.25)

Tamil Nadu	Chennai(4.84), Coimbatore(4.18), Cuddalore(19.32), Dharmapuri (12.52), Dindigul (14.11), Erode (10.20), Kancheepuram (21.84), Kanniyakumari(17.27),Karur (13.30), Krishanagiri (14.46),Madurai(6.05), Nagapattinam(12.06), Namakkal(15.38), Perambalur(3.34), Pudukkottai(21.82), Ramanathapuram (20.14), Salem (13.60), Sivaganga (16.24), Thanjavur (16.92),The Nilgiris(15.94), Theni (5.81), Thiruvallur (5.37),Thiruvarur (20.80), Thoothukkudi (1.10),Tiruchirappalli (11.47), Tirunelveli (2.11), Tiruvannamalai (27.23),Vellore (14.56), Viluppuram (26.22), Virudhunagar (6.02)
Uttar Pradesh	Agra (10.92), Aligarh(24.49) ,Allahabad (22.48), Ambedkar Nagar(15.16), Auraiya (14.59), Azamgarh (9.24), Bahraich (11.14), Ballia(11.78), Balrampur (21.59), Banda (19.25), Barabanki (21.18), Bareilly (18.00), Basti (10.11), Bhadohi(19.19), Bijnor (6.38), Budaun (15.52), Bulandshahr(23.25), Chitrakoot(12.98), Deoria (15.97), Etah (23.45), Etawah (18.24),Faizabad (21.80), Farrukhabad (22.25), Fatehpur (10.54), Firozabad (21.31), Gautam Buddha Nagar (24.23), Ghaziabad (5.50), Ghazipur(3.24), Gonda (24.14), Gorakhpur(12.92), Hamirpur (18.80), Hardoi (2.07) Hathras (3.49), Jalaun(19.73), Jaunpur(4.61), Jhansi (15.60), Jyotiba Phule Nagar(7.98), Kannauj (9.33), Kanpur Dehat (27.86), Kanpur Nagar (17.07), Kaushambi (24.53), Kheri (2.68), Kushinagar (17.88), Lalitpur(16.03), Lucknow (1.75), Maharajganj(15.43), Mainpuri (21.92), Mathura(24.99), Mau(5.34), Meerut (22.67), Mirzapur (4.42), Moradabad(22.00), Muzaffarnagar (8.59), Pilibhit (9.87), Pratapgarh (1.86), Rae Bareli (2.34), Rampur (2.32), Saharanpur (20.34), Sant Kabir Nagar(9.95), Shahjahanpur (17.64), Shrawasti (15.11), Siddharthnagar (18.92),Sitapur(3.23),Sonbhadra (11.70), Sultanpur (12.92), Unnao (16.92), Varanasi (11.47)
West Bengal	Bankura(12.16),Burdwan(0.37),Birbhum(5.65),Darjeeling(21.10),Howrah(6.13),Hooghly(5.66),Jalpaiguri (7.70), Cooch Bihar(10.92),Murshidabad(4.91),Nadia(5.60),North Twenty Four Parganas(0.89),Paschim Midnapore(5.07),Purba Midnapore(2.50),Purulia(17.84),South Twenty Four Pargans(15.98),Uttar Dinajpur(2.16)

Table 4.28: Radial Movement (Average) for Input Classroom-Student Ratio under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(8.44), Chittoor(6.23), Cuddapah(1.32 , East Godavari(9.29), Guntur(4.21), Karimnagar(6.21), Khammam (5.06), Krishna (7.14), Kurnool (6.07), Mahbubnagar(5.35), Medak(2.30), Nalgonda(3.11), Nellore(12.95), Nizamabad (4.22), Prakasam(9.84), Srikakulam (15.94), Visakhapatnam (2.73), Vizianagaram(7.68), Warangal(5.15), West Godavari(4.64)
Assam	Barpeta(3.51), Bongaigaon(6.63), Darrang (7.05), Dhubri (4.33), Dibrugarh(11.22), Goalpara(0.55) , Golaghat(8.83) , Jorhat(16.70) , Kamrup(3.36), Karbi Anglong (1.40) , Kokrajhar(7.20) , Lakhimpur(5.26), Marigaon(4.56) , Nagaon(0.80) , Nalbari(6.40) , Sibsagar(10.65)
Bihar	Araria (0.64), Aurangabad (3.22), Banka (2.31), Begusarai(1.17), Bhagalpur(11.89), Bhojpur (0.86), Buxar (5.69), Darbhanga (4.93), Gaya(4.27), Gopalganj (12.08), Jamui(11.45), Jehanabad (4.04),Kaimur (Bhabua) (1.57), Katihar (1.24), Khagaria(7.26), Kishanganj (6.39), Lakhisarai (2.70), Madhepura(4.75), Madhubani (2.00), Munger (10.12), Muzaffarpur (2.98), Nalanda (11.89), Nawada (6.67), Pashchim Champaran (13.80), Patna(9.35), Purba Champaran(4.00), Purnia (1.83), Rohtas (3.10), Saharsa(8.66), Saran (7.21), Sheikhpura (10.57),Heohar (9.09), Sitamarhi(11.50), Siwan (12.37), Supaul (5.12), Vaishali (3.39)
Gujrat	Ahmadabad (24.70), Amreli (20.68), Anand (2.31), Banas Kantha (7.92), Bharuch (10.82), Bhavnagar (2.46), Gandhinagar (9.04), Jamnagar (11.78), Junagadh(5.23), Kachchh (25.03) Kheda (1.89), Mahesana (3.82), Narmada (13.13), Navsari (0.73), Panch Mahals (0.60), Patan (6.27), Porbandar(15.23),Rajkot (6.07), Sabar Kantha (1.01),Surat (0.47), Surendranagar(14.12), The Dangs (2.45),Vadodara (2.01), Valsad (0.22)
Haryana	Ambala(7.09),Bhiwani (6.06),Faridabad(6.08),Fatehabad(3.20), Gurgaon(3.97), Hisar(9.38),Jhajjar(1.51),Jind (3.10),Kaithal(5.80),Karnal (6.35),Kurukshetra (11.24), Mahendragarh(9.54), Panchkula (21.08),Panipat (2.22), Rewari (12.90), Sirsa(1.57), Sonipat (10.25), Yamunanagar(3.82)
Himachal Pradesh	Bilaspur (8.90), Kangra (1.42), Kinnaur (10.57), Mandi(4.55), Shimla (0.60), Solan (2.15)
Karnatak	Bagalkot (4.57),Bangalore Rural(4.93), Belgaum(1.69), Bellary (5.60), Bidar(2.55), Bijapur (0.46), Chamrajnagar (7.29), Chikmagalur (5.81), Chitradurga (5.38), Dakshina Kannada (4.26), Davangere(5.16),Dharwad (1.31), Gadag (1.30), Gulbarga(2.02),Hassan(7.58), Haveri(12.10), Kodagu(7.72),Koppal (3.70), Mandya(7.73), Mysore(2.87), Raichur (3.36), Shimoga(3.58), Tumkur (8.73), Udupi (6.91), Uttara Kannada (9.31)
Kerala	Idukki (2.11), Kannur (3.55),Kasaragod(2.61),Kollam(0.85),Kottayam (6.49),Palakkad(0.77), Pathanamthitta (10.57),Thiruvananthapuram (1.98), Thrissur (0.51), Wayanad(1.51)

Madhya Pradesh	Anuppur(9.07),Ashoknagar(4.93),Balaghat(9.06),Barwani (7.81),Betul (18.22),Bhind(4.59),Bhopal (15.17), (Burhanpur(7.07),Chhatarpur(7.01),Chhindwarar(15.90),Damoh r(15.28),Datia (14.26),Dewas (12.10),Dhar(7.04),Dindori (14.66),Guna (13.82),Gwalior (0.85),Harda (10.10),Hoshangabad(22.48),Indore(2.10),Jabalpur(16.87),Jhabua(11.78),Katni(6.18),Khanda (3.73),Khargoni (18.68),Mandla(15.06),Mandsaur(12.68),Morena (0.92),Narsinghpur(9.82),Nimuch (10.45),Panna(14.18),Raisen(18.61),Rajgarh(20.97),Ratlam(21.46),Rewa (10.02),Sagar(7.78),Satna (14.88),Sehorei(6.73),Shajapur(21.75),Sheopur r(6.98),Shajapur(21.40),Sheopuri (7.16),Shivpurii (6.29),Sidhi(12.17),Tikamgarh(4.10),Ujjain(22.00),Umaria(8.40),Vidisha(15.31)
Maharasttra	Ahmadnagar (4.68), Akola(9.71), Amravati(4.31), Aurangabad (6.18), Bhandara (6.25), Bid (2.04), Buldana(3.48), Chandrapur(26.61), Gadchiroli (12.44), Gondiya (12.02), Hingoli (3.94), Jalgaon (3.10), Jalna (9.01), Kolhapur(6.18), Mumbai (Suburban) (4.66), Nagpur(6.08), Nanded (15.52), Nandurbar(2.57), Nashik(5.22), Osmanabad (5.38),Parbhani (15.97), Pune (14.08), Raigarh (21.54), Ratnagiri(18.51), Sangli(12.24), Satara (17.65),Sindhudurg (11.29), Solapur (8.82),Thane (9.54),Wardha(10.23), Washim (5.04), Yavatmal(13.39)
Orrisa	Angul (6.25), Balasore(4.10), Bargarh (12.74), Bhadrak(1.73), Bolangir (0.38), Boudh (2.90), Cuttack (8.06), Deogarh (9.27), Dhenkanal (13.27), Gajapati (9.57), Ganjam (4.29), Jagatsinghpur (9.91), Jajpur (6.84), Jharsuguda (4.17), Kalahandi (3.30), Kandhamal (10.61), Kendrapara(15.69), Keonjhar(14.19), Koraput (3.00), Malkangiri(3.22), Mayurbhanj (10.61), Nawarangapur (0.14),Nayagarh(15.28), Nuapada(3.38), Puri(19.18), Rayagada (2.88), Sambalpur (6.78), Sonepur(7.00), Sundargarh(2.71)
Punjub	Bathinda(1.260),FatehgarhSahib(6.63),Ferozepur(3.83),Gurdaspur(1.38),Hoshiarpur(2.65),Kapurthala (2.17),Ludhiana(2.06),Mansa(1.650),Muktsar(3.39),Nawanshahr(1.70),Patiala(2.04),Ropar(2.93),Sangru r(4.30)
Rajastan	Ajmer(1.52), Alwar(4.11),Banswara (1.17), Baran(6.32),Barmer(4.43), Bharatpur(4.81),Bhilwara (4.12), Bikaner (5.98), Bundi(3.50),Chittaurgarh(5.12), Churu (5.27), Dausa(1.65),Dhaulpur(0.34),Dungarpur(2.03), Ganganagar(2.47),Jaipur (4.35), Jaisalmer (10.19), Jalor(2.59), Jhalawar(4.93), Jhunjhunun (0.85), Jodhpur(1.18), Karauli(3.70),Kota(2.50), Nagaur (9.20),Pali(8.38), Rajsamand(5.51), Sawai Madhopur (10.64), Sikar (2.80), Sirohi(2.14), Tonk (7.13)
Tamil Nadu	Chennai(4.72), Coimbatore(4.30), Cuddalore(19.6), Dharmapuri (12.52), Dindigul (13.94), Erode (9.96), Kancheepuram (21.33), Kanniyakumari(18.45),Karur (12.87), Krishanagiri (14.56),Madurai(7.74), Nagapattinam(12.44), Namakkal(14.37), Perambalur(3.13), Pudukkottai(21.95), Ramanathapuram (19.86), Salem (13.87), Sivaganga (16.45), Thanjavur (17.90),The Nilgiris(16.54), Theni (5.77), Thiruvallur (5.51),Thiruvarur (19.97), Thoothukkudi (0.82),Tiruchirappalli (11.09), Tirunelveli (3.18), Tiruvannamalai (26.88),Vellore (14.34), Viluppuram (25.90), Virudhunagar (6.57)
Uttar Pradesh	Agra (11.66), Aligarh(25.05) ,Allahabad (22.11), Ambedkar Nagar(15.27), Auraiya (14.39), Azamgarh (8.04), Bahraich (10.82), Ballia(11.56), Balrampur (19.12), Banda (18.62), Barabanki (22.69), Bareilly (18.57), Basti (10.99), Bhadohi(18.85), Bijnor (8.16), Budaun (15.57), Bulandshahr(22.14), Chitrakoot(12.34), Deoria (14.82), Etah (23.08), Etawah (18.38),Faizabad (21.57), Farrukhabad (23.49), Fatehpur (10.62), Firozabad (22.48), Gautam Buddha Nagar (23.63), Ghaziabad (5.81), Ghazipur(3.06), Gonda (23.89), Gorakhpur(13.69), Hamirpur (18.67), Hardoi (3.15) Hathras (4.18), Jalaun(20.84), Jaunpur(5.80), Jhansi (15.45), Jyotiba Phule Nagar(7.32), Kannauj (8.70), Kanpur Dehat (27.89), Kanpur Nagar (15.49), Kaushambi (24.67), Kheri (2.36), Kushinagar (18.14), Lalitpur(17.40), Lucknow (2.52), Maharajganj(15.17), Mainpuri (22.74), Mathura(25.00), Mau(4.45), Meerut (22.14), Mirzapur (5.26), Moradabad(21.82), Muzaffarnagar (8.44), Pilibhit (8.96), Pratapgarh (2.06), Rae Bareli (2.53), Rampur (2.41), Saharanpur (19.18), Sant Kabir Nagar(11.72), Shahjahanpur (16.30), Shrawasti (16.92), Siddharthnagar (19.46),Sitapur(3.70),Sonbhadra (11.74), Sultanpur (12.85), Unnao (16.49), Varanasi (10.64)
West Bengal	Bankura(10.20),Birbhum(7.86),Darjeeling(20.72),Hooghly(6.61),Jalpaiguri(7.12), Cooch Bihar(11.20),Murshidabad(5.84),Nadia(7.64),North Twenty Four Parganas(0.71),Paschim Midnapore(5.72),Purba Midnapore(2.11),Purulia(15.09),South Twenty Four Pargans(16.20),Uttar Dinajpur(2.41)

Table 4.29: Radial Movement (Average) for Input Percentage of Teachers with Graduate and Above under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(8.61), Chittoor(5.98), Cuddapah(1.33) , East Godavari(8.57), Guntur(4.67), Karimnagar(6.01), Khammam (4.94), Krishna (8.03), Kurnool (6.74), Mahbubnagar(5.70), Medak(2.38), Nalgonda(2.87), Nellore(12.86), Nizamabad (4.59), Prakasam(9.30), Srikakulam (15.77), Visakhapatnam (3.37), Vizianagaram(7.99), Warangal(5.24), West Godavari(4.73)
Assam	Barpeta(4.02), Bongaigaon(7.09), Darrang (7.56), Dhubri (4.09), Dibrugarh(11.38), Goalpara(1.14) , Golaghat(8.69) , Jorhat(16.29) , Kamrup(3.28), Karbi Anglong (1.17), Karimganj(0.04) , Kokrajhar(7.08) , Lakhimpur(5.74), Marigaon(4.15), Nagaon(0.57), Nalbari(6.11), Sibsagar(10.77)

Bihar	Araria (0.86), Aurangabad (3.25), Banka (1.98), Begusarai(0.91), Bhagalpur(11.77), Bhojpur (1.03), Buxar (5.81), Darbhanga (4.88), Gaya(4.39), Gopalganj (11.78), Jamui(11.52), Jehanabad (3.99),Kaimur (Bhabua) (1.32), Katihar (1.14), Khagaria(6.87), Kishanganj (6.10), Lakhisarai (2.74), Madhepura(5.22), Madhubani (2.48), Munger (10.72), Muzaffarpur (2.97), Nalanda (12.16), Nawada (6.90), Pashchim Champaran (13.49), Patna(9.31), Purba Champaran(3.88), Purnia (1.73), Rohtas (3.54), Saharsa(8.40), Samastipur(0.06), Saran (6.93), Sheikhpura (10.69),Heohar (8.81), Sitamarhi(11.39), Siwan (11.77), Supaul (5.16), Vaishali (3.45)
Gujrat	Ahmadabad (3.43), Amreli (20.77), Anand (2.43), Banas Kantha (7.62), Bharuch (10.79), Bhavnagar (2.84),Gandhinagar (8.88), Jamnagar (11.80), Junagadh(5.23), Kachchh (24.93) Kheda (2.00), Mahesana (3.80), Narmada (13.09), Navsari (0.73), Panch Mahals (0.61), Patan (6.29), Porbandar(15.32),Rajkot (6.11), Sabar Kantha (1.06),Surat (0.34), Surendranagar(14.15), The Dangs (2.39),Vadodara (2.01), Valsad (0.28)
Haryana	Ambala(6.83),Bhiwani (6.33),Faridabad(6.27),Fatehabad(3.49), Gurgaon(4.84), Hisar(8.94),Jhajjar(1.65),Jind (2.74),Kaithal(5.03),Karnal (7.02),Kurukshetra (12.18), Mahendragarh(9.88), Panchkula (25.83),Panipat (2.31), Rewari (12.97), Rohtak(0.21), Sirsa(1.19), Sonipat(10.09), Yamunanagar(4.17)
Himachal Pradesh	Bilaspur (9.58), Kangra (1.62), Kinnaur (10.56), Mandi(3.86), Shimla (1.01), Sirmaur (0.10), Solan (1.24)
Karnatak	Bagalkot (4.60),Bangalore Rural(5.01), Belgaum(1.68), Bellary (5.59), Bidar(2.48), Bijapur (0.4), Chamrajnagar (7.14), Chikmagalur (5.91), Chitradurga (5.37), Dakshina Kannada (4.21), Davangere(5.33),Dharwad (1.37), Gadag (1.36), Gulbarga(1.91),Hassan(7.49), Haveri(12.18), Kodagu(7.68),Koppal (3.69), Mandya(7.81), Mysore(2.34), Raichur (3.39), Shimoga(3.52), Tumkur (8.78), Udupi (7.03), Uttara Kannada (9.39)
Kerala	Idukki (2.01), Kannur (3.94),Kasaragod(2.73),Kollam(0.78),Kottayam (6.26), Pathanamthitta (10.38),Thiruvananthapuram (1.91), Thrissur (1.02), Wayanad(1.32)
Madhya Pradesh	Anuppur(8.00),Ashoknagar(4.96),Balaghat(8.83),Barwani (7.53),Betul (18.82),Bhind(4.77),Bhopal (14.84),Burhanpur(7.00),Chhatarpur(7.02),Chhindwarar(15.56),Damoh r(14.56),Datia(15.02),Dewas (11.99),Dhar(6.12),Dindori (15.47),Guna (14.19),Gwalior (0.93),Harda (10.34),Hoshangabad (22.60),Indore(4.51),Jabalpur(17.56),Jhabua(10.63),Katni(6.14),Khanda (2.89),Khargoni (17.91),Mandla(15.47),Mandsaur(12.66),Morena (1.01),Narsinghpur(9.66),Nimuch(10.23),Panna (13.93),Raisen(18.51),Rajgarh(21.99),Ratlam(21.54),Rewa (9.45),Sagar(7.64),Satna(15.03),Sehorei (6.73),Shajapur(21.43),Sheopur r(8.36),Shajapur(21.28),Sheopuri(7.68),Shivpurii(6.37),Sidhi (12.06),Tikamgarh(3.41),Ujjain(21.12),Umaria(8.77),Vidisha(14.66)
Maharasttra	Ahmadnagar (5.57), Akola (9.55), Amravati(4.12), Aurangabad (6.98), Bhandara (6.65), Bid (1.97), Buldana(3.52), Chandrapur(26), Gadchiroli (11.93), Gondiya(12.18), Hingoli(3.85), Jalgaon (2.71), Jalna (8.90), Kolhapur (6.27), Latur (0.12), Mumbai (Suburban) (4.81), Nagpur (5.76), Nanded (15.73), Nandurbar (2.95), Nashik(5.24), Osmanabad (5.36),Parbhani (15.95),Pune (14.68), Raigarh (21.60), Ratnagiri (18.32), Sangli (12.02), Satara (17.41),Sindhudurg (11.16), Solapur (9.13),Thane (9.43),Wardha(10.17), Washim (5.13), Yavatmal (14.02)
Orrisa	Angul (6.30), Balasore(4.29), Bargarh (12.20), Bhadrak(2.42), Bolangir (1.05), Boudh (3.27), Cuttack (6.72), Deogarh (9.29), Dhenkanal (13.08), Gajapati (9.60), Ganjam (3.11), Jagatsinghpur (9.94), Jajpur (7.43), Jharsuguda (4.02), Kalahandi (2.90), Kandhamal (10.68), Kendrapara(15.20), Keonjhar(13.86), Khordha (0.15), Koraput (3.25), Malkangiri(3.24), Mayurbhanj (10.32), Nawarangapur (0.11),Nayagarh(14.16), Nuapada(4.36), Puri (19.15), Rayagada (3.92), Sambalpur (7.59), Sonepur(6.19), Sundargarh(2.86)
Punjub	Amritsar(0.29),Bathinda(0.85),FatehgarhSahib(7.03),Ferozepur(4.50),Gurdaspur(1.88),Hoshiarpur(2.74),Kapurthala(2.61),Ludhiana(2.20),Mansa(2.34),Moga(0.68),Muktsar(3.15),Nawanshahr(2.07),Patiala(1.91),Ropar (2.45),Sangrur(3.04)
Rajasta n	Ajmer(2.67), Alwar(5.40),Banswara (1.16), Baran(5.67),Barmer(4.22), Bharatpur(4.77),Bhilwara (4.14), Bikaner (6.34), Bundi(3.46),Chittaurgarh(5.07), Churu (5.45), Dausa(1.66),Dhaulpur(2.63),Dungarpur(2.15), Ganganagar(2.50),Jaipur (4.67), Jaisalmer (8.44), Jalor(2.73), Jhalawar(7.08), Jhunjhunun (1.03), Jodhpur(1.16), Karauli(2.42),Kota(2.31), Nagaur (6.78),Pali(6.71), Rajsamand(5.50), Sawai Madhopur (11.23), Sikar (2.92), Sirohi(2.23), Tonk (9.17), Udaipur (0.08)
Tamil Nadu	Chennai(4.80), Coimbatore(3.94), Cuddalore(19.03), Dharmapuri (12.69), Dindigul (13.90), Erode (9.72), Kancheepuram (21.44), Kanniyakumari(17.74),Karur (13.28), Krishanagiri (14.59),Madurai(6.13), Nagapattinam(12.39), Namakkal(14.49), Perambalur(3.41), Pudukkottai(22.65), Ramanathapuram (20.18), Salem (13.71), Sivaganga (16.68), Thanjavur (17.40),The Nilgiris(16.24), Theni (6.14), Thiruvallur (5.43),Thiruvarur (20.10), Thoothukkudi (1.50),Tiruchirappalli (10.81), Tirunelveli (2.69), Tiruvannamalai (26.72),Vellore (13.75), Viluppuram (26.29), Virudhunagar (6.72)

Uttar Pradesh	Agra (11.09), Aligarh(24.66) ,Allahabad (22.15), Ambedkar Nagar(15.17), Auraiya (14.70), Azamgarh (9.56), Bahraich (11.17), Ballia(11.49), Balrampur (18.87), Banda (19.05), Barabanki (21.69), Bareilly (18.31), Basti (11.31), Bhadohi(19.23), Bijnor (7.72), Budaun (15.44), Bulandshahr(22.25), Chitrakoot(13.11), Deoria (15.15), Etah (23.33), Etawah (18.46),Faizabad (20.77), Farrukhabad (23.20), Fatehpur (10.62), Firozabad (22.55), Gautam Buddha Nagar (24.05), Ghaziabad (5.83), Ghazipur(2.98), Gonda (23.79), Gorakhpur(12.86), Hamirpur (18.70), Hardoi (3.12), Hathras (4.22), Jalaun(20.35), Jaunpur(5.51), Jhansi (15.73), Jyotiba Phule Nagar(7.29), Kannauj (8.52), Kanpur Dehat (27.48), Kanpur Nagar (15.61), Kaushambi (24.80), Kheri (3.01), Kushinagar (17.80), Lalitpur(17.22), Lucknow (2.06), Maharajganj(15.05), Mainpuri (22.43), Mathura(24.00), Mau(4.87), Meerut (22.98), Mirzapur (5.20), Moradabad(21.64), Muzaffarnagar (8.63), Pilibhit (9.51), Pratapgarh (1.80), Rae Bareli (2.00), Rampur (2.47), Saharanpur (20.26), Sant Kabir Nagar(11.48), Shahjahanpur (16.94), Shrawasti (17.00), Siddharthnagar (18.06),Sitapur(4.48),Sonbhadra (12.00), Sultanpur (12.84), Unnao (16.85), Varanasi (11.07)
West Bengal	Bankura(11.73),Burdwan(1.03),Birbhum(11.47),Dakshin Dinajpur(0.26),Darjeeling(20.07),Howrah(7.26),Hooghly(9.61), Jalpaiguri(8.53), Cooch Bihar(11.88),Malda(3.16),Murshidabad(8.83),Nadia(6.31),North Twenty Four Parganas(0.59),Paschim Midnapore(4.94),Purba Midnapore(2.37),Purulia(17.45),South Twenty Four Pargans(14.41),Uttar Dinajpur(3.76)

Slack Movement

The table 4.30 summarizes the findings regarding slack movements of four inputs used in the production for the selected states at upper primary level of education.

Table 4.30: Summary Findings of Average (District Average) Slack Movements (S.M) for Four Inputs at Upper Primary Level of Education

States	State Specific Average (SSA) of Mean S.M				State Specific SD of Average S.M				State Specific CV of Average S.M			
	No. of Schools Per Lakh Population	Teacher - Pupil ratio	Classroom - Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher - Pupil ratio	Classroom - Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher - Pupil ratio	Classroom - Student ratio	% of Teachers with graduate and above
Andhra Pradesh	-6.29	-5.00	-6.91	-0.23	4.01	4.53	4.83	0.58	-63.74	-90.56	-69.91	-256.19
Assam	-5.98	-2.25	-6.25	-0.81	5.85	5.03	6.41	1.02	-97.72	-223.11	-102.58	-125.44
Bihar	-5.98	-1.87	-5.25	-3.98	4.30	2.52	4.96	3.07	-71.84	-134.93	-94.57	-76.99
Gujarat	-6.55	-1.54	-4.86	-3.33	4.72	1.82	7.50	3.66	-72.05	-117.98	-154.32	-109.94
Haryana	-5.66	-6.37	-7.05	-0.46	4.56	7.89	5.61	1.24	-80.49	-123.81	-79.64	-269.75
Himachal Pradesh	-2.74	-1.45	-4.37	0.00	4.90	2.50	9.98	0.00	-179.07	-172.52	-228.34	N.A
Karnataka	-5.31	-0.40	-4.42	-3.34	4.30	0.52	5.16	2.42	-81.08	-130.51	-116.68	-72.35
Kerala	-6.46	-0.79	-4.75	-1.47	5.56	1.44	6.46	1.95	-86.01	-180.86	-136.01	-132.41

Madhya Pradesh	-7.57	-3.21	-8.59	-0.17	5.77	3.66	6.40	0.48	-76.19	-114.07	-74.53	-287.93
Maharashtra	-6.30	-3.65	-5.28	-4.75	4.36	2.97	3.75	3.32	-69.17	-81.52	-71.01	-69.96
Orrisa	-5.14	-3.36	-6.80	-1.41	4.25	2.58	5.90	3.00	-82.63	-76.76	-86.75	-212.26
Punjab	-3.72	-3.58	-6.42	-1.06	3.60	3.67	5.06	1.84	-96.74	-102.63	-78.88	-173.61
Rajasthan	-4.31	-6.74	-5.57	-2.05	4.45	5.32	5.63	2.68	-103.33	-79.01	-101.15	-131.00
Tamil Nadu	-13.98	-9.64	-17.75	-0.33	6.04	4.91	7.39	0.67	-43.19	-50.93	-41.63	-204.33
Uttar Pradesh	-5.84	-10.67	-4.18	-2.94	4.83	8.28	4.95	1.82	-82.76	-77.64	-118.42	-61.99
West Bengal	-13.76	-6.20	-7.86	-3.30	11.04	6.66	10.62	3.46	-80.20	-107.43	-135.11	-104.85

In case of number of schools per lakh population, the SSA of mean slack movement turned out to be lowest for HP (2.47%) and highest for TN (13.98%). Considering teacher-pupil ratio it is lower for the state KA (0.40%) and KE (0.79%) and highest for UP (10.67%). For the input classroom-student ratio least and highest level of SSA are observed in the state UP (4.18%) and TN (17.75%) respectively. Considering the percentage of teachers with qualification graduate and above the least value occurs for HP (0%) whereas highest is observed at MH (4.75%). In case of the input, namely the percentage of teachers with qualification graduate and above the average slack movement is zero for the state HP though it is inefficient because of the existence of non-zero radial movement.

Similarly ***the extent of inefficiency in terms of slack measures of four inputs namely number of schools per lakh population, teacher-pupil ratio, classroom-student ratio and percentage of teachers with qualification graduate and above for different districts under the respective states in upper primary level of education has been listed in tables 4.31, 4.32, 4.33 and 4.34.***

Table 4.31: Slack Movement (Average) for Input Number of Schools per lakh Population under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(7.90), Chittoor(2.11), Cuddapah(8.66) , East Godavari(10.18), Guntur(3.71), Karimnagar(8.39), Khammam (7.43), Krishna (7.15), Kurnool (4.44), Mahbubnagar(2.53), Medak(7.44), Nalgonda(13.81), Nellore(0.91), Nizamabad (10.83), Prakasam(10.21), Srikakulam (10.04), Visakhapatnam (8.14), Vizianagaram(7.81), Warangal(9.63), West Godavari(3.23)
Assam	Barpeta(5.60), Bongaigaon(18.92), Darrang (1.27), Dhubri (11.85), Dibrugarh(12.49), Goalpara(1.36) , Golaghat(9.17) , Jorhat(8.25) , Kamrup(4.89), Karbi Anglong (6.39), Karimganj(1.08) , Kokrajhar(17.25), Lakhimpur(4.94), Marigaon(12.19), Nalbari(7.80), Sibsagar(8.18)

Bihar	Aurangabad (11.72), Banka (12.74), Begusarai(3.32), Bhagalpur(0.42), Bhojpur (0.77), Buxar (5.98), Darbhanga (5.71), Gaya(6.27), Gopalganj (4.88), Jamui(12.66), Jehanabad (6.24),Kaimur (Bhabua) (0.60), Katihar (7.21), Khagaria(8.74), Kishanganj (10.75), Lakhisarai (7.00), Madhepura(9.83), Madhubani (5.28), Munger (14.52), Muzaffarpur (0.50), Nalanda (6.23), Nawada (13.18), Pashchim Champaran (9.99), Patna(6.35), Purba Champaran(1.98), Purnia (0.17), Saharsa(4.59), Samastipur(0.65), Saran (3.33), Sheikhpura (12.17),Heohar (2.31), Sitamarhi(3.93), Siwan (5.90), Supaul (9.46), Vaishali (5.98)
Gujrat	Ahmadabad (13.09), Amreli (11.26), Anand (2.81), Banas Kantha (3.44), Bharuch (4.93), Bhavnagar (0.42), Dohad (2.22),Gandhinagar (3.07), Jamnagar (5.61), Junagadh(11.30), Kachchh (17.12) Kheda (0.19), Mahesana (3.40), Narmada (10.11), Navsari (9.65), Panch Mahals (2.78), Patan (2.80), Porbandar(5.46),Rajkot (8.05), Sabar Kantha (10.48),Surat (10.05), Surendranagar(4.62), The Dangs (14.38),Vadodara (6.59)
Haryana	Ambala(13.57),Bhiwani (1.89),Faridabad(6.80),Fatehabad(12.17), Hisar(4.73),Jhajjar(3.15),Jind (1.51),Kaithal(2.73),Kurukshetra (10.07), Mahendragarh(16.80), Panchkula (17.37), Rewari (3.63), Sirsa(4.40), Sonipat(1.76), Yamunanagar(8.76)
Himachal Pradesh	Bilaspur (3.49), Kangra (6.54), Kinnaur (16.75), Mandi(4.06), Shimla (1.00), Sirmaur (0.01), Solan (0.98)
Karnatak	Bagalkot (8.69),Bangalore Rural(16.72), Belgaum(13.84), Bellary (4.12), Bidar(1.71), Bijapur (1.92), Chamrajnagar (9.87), Chikmagalur (3.13), Chitradurga (5.66), Dakshina Kannada (7.62), Davangere(3.93),Dharwad (6.18), Gadag (3.78), Gulbarga(2.87),Hassan(3.46), Haveri(7.27), Kodagu(2.63), Kolar(0.09),Koppal (0.67), Mandya(8.20), Mysore(5.43), Raichur (11.66), Shimoga(4.30), Tumkur (4.35), Udupi (4.15), Uttara Kannada (16.81)
Kerala	Alappuzha (2.82),Ernakulam (2.53), Idukki (1.12), Kannur (8.64),Kasaragod(14.29),Kottayam (16.93), Kozhikode(4.44),Palakkad(3.74), Pathanamthitta (14.29),Thiruvananthapuram (5.25), Thrissur (6.67), Wayanad(9.69)
Madhya Pradesh	Anuppur(0.38),Ashoknagar(1.01),Balaghat(12.90),Barwani (12.70),Betul (16.19),Bhind(12.17),Bhopal (6.52),Burhanpur(7.63),Chhatarpur(5.02),Chhindwarar(9.94),Damoh r(12.21),Datia(15.45),Dewas (1.49),Dhar(0.24),Dindori (16.27),Guna (6.77),Gwalior (15.01),Harda (19.02),Hoshangabad (7.85),Indore(9.15),Jabalpur(6.04),Jhabua(9.49),Katni(4.02),Khanda (1.45),Khargoni (0.72),Mandla (7.76),Mandsaur(1.59),Narsinghpur(2.02),Panna(11.23),Raisen(5.54),Rajgarh(2.75),Ratlam(3.96),Rewa (9.81),Sagar(11.15),Satna(3.36),Sehorei(19.44),Shajapur(8.71),Sheopur (0.55),Shajapur (2.23),Sheopuri(18.34),Shivpurii(4.54),Sidhi(9.78),Tikamgarh(7.79),Ujjain(2.15),Umaria (17.36),Vidisha(3.58)
Maharasttra	Ahmadnagar (10.75), Akola(4.33), Amravati(2.10), Aurangabad (2.28), Bhandara (3.43), Bid (1.99), Buldana(0.89), Chandrapur(1.00),Dhule (1.13), Gadchiroli (11.88), Gondiya (7.71), Hingoli (3.15), Jalgaon (9.98), Jalna (6.14), ,Latur(0.66), Mumbai(2.31), Mumbai (Suburban) (4.59), Nagpur(11.63), Nanded (11.69), Nandurbar(10.24), Nashik(0.07), Osmanabad (4.03),Parbhani (7.58), Pune (10.57), Raigarh (10.04), Ratnagiri(17.24), Sangli(6.35), Satara (6.53),Sindhudurg (7.95), Solapur (10.61),Thane (3.75),Wardha(10.19), Washim (7.45), Yavatmal(10.27)
Orrisa	Angul (0.10), Balasore(7.63), Bargarh (7.51), Bhadrak(9.02), Bolangir (6.00), Boudh (6.36), Cuttack (3.03), Deogarh (18.35), Dhenkanal (3.58), Gajapati (1.46), Ganjam (2.58), Jagatsinghpur (9.72), Jajpur (4.91), Jharsuguda (3.06), Kalahandi (4.11), Kandhamal (0.76), Kendrapara(10.28), Keonjhar(10.26), Koraput (2.33), Malkangiri(0.57), Nawarangapur (1.71),Nayagarh(4.25), Nuapada(7.45), Puri(8.84),Sambalpur (4.97), Sonepur(4.81), Sundargarh(10.51)
Punjub	Amritsar(7.96),FatehgarhSahib(6.05),Ferozepur(6.30),Hoshiarpur(1.22),Kapurthala(12.43),Ludhiana(0.76), Mansa(3.74),Moga(1.53),Muktsar(0.99),Nawanshahr(6.19),Patiala(7.17),Ropar(4.56),Sangrur(4.41)
Rajastan	Ajmer(3.58), Alwar(0.40), Baran(3.04), Bharatpur(8.57),Bhilwara (4.41), Bundi(5.43),Chittaurgarh(2.42), Churu (1.81), Dausa(0.01),Dhaulpur(1.41), Ganganagar(6.24),Jaipur (5.36), Jaisalmer (1.97), Jalor(12.14), Jhalawar(5.78), Jhunjhunun (0.81), Jodhpur(4.51),Kota(5.96), Nagaur (10.12),Pali(7.76), Rajsamand(17.88), Sawai Madhopur (0.56), Sikar (8.13), Sirohi(12.54), Tonk (1.02), Udaipur (5.92)
Tamil Nadu	Coimbatore(5.62), Cuddalore(20.04), Dharmapuri (13.89), Dindigul (12.98), Erode (2.78), Kancheepuram (15.14), Kanniyakumari(16.65),Karur (19.14), Krishanagiri (13.52),Madurai(6.49), Nagapattinam(19.23), Namakkal(10.93), Perambalur(5.20), Pudukkottai(20.06), Ramanathapuram (16.20), Salem (11.74), Sivaganga (21.11), Thanjavur (11.73),The Nilgiris(20.19), Theni (15.48), Thiruvallur (4.43),Thiruvarur (15.74), Thoothukkudi (24.94),Tiruchirappalli (13.21), Tirunelveli (15.98), Tiruvannamalai (26.88),Vellore (16.48), Viluppuram (14.52), Virudhunagar (14.74)
Uttar Pradesh	Aligarh(2.13) ,Allahabad (5.65), Ambedkar Nagar(5.85), Auraiya (10.36), Azamgarh (4.08), Bahraich (11.87), Ballia(1.24), Balrampur (3.58), Banda (12.10), Barabanki (2.10), Bareilly (1.50), Basti (4.76), Bhadohi(7.10), Bijnor (5.60), Budaun (3.76), Bulandshahr(4.27), Chitrakoot(18.99), Deoria (0.30), Etah (4.57), Etawah (12.97),Faizabad (4.54), Farrukhabad (8.29), Fatehpur (12.32), Firozabad (3.06), Gautam Buddha Nagar (3.06), Ghaziabad (1.51), Ghazipur(5.14), Gonda (1.91), Gorakhpur(3.13), Hamirpur (10.36), Hardoi (0.22), Hathras (11.95), Jalaun(18.54), Jaunpur(7.97), Jhansi (8.61), Jyotiba Phule Nagar(6.67), Kannauj (1.95), Kanpur Dehat (7.74), Kanpur Nagar (3.29), Kaushambi (10.23), Kheri (3.26), Kushinagar (2.63), Lalitpur(14.24), Lucknow (8.18), Maharajganj(3.62), Mainpuri (16.14), Mathura(6.52), Mau(9.56), Meerut (2.22), Mirzapur (4.13), Moradabad(8.24), Muzaffarnagar (0.91), Pilibhit (13.27), Pratapgarh (3.13), Rampur (2.61), Saharanpur (2.11), Sant Kabir Nagar(2.33), Shahjahanpur (12.22), Shrawasti (5.17), Siddharthnagar (9.17),Sitapur(4.45),Sonbhadra (16.07), Unnao (4.77), Varanasi (0.42)

West Bengal	Bankura(30.12),Burdwan(4.92),Birbhum(18.33),Dakshin Dinajpur(14.49),Darjeeling(18.49),Howrah(0.55),Hooghly(4.50), Jalpaiguri(7.85), Cooch Bihar(19.50),Malda(14.20),Murshidabad(13.13),Nadia(3.47),North Twenty Four Parganas(10.89),Paschim Midnapore(26.13),Purba Midnapore(24.00),Purulia(42.13),South Twenty Four Pargans(7.48),Uttar Dinajpur(15.06)

Table 4.32: Slack Movement (Average) for Input Teacher-Pupil Ratio under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(9.89), Chittoor(1.16) , East Godavari(0.98), Karimnagar(4.52), Khammam (4.34), Krishna (7.08), Kurnool (5.59), Mahbubnagar(7.52), Medak(2.64), Nalgonda(1.24), Nellore(1.93), Nizamabad (9.78), Prakasam(10.98), Srikakulam (16.37), Visakhapatnam (5.62), Vizianagaram(9.92), Warangal(6.46), West Godavari(8.95)
Assam	Barpeta(1.29), Bongaigaon(3.29), Darrang (2.05), Dhubri (1.06), Dibrugarh(2.41), Golaghat(1.19) , Jorhat(5.19), Karbi Anglong (1.80) , Kokrajhar(3.83) , Lakhimpur(1.20), Nalbari(2.50), Sibsagar(23.77)
Bihar	Araria (0.77), Aurangabad (3.96), Bhagalpur(1.19), Bhojpur (0.77), Buxar (1.53), Darbhanga (0.42), Gopalganj (0.40), Jamui(4.51), Jehanabad (6.72),Kaimur (Bhabua) (1.31), Katihar (0.74), Khagaria(6.54), Kishanganj (1.53), Lakhisarai (4.08), Madhepura(2.50), Madhubani (0.73), Munger (0.56), Pashchim Champaran (0.72), Purba Champaran(1.13), Purnia (0.76), Rohtas (1.06), Saharsa(11.48), Saran (0.37), Sheikhpura (0.34),Heohar (6.04), Sitamarhi(1.33), Siwan (3.75), Supaul (0.33), Vaishali (3.62)
Gujrat	Amreli (3.37), Anand (2.34), Banas Kantha (1.69), Bharuch (10.77), Gandhinagar (2.36), Jamnagar (1.37), Junagadh(4.45), Mahesana (5.46), Narmada (0.45), Navsari (3.89), Panch Mahals (0.70), Patan (5.71),Rajkot (1.09), Sabar Kantha (0.96),Surat (0.56), Surendranagar(2.89), Vadodara (0.36), Valsad (0.60)
Haryana	Ambala(8.28),Bhiwani (1.32),Faridabad(14.53),Fatehabad(2.28), Gurgaon(15.45), Hisar(13.37), Jind (4.72), Kaithal(4.91),Karnal (3.18),Kurukshetra (3.41), Mahendragarh(3.70), Panchkula (31.94), Rewari (0.727), Rohtak (1.20), Sirsa(3.69), Sonipat (8.45)
Himachal Pradesh	Bilaspur (1.19), Kangra (0.88), Kinnaur (8.49), Mandi(1.59), Shimla (3.88), Solan (1.34)
Karnatak	Bagalkot (0.73),Bangalore Rural(1.37), Belgaum(0.67), Bellary (0.19), Chikmagalur (0.50), Chitradurga (0.84), Davangere(0.18), Haveri(1.27), Kodagu(1.61), Mandya(0.38), Raichur (1.34), Tumkur (0.70), Udupi (1.07), Uttara Kannada (0.16)
Kerala	Kannur (5.08),Kasaragod(1.87),Kottayam (1.76),Pathanamthitta (0.78),Thrissur (1.64)
Madhya Pradesh	Anuppur(3.23),Ashoknagar(1.42),Balaghat(2.14),Barwani (2.32),Betul (2.19),Bhind(0.49),Bhopal (16.07),Burhanpur(0.92),Chhatarpur(5.99),Damohr(1.34),Datia(3.83),Dewas (11.42),Dindori (2.75),Guna (1.69),Gwalior (5.32), Harda (0.35),Hoshangabad(5.62),Indore(12.77),Jabalpur (2.89),Jhabua(1.50),Katni(2.07),Khanda (3.82), Mandsaur(12.82),Morena (7.26),Narsinghpur (1.51),Nimuch(4.09),Panna(1.53),Raisen(2.17), Ratlam(6.33),Rewa (3.30),Sagar(0.44),Satna(0.77),Sehore(9.70), Seoni (3.04), Shajapur(4.73), Tikamgarh(9.08),Ujjain(6.56), Vidisha(3.58)
Maharasttra	Ahmadnagar (1.84), Akola(2.12), Amravati(2.35), Aurangabad (7.37), Bhandara (3.82), Bid (2.96), Buldana(0.78), Chandrapur(3.53), Gadchiroli (3.76), Gondiya (10.75),Jalgaon (6.80), Jalna (2.22), Kolhapur(2.93),Mumbai (Suburban) (0.69), Nagpur(9.66), Nanded (4.29), Nandurbar(10.80), Nashik(1.33), Osmanabad (3.42),Parbhani (5.30), Pune (2.45), Raigarh (0.76), Ratnagiri(7.24), Sangli(5.19), Satara (3.08),Sindhudurg (1.40), Solapur (5.68),Thane (1.98),Wardha(4.74), Washim (1.85), Yavatmal(6.51)
Orrisa	Angul (3.06), Balasore(0.63), Bargarh (2.45), Bhadrak(1.93), Bolangir (4.93), Boudh (6.91), Cuttack (5.85), Deogarh (8.09), Dhenkanal (3.98), Gajapati (5.92), Jagatsinghpur (0.97), Jajpur (1.35), Jharsuguda (0.60), Kalahandi (4.94), Kandhamal (3.19), Kendrapara(3.51), Keonjhar(1.34), Koraput (0.59), Malkangiri(0.25), Mayurbhanj (2.60),Nayagarh(8.58), Nuapada(6.91), Puri(6.74), Rayagada (5.31), Sambalpur (4.15), Sonepur(3.13), Sundargarh(2.85)
Punjub	Faridkot (2.44), Fatehgarh Sahib(7.21), Ferozepur(5.93), Gurdaspur(7.69), Hoshiarpur(3.45), Kapurthala(5.69), Ludhiana(4.04), Mansa(0.86), Muktsar(2.33), Nawanshahr(4.13), Patiala(1.32), Ropar(13.88), Sangrur(1.91)

Rajastan	Ajmer(8.05), Alwar(5.20),Banswara (4.98), Baran(12.26),Barmer(5.03), Bharatpur(4.74),Bhilwara (13.22), Bikaner (4.98), Bundi(14.53),Chittaurgarh(16.133), Churu (5.83), Dausa(2.15),Dhaulpur(1.44),Dungarpur(7.06), Ganganagar(2.11),Jaipur (1.49), Jaisalmer (6.52), Jalor(6.68), Jhalawar(14.89), Jhunjhunun (0.73), Jodhpur(1.61), ,Kota(11.93), Nagaur (5.88),Pali(13.68), Rajsamand(14.69), Sawai Madhopur (5.57), Sikar (1.04), Tonk (16.85), Udaipur(6.34)
Tamil Nadu	Chennai(3.23), Coimbatore(2.49), Cuddalore(8.19), Dharmapuri (6.62), Dindigul (12.01), Erode (6.19), Kancheepuram (6.82), Kanniyakumari(12.46),Karur (16.34), Krishanagiri (9.16),Madurai(12.26), Nagapattinam(11.33), Namakkal(4.29),Pudukkottai(9.36), Ramanathapuram (7.92), Salem (9.94), Sivaganga (12.92), Thanjavur (8.29),The Nilgiris(13.32), Theni (16.80), Thiruvallur (1.53),Thiruvarur (6.95), Thoothukkudi (20.75),Tiruchirappalli (10.57), Tirunelveli (16.57), Tiruvannamalai (8.90),Vellore (7.12), Viluppuram (9.87), Virudhunagar (16.88)
Uttar Pradesh	Agra (13.22), Aligarh(29.21) ,Allahabad (2.88), Ambedkar Nagar(1.68), Auraiya (23.96), Azamgarh (15.89), Bahraich (1.93), Ballia(23.06), Balrampur (0.90), Banda (8.56), Barabanki (13.95), Bareilly (23.56), Basti (2.93), Bhadohi(6.86), Bijnor (6.47), Budaun (13.11), Bulandshahr(21.22), Chitrakoot(5.92), Deoria (21.51), Etah (13.75), Etawah (16.73),Faizabad (16.64), Farrukhabad (15.04), Fatehpur (16.60), Firozabad (11.19), Gautam Buddha Nagar (15.17), Ghaziabad (14.96), Ghazipur(2.82), Gonda (15.16), Gorakhpur(16.85), Hamirpur (15.52), Hardoi (1.80), Jalaun(19.07), Jaunpur(5.99), Jhansi (14.83), Jyotiba Phule Nagar(6.46), Kannauj (9.32), Kanpur Dehat (19.14), Kanpur Nagar (18.79), Kaushambi (18.07), Kheri (1.78), Lalitpur(7.38), Lucknow (4.89), Mainpuri (19.99), Mathura(17.80), Mau(10.62), Meerut (22.84), Mirzapur (1.84), Moradabad(24.15), Muzaffarnagar (17.30), Pilibhit (7.48), Rae Bareli (2.73), Saharanpur (24.39), Sant Kabir Nagar(1.83), Shahjahanpur (5.29), Shrawasti (1.67), Siddharthnagar (4.76),Sitapur(2.30), Sultanpur (14.02), Unnao (23.37), Varanasi (9.85)
West Bengal	Bankura(10.31),Burdwan(10.99),Birbhum(7.34),Darjeeling(28.09),Hooghly(8.03),Jalpaiguri(2.95), Cooch Bihar(2.91),Malda(10.49),Murshidabad(11.10),Paschim Midnapore(6.48),Purba Midnapore(4.03),Purulia(10.51), South Twenty Four Pargans(4.80),Uttar Dinajpur(6.00)

Table 4.33: Slack Movement (Average) for Input Classroom-Student Ratio under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Anantapur(2.79), Chittoor(7.38), Cuddapah(8.20) , East Godavari(3.68), Guntur(14.48), Karimnagar(4.91), Khammam (8.84), Krishna (5.18), Kurnool (7.65), Mahbubnagar(4.64), Medak(8.98), Nalgonda(10.96), Nellore(2.25), Nizamabad (12.35), Prakasam(8.29), Srikakulam (13.64), Visakhapatnam (6.41), Vizianagaram(17.00), Warangal(1.02), West Godavari(10.15)
Assam	Barpeta(7.09), Bongaigaon(16.45), Darrang (5.57), Dhubri (2.31), Dibrugarh(18.84), Goalpara(3.80), Golaghat(16.94) , Jorhat(9.30) , Kamrup(0.69), Karbi Anglong (7.12), Kokrajhar(12.79) , Lakhimpur(2.91), Marigaon(11.90), Nagaon(0.80) , Nalbari(14.71), Sibsagar(6.19)
Bihar	Araria (2.16), Banka (3.86), Begusarai(2.34), Bhagalpur(9.32), Bhojpur (1.72), Buxar (2.97), Darbhanga (5.14), Gaya(3.28), Gopalganj (6.64), Jamui(6.91), Katihar (1.78), Khagaria(11.34), Kishanganj (7.38), Lakhisarai (6.55), Madhepura(1.22), Munger (10.81), Muzaffarpur (1.45), Nalanda (7.95), Nawada (18.55), Pashchim Champaran (9.22), Patna(10.48), Purnia (1.662), Rohtas (6.34), Saharsa(7.38), Samastipur(0.53), Saran (2.41), Sheikhpura (20.10),Heohar (12.29), Sitamarhi(3.44), Siwan (2.71), Supaul (4.27), Vaishali (1.94)
Gujrat	Ahmadabad (38.59), Amreli (5.58), Anand (3.63), Banas Kantha (3.19), Bharuch (3.03), Bhavnagar (.30), Dohad (5.56),Gandhinagar (3.45), Jamnagar (2.80), Junagadh(2.66), Kachchh (2.77) Kheda (3.52), Mahesana (8.55), Narmada (9.28), Navsari (0.73), Patan (1.77), Porbandar(1.99),Rajkot (2.59), Sabar Kantha (6.47),Surat (1.96), Surendranagar(4.02), The Dangs (8.80),Vadodara (0.41)
Haryana	Ambala(9.17),Bhiwani (3.52),Faridabad(20.71),Fatehabad(12.00), Gurgaon(12.30), Hisar(2.96),Jhajjar(2.14),Jind (0.80),Karnal (9.07),Kurukshetra (2.68), Mahendragarh(6.32), Panchkula (15.21), Rewari (11.82), Sirsa(4.77), Sonipat (6.59), Yamunanagar(12.10)
Himachal Pradesh	Bilaspur (15.70), Kangra (3.58), Kinnaur (32.664), Mandi(0.53)
Karnatak	Bangalore Rural(15.80), Belgaum(6.85), Bellary (4.83), Chamrajnagar (17.17), Chikmagalur (1.65),Dakshina Kannada (5.68), Davangere(3.14),Dharwad (1.31), Gadag (1.13), Gulbarga(1.02),Hassan(7.61), Haveri(0.33), Kodagu(8.48),Koppal (0.63), Mandya(6.94), Raichur (6.62), Shimoga(1.57), Tumkur (16.67), Udupi (6.45), Uttara Kannada (1.23)
Kerala	Idukki (0.53), Kannur (1.16),Kasaragod(5.39),Kollam(7.67),Kottayam (8.87),Palakkad(3.74), Pathanamthitta (20.11), Thrissur (2.79), Wayanad(16.29)

Madhya Pradesh	Anuppur(5.15),Ashoknagar(0.87),Balaghat(1.20),Barwani (12.61),Betul (2.68),Bhind(0.44),Bhopal (15.71), Burhanpur(25.77),Chhatarpur(4.97),Chhindwarar(6.32),Damoh r(7.83),Datia(2.46),Dewas (12.93),Dhar(5.75),Dindori (10.72),Guna (4.84),Gwalior (9.60),Harda (16.34),Hoshangabad (5.17),Indore(8.17),Jabalpur(15.52),Jhabua(26.26,Katni(8.77),Khanda (7.16),Khargoni (11.41),Mandla (6.10),Mandsaur(7.88),Morena (1.38),Narsinghpur(2.50),Nimuch(5.52),Panna(6.00),Raisen (2.12),Rajgarh(8.54),Ratlam(7.80),Rewa (14.26),Sagar(6.54),Satna(2.94),Sehorei(15.31),Shajapur (8.07),Sheopur r(7.51),Shajapur(4.75),Sheopuri(24.32),Shivpurii(2.34),Sidhi(14.91),Tikamgarh (3.00),Ujjain(10.76),Umaria(18.79),Vidisha(2.22)
Maharas ttra	Ahmadnagar (7.93), Akola(6.97), Amravati(1.20), Aurangabad (6.37), Bhandara (7.49), Buldana(1.71), Chandrapur(7.64), Gadchiroli (4.01), Gondiya (4.31), Hingoli (2.44), Jalgaon (6.45), Jalna (3.68), Kolhapur(1.05),Latur(3.47),Mumbai (Suburban) (5.32), Nagpur(3.62), Nanded (12.06), Nandurbar(11.01), Nashik(4.81), Osmanabad (6.44),Parbhani (5.09), Pune (11.85), Raigarh (11.65), Ratnagiri(4.80), Sangli(4.38), Satara (5.24),Sindhudurg (8.21), Solapur (1.42),Thane (6.35),Wardha(14.54), Washim (0.45), Yavatmal(2.82)
Orrisa	Bargarh (10.11), Bhadrak(7.76), Bolangir (3.70), Boudh (4.14), Cuttack (6.98), Deogarh (17.40), Dhenkanal (1.91), Gajapati (8.75), Ganjam (4.29), Jagatsinghpur (27.60), Jajpur (2.61), Jharsuguda (3.38), Kalahandi (5.23), Kandhamal (1.20), Kendrapara(8.84), Keonjhar(6.86), Khordha (2.40), Koraput (4.24), Malkangiri(4.83), Mayurbhanj (1.33), Nawarangapur (7.73),Nayagarh(7.59), Nuapada(13.53), Puri(9.59), Rayagada (6.91), Sambalpur (5.23), Sonepur(17.23), Sundargarh(2.71)
Punjub	FatehgarhSahib(6.53),Ferozepur(12.26),Gurdaspur(7.12),Hoshiarpur(7.21),Kapurthala(16.04),Ludhiana(5.17),Mansa(13.00),Moga(2.22),Muktsar(9.41),Nawanshahr(10.50),Patiala(1.43),Ropar(11.69),Sangrur(1.89)
Rajastan	Ajmer(13.69), Alwar(1.13),Banswara (0.89), Baran(11.52),Barmer(7.94), Bharatpur(8.41),Bhilwara (11.90), Bikaner (2.71), Bundi(11.02),Chittaurgarh(4.77), Churu (3.96), Dungarpur(3.45), Ganganagar(3.47),Jaipur (2.78), Jaisalmer (19.97), Jalor(0.33), Jhalawar(3.96), Jodhpur(5.70), Karauli(3.70),Kota(3.30), Nagaur (2.32),Pali(14.27), Rajsamand(1.76), Sawai Madhopur (7.68), Sikar (1.99), Sirohi(20.46), Tonk (2.62), Udaipur (2.44)
Tamil Nadu	Chennai(5.30), Coimbatore(5.30), Cuddalore(19.45), Dharmapuri (19.08), Dindigul (22.07), Erode (12.03), Kancheepuram (21.37), Kanniyakumari(33.08),Karur (26.68), Krishanagiri (13.80),Madurai(17.28), Nagapattinam(22.03), Namakkal(12.45), Perambalur(1.91), Pudukkottai(17.43), Ramanathapuram (18.46), Salem (11.99), Sivaganga (22.74), Thanjavur (12.34),The Nilgiris(29.60), Theni (19.72), Thiruvallur (5.87),Thiruvarur (15.45), Thoothukkudi (22.27),Tiruchirappalli (24.06), Tirunelveli (22.02), Tiruvannamalai (15.93),Vellore (15.58), Viluppuram (18.83), Virudhunagar (28.22)
Uttar Pradesh	Agra (2.80), Aligarh(9.55) ,Allahabad (7.91), Ambedkar Nagar(9.68), Auraiya (2.52), Bahraich (5.69), Balrampur (19.28), Banda (0.49), Barabanki (3.63), Bareilly (2.79), Basti (3.30), Bhadohi(3.19), Budaun (0.68), Bulandshahr(3.32), Etah (5.37), Etawah (1.27),Faizabad (1.06), Fatehpur (0.50), Firozabad (8.44), Gautam Buddha Nagar (10.67), Ghaziabad (13.94), Ghazipur(1.31), Gonda (1.37), Gorakhpur(3.28), Hathras (1.74), Jalaun(0.86), Jhansi (7.05), Jyotiba Phule Nagar(3.77), Kannauj (0.81), Kanpur Dehat (3.61), Kanpur Nagar (11.53), Kaushambi (2.94), Kheri (1.04), Kushinagar (4.07), Lalitpur(1.53), Lucknow (8.94), Maharajganj(15.90), Mathura(2.17), Meerut (9.51), Mirzapur (5.50), Moradabad(11.33), Muzaffarnagar (16.04), Pilibhit (0.76), Pratapgarh (1.50), Rampur (0.71), Saharanpur (3.42), Sant Kabir Nagar(13.81), Shahjahanpur (0.90), Shrawasti (18.93), Siddharthnagar (3.99),Sonbhadra (7.29), Sultanpur (3.65), Unnao (5.62), Varanasi (1.63)
West Bengal	Bankura(9.02),Dakshin Dinajpur(2.57),Darjeeling(45.75),Howrah (7.65), Hooghly(12.80), Cooch Bihar(8.56),Murshidabad(6.73),Nadia(0.73),North Twenty Four Parganas(0.71),Paschim Midnapore(16.01),Purba Midnapore(10.55),Purulia(17.92),South Twenty Four Pargans(8.53),Uttar Dinajpur(9.89)

Table 4.34: Slack Movement (Average) for Input Percentage of Teachers with Graduate and Above under TEINP at Upper Primary Level of Education

States	Districts
Andhra Pradesh	Karimnagar(2.65),Krishna(0.44),Nalgonda(0.61),Prakasam(0.44),Srikakulam(0.86),Warangal(0.21)
Assam	Barpeta(1.42), Bongaigaon(0.68), Darrang (1.00), Dhubri (2.52), Dibrugarh(1.91), Goalpara(1.28) , Golaghat(1.37) , Jorhat(0.17) , Kamrup(3.19), Karimganj(2.33) , Kokrajhar(0.08) , Nalbari(1.86)
Bihar	Aurangabad (4.48), Banka (5.69), Begusarai(6.67), Bhojpur (0.77), Buxar (7.73), Darbhanga (10.85), Gaya(1.52), Gopalganj (1.23), Jamui(6.78), Jehanabad (5.27), Katihar (2.25), Khagaria(8.43), Kishanganj (6.08), Lakhisarai (7.11), Madhepura(4.85), Madhubani (2.95), Munger (5.72), Muzaffarpur (0.50), Nalanda (4.24), Nawada (4.90), Pashchim Champaran (2.57), Patna(10.69), Purba Champaran(1.45), Rohtas (0.97), Saharsa(2.30), Samastipur(3.31), Saran (5.95),Heohar (0.39), Sitamarhi(3.94), Siwan (7.74), Supaul (4.62), Vaishali (5.41)

Gujrat	Ahmadabad (2.77), Anand (0.46), Bharuch (6.46), Gandhinagar (8.84), Jamnagar (0.19), Junagadh(13.31), Kachchh (7.32) Kheda (4.99), Mahesana (4.29), Narmada (6.50), Navsari (4.22), Porbandar(5.66),Surat (3.68), Surendranagar(8.37), The Dangs (2.09),Vadodara (4.07)
Haryana	Bhiwani (0.26),Gurgaon(7.76),Jhajjar(0.05),Jind (0.51),Kaithal(0.82),Karnal (0.16),Kurukshetra (0.19), Rewari (0.01), Rohtak(0.71), Sonipat (0.81)
Karnatak	Bagalkot (0.13),Bangalore Rural(7.07), Bellary (9.17), Bidar(1.48), Bijapur (1.91), Chamrajnagar (2.32), Chikmagalur (2.56), Chitradurga(3.91), Dakshina Kannada (5.63), Davangere(2.91),Dharwad (6.18), Gadag (3.78), Gulbarga(5.77),Hassan(2.32), Haveri(4.42), Kodagu(2.63), Kolar(0.09),Koppal (2.47), Mandya(1.61), Mysore(4.91), Raichur (5.40), Shimoga(2.03), Tumkur (1.74), Uttara Kannada (6.74)
Kerala	Alappuzha (2.82),Ernakulam (2.53), Idukki (0.96), ,Kasaragod(1.89),Kollam(0.29),Kottayam (6.70), Kozhikode(1.91),Palakkad(3.53)
Madhya Pradesh	Barwani (0.03),Betul (0.10),Chhatarpur(0.05),Indore(1.08),Mandla(1.37),Morena (0.55),Panna (2.05),Rewa (2.14),Sehorei(0.39),Sheopur r(0.10),Tikamgarh(0.21)
Maharast tra	Ahmadnagar (4.50), Akola (4.76), Amravati(10.83), Aurangabad (5.67), Bhandara (2.76), Bid (6.40), Buldana(0.92),Dhule (8.19), Gadchiroli (8.57), Gondiya(1.77), Jalgaon (4.65), Jalna (3.43), Kolhapur (5.40), Mumbai(2.31), Mumbai (Suburban) (4.58), Nagpur (4.15), Nanded (2.74), Nandurbar (8.40), Nashik(0.48),Parbhani (6.48), Raigarh (4.68), Ratnagiri(9.39), Sangli (12.02), Satara (17.41),Sindhudurg (2.45), Solapur (2.55),Thane (7.45),Wardha(9.32), Washim (8.12), Yavatmal (6.18)
Orrisa	Angul (0.71), Balasore(3.84), Bhadrak(2.06),Cuttack (5.44), Jagatsinghpur (14.28), Jajpur (6.91), Jharsuguda (0.80), Kendrapara(3.62), Keonjhar(0.70), Khordha (1.96), Nuapada(1.17), Puri(0.39), Sonepur(0.51)
Punjub	Bathinda(2.29),Kapurthala(4.51),Mansa(0.17),Moga(0.57),Muktsar(0.95),Nawanshahr(4.09),Patiala(5.48)
Rajastan	Ajmer(8.11), Alwar(5.03),Banswara (0.56), Baran(5.31),Barmer(3.47), Bharatpur(3.72),Bikaner (0.18),Dhaulpur(4.56),Jaipur (4.16), Jalor(7.55), Jhunjhunun (0.73), Jodhpur(8.18), Karauli(3.84), Nagaur (4.68), Rajsamand(2.26), Sawai Madhopur (0.33), Sikar (1.99), Sirohi(0.13),Udaipur (2.75)
Tamil Nadu	Coimbatore(0.18), Cuddalore(0.41), Kancheepuram (0.15), Kanniyakumari(0.37),Karur (2.19),Perambalur(1.14), Thiruvallur (2.50), Tiruvannamalai (0.25),Vellore (1.32), Viluppuram (1.37)
Uttar Pradesh	Agra (5.02), Aligarh(1.33) ,Allahabad (4.43), Ambedkar Nagar(2.58), Auraiya (3.12), Azamgarh (3.07), Bahraich (3.73), Ballia(5.04), Balrampur (3.02), Banda (4.73), Barabanki (3.02), Bareilly (3.66), Basti (2.03), Bhadohi(6.61), Bijnor (4.92), Budaun (6.40), Bulandshahr(3.63), Chitrakoot(3.47), Deoria (1.82), Etah (2.34), Etawah (3.26),Faizabad (3.46), Farrukhabad (3.56), Fatehpur (2.68), Firozabad (3.77), Gautam Buddha Nagar (4.08), Ghaziabad (6.93), Ghazipur(0.03), Gonda (3.51), Hamirpur (3.40), Hardoi (1.05), Hathras (0.16), Jalaun(3.84), Jaunpur(0.01), Jhansi (2.29), Jyotiba Phule Nagar(3.26), Kannauj (2.52), Kanpur Dehat (4.08), Kanpur Nagar (5.29), Kaushambi (1.39), Kheri (2.65), Kushinagar (2.90), Lalitpur(2.70), Lucknow (0.10), Maharajganj(4.93), Mainpuri (1.78), Mathura(2.36),Meerut (2.74), Mirzapur (5.04), Moradabad(7.44), Muzaffarnagar (0.39), Pilibhit (2.03), Pratapgarh (3.92), Rae Bareli (1.21), Rampur (0.82), Saharanpur (1.93), Sant Kabir Nagar(3.53), Shahjahanpur (3.53), Shrawasti (3.78), Siddharthnagar (3.75),Sitapur(0.58),Sonbhadra (3.49), Sultanpur (4.21), Unnao (1.39), Varanasi (6.03)
West Bengal	Bankura(2.12),Burdwan(6.61),Birbhum(5.48),Dakshin Dinajpur(9.93),Howrah(0.18),Jalpaiguri(3.15), Cooch Bihar(3.02),Malda(12.59),Murshidabad(6.45),Nadia(4.66),North Twenty Four Parganas(1.37),Paschim Midnapore(1.84),Purba Midnapore(0.83),Purulia(3.45),South Twenty Four Pargans(1.54),Uttar Dinajpur(2.83)

Combined Radial and Slack Movements of Inputs

The total inefficiency in input utilization by different districts is revealed by the combined radial and slack movements of the inputs. This section is devoted to present the summary statement of combined average (in percentage) radial and slack measures of four inputs included in the production process corresponding to primary and upper primary levels of education separately.

Primary Level of Education

The state wise summary findings at primary level of education are given below in table 4.35.

Table 4.35: Summary Findings of Average (District Average) Combined Radial and Slack Movements ((R+S) M) for Four Inputs at Primary Level of Education

States	State Specific Average (SSA) of Mean (R+S) M				State Specific SD of Average (R+S) M				State Specific CV of Average (R+S) M			
	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Classroom-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Classroom-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Classroom-Student ratio	% of Teachers with graduate and above
Andhra Pradesh	-7.70	-8.03	-8.21	-5.01	6.90	6.60	6.69	4.69	-89.58	-82.09	-81.53	-93.73
Assam	-9.31	-13.56	-12.88	-9.72	7.71	12.07	9.95	8.27	-82.84	-89.00	-77.30	-85.03
Bihar	-13.66	-15.63	-18.32	-13.92	7.45	8.46	12.11	8.85	-54.57	-54.15	-66.12	-63.58
Gujarat	-13.60	-11.57	-13.74	-10.48	14.24	14.10	15.64	12.78	-104.70	-121.89	-113.85	-121.93
Haryana	-13.40	-13.40	-12.28	-12.30	11.02	9.77	12.76	9.18	-82.19	-72.95	-103.95	-74.58
Himachal Pradesh	-5.37	-5.77	-6.22	-2.70	10.04	10.69	9.44	5.41	-186.89	-185.16	-151.88	-200.73
Karnataka	-13.33	-13.84	-12.48	-9.71	9.22	10.02	9.25	7.63	-69.18	-72.43	-74.11	-78.55
Kerala	-5.91	-6.97	-9.54	-6.06	7.73	9.04	11.64	6.60	-130.80	-129.70	-122.00	-108.90
Madhya Pradesh	-14.17	-14.64	-16.63	-10.67	7.18	9.08	9.58	6.73	-50.64	-62.04	-57.63	-63.09
Maharashtra	-27.84	-30.78	-30.79	-22.56	16.38	17.62	15.38	10.95	-58.84	-57.26	-49.95	-48.54
Orrisa	-9.30	-10.13	-8.49	-7.34	7.02	7.14	5.75	5.22	-75.50	-70.54	-67.73	-71.16
Punjab	-13.71	-9.13	-12.79	-7.56	13.04	9.72	13.03	7.69	-95.13	-106.44	-101.89	-101.69
Rajasthan	-9.43	-14.42	-11.84	-6.50	6.48	14.63	7.95	5.37	-68.71	-101.49	-67.17	-82.58
Tamil Nadu	-17.63	-9.71	-14.36	-8.78	11.70	5.84	13.63	5.51	-66.35	-60.18	-94.90	-62.79
Uttar Pradesh	-14.86	-18.31	-15.96	-14.59	8.79	11.78	9.36	9.49	-59.10	-64.32	-58.69	-65.04
West Bengal	-7.03	-8.80	-10.13	-5.96	7.85	7.20	9.43	5.55	-111.61	-81.76	-93.11	-93.10
Grand Mean	-12.27	-12.79	-13.42	-9.62	9.55	10.24	10.73	7.50	-86.67	-88.21	-86.36	-88.44

In case of primary level of education comparing the grand mean of combined radial and slack movements of different inputs used in the production process it

reveals that the grand mean is highest for classroom-student ratio (13.42%) followed by teacher-pupil ratio (12.79%), number of schools per lakh population (12.27%) and lowest for percentage of teachers with qualification graduate and above (9.62%).

Upper Primary Level of Education

The empirical findings regarding inefficient input utilization of four inputs corresponding to upper primary level of education for the selected states are summarized in table 4.36.

Table 4.36: Summary Findings of Average (District Average) Combined Radial and Slack Movements ((R+S) M) for Four Inputs at Upper Primary Level of Education

States	State Specific Average (SSA) of Mean (R+S) M				State Specific SD of Average (R+S) M				State Specific CV of Average (R+S) M			
	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Classroom-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Classroom-Student ratio	% of Teachers with graduate and above	No. of Schools Per Lakh Population	Teacher-Pupil ratio	Classroom-Student ratio	% of Teachers with graduate and above
Andhra Pradesh	-11.92	-10.53	-12.47	-5.86	6.36	7.71	7.03	4.09	-53.31	-73.25	-56.37	-69.71
Assam	-10.49	-6.73	-10.72	-5.32	9.33	7.92	10.09	4.73	-88.93	-117.68	-94.16	-88.92
Bihar	-11.91	-7.71	-11.19	-9.91	6.84	4.96	8.06	5.38	-57.39	-64.36	-72.02	-54.30
Gujarat	-13.54	-8.29	-12.39	-10.00	9.82	7.10	13.07	8.67	-72.48	-85.65	-105.49	-86.62
Haryana	-12.84	-13.54	-14.04	-7.85	8.50	11.94	8.64	5.66	-66.18	-88.16	-61.52	-72.05
Himachal Pradesh	-5.07	-3.66	-6.72	-2.33	8.24	5.73	13.44	3.79	-162.62	-156.68	-199.93	-162.74
Karnataka	-9.96	-5.04	-9.07	-8.00	6.28	3.34	6.99	4.18	-63.07	-66.37	-77.07	-52.29
Kerala	-8.69	-2.97	-6.96	-3.70	8.02	3.67	8.84	3.66	-92.24	-123.51	-126.94	-98.84
Madhya Pradesh	-19.18	-14.78	-20.21	-11.78	7.98	7.08	8.63	5.92	-41.60	-47.93	-42.69	-50.25
Maharashtra	-15.13	-12.48	-14.07	-13.59	9.02	7.74	8.69	7.05	-59.63	-62.02	-61.76	-51.87
Orrisa	-12.16	-10.24	-13.85	-8.43	7.40	6.35	8.68	6.00	-60.89	-61.96	-62.70	-71.13
Punjab	-5.94	-5.42	-8.54	-3.28	4.50	4.75	5.92	2.44	-75.74	-87.62	-69.35	-74.43
Rajasthan	-8.42	-10.90	-9.60	-6.17	5.21	7.00	7.21	3.47	-61.91	-64.25	-75.10	-56.17

Tamil Nadu	-27.13	-22.78	-13.90	-13.48	10.81	8.18	11.47	7.02	-39.83	-35.93	-82.52	-52.10
Uttar Pradesh	-19.60	-24.39	-17.93	-16.71	9.83	14.31	10.00	8.44	-50.13	-58.68	-55.77	-50.53
West Bengal	-21.00	-12.43	-14.15	-10.59	15.05	11.55	15.51	6.45	-71.67	-92.93	-109.61	-60.91
Grand Mean	-13.31	-10.74	-12.24	-8.56	8.32	7.46	9.52	5.43	-69.85	-80.44	-84.56	-72.05

The empirical findings suggest that the grand mean level is highest for the input like number of schools per lakh population (13.31%) followed by classroom-student ratio (12.24%), teacher-pupil ratio (10.74%) and least for the input namely percentage of the teachers with qualification graduate and above (8.56%) in upper primary level of education.

Considering the combined radial and slack movements, it can be found that for the four different inputs SSA is lowest for HP and highest for MH corresponding to primary level of education. In case of upper primary level SSA of combined movement is least for the state HP (5.07%) and KE (2.97%) for the inputs number of schools per lakh population and teacher-pupil ratio respectively. The highest value occurs for TN (27.13%) and UP (24.39%) respectively. Similarly, in the case of classroom-student ratio (6.72%) and percentage of teachers with qualification graduate and above (2.33%) the SSA is lowest for the state HP. For both these two inputs highest SSA occurs for the state MP (20.21%) and UP (16.71%) respectively.

The comparison of the combined radial and slack movements of different inputs between primary and upper primary levels of education reveals that the extent of the combined radial and slack movements for all the inputs namely teacher-pupil ratio, classroom-student ratio and the percentage of teachers with qualification graduate and above is less for upper primary level except for the input number of schools per lakh population.

Thus the estimation of radial and slack movements for primary and upper primary levels of education and for different districts under the respective selected major states illustrates the picture of inefficient utilization of different inputs employed in the production process. Therefore the empirical findings regarding the input utilization reveal that among the four inputs employed in the production process the inputs like classroom-student ratio and number of schools per lakh population both are inefficiently used at the primary and upper primary levels of education respectively whereas the level of inefficiency is least for the percentage of teachers with qualification graduate and above at both the levels of education. The results support the fact that the same level of output can be produced by the lesser amount of inputs.

4.4 Analysis of Significant Determinants behind the Variation of Input Oriented Technical Efficiency Score

The part of this chapter attempts to figure out the significant factors responsible for variation of input oriented technical efficiency score. Different aspects of factors have been considered here like poor and favourable infrastructural, social and policy indicators. A second stage penel regression is carried out to get state level determinants of TEINP using their first stage district level estimates for both primary and upper primary levels of education separately. The Hausman specification test has been performed for each of the state specific panel regression over the period 2005-06 to 2013-14 and it supports random effect model for both primary and upper primary levels of education. Various specifications for each of the state considering districts figure for the respective state over time are tried out and the best fitted models are presented here. The variables which increase the goodness of fit with the expected sign condition are considered in the state specific panel regressions. The state wise best fitted results and the significant determinants are presented in tables 4.37 and 4.38 for primary and upper primary levels respectively. It is clearly evident from the results that there is wide variation of significant determinants across the states.

Table 4.37: Significant Determinants Explaining TEINP at Primary Level of Education

States	Variables (Coefficients & p value)	Goodnesss of Fit of Model
Andhra Pradesh	SNCSP (-0.00259,0.00), NBBP(-0.00104,0.017)	Wald Chi^2=80.87, P>Chi^2=0.00
Assam	GTFP (0.00177,0.017)	Wald Chi^2=33.26, P>Chi^2=0.00
Bihar	SNCSP (-0.00327,0.009)	Wald Chi^2=49.1, P>Chi^2=0.00
Gujarat	NPBP(-0.00193,0.035), SNCSP(-0.00286,0.050), NBBP (-0.00637,0.010)	Wald Chi^2=25.82, P>Chi^2=0.018
Haryana	SWBP(-0.00331,0.033)	Wald Chi^2=17.87, P>Chi^2=0,033
Himachal Pradesh	SNCSP(-0.00363,0.018), NBBP(-0.00507,0.026)	Wald Chi^2=34.57, P>Chi^2=0.0017
Karnataka	CBCP(-0.00238,0.049), SNTSP(-0.00307,0.021), NBBP(-0.00511,0.00), SFTBP(0.000873,0.023), GFSTBP(0.000908,0.007)	Wald Chi^2=95.16, P>Chi^2=0.00
Kerala	SWBP(-0.00356,0.026), SNCSP(-0.00386,0.034), CTFP(0.001094,0.013), SFTBP(0.001213,0.012)	Wald Chi^2=38.57, P>Chi^2=0.0004
Madhya Pradesh	NPBP(-0.00095,0.007), CBCP(-0.00101,0.029), GFTBBP(0.002429,0.012), TLMGP(0.00132,0.022)	Wald Chi^2=85.59, P>Chi^2=0.0.022
Maharashtra	CBCP(-0.00497,0.005), SNCSP(-0.00898,0.00), SFUP(0.003279,0.00)	Wald Chi^2=56.49, P>Chi^2=0.00
Orissa	NPBP(-0.00175,0.004), SFSTP(0.000438,0.028)	Wald Chi^2=32.37, P>Chi^2=0.0057
Punjab	SNTSP(-0.00232,0.037), DWFP(0.001032,0.018)	Wald Chi^2=87.04, P>Chi^2=0.00
Rajasthan	GTFP(0.000968,0.008)	Wald Chi^2=47.08, P>Chi^2=0.00
Tamil Nadu	SFUP(0.000436,0.033)	Wald Chi^2=97.41, P>Chi^2=0.00
Uttar Pradesh	NPBP(-0.0049,0.050), SNCSP(-0.00302,0.026), DWFP(0.001475,0.00)	Wald Chi^2=80.63, P>Chi^2=0,00
West Bengal	SNTSP(-0.00427,0.014)	Wald Chi^2=53.8, P>Chi^2=0.0001

Table 4.38: Significant Determinants Explaining TEINP at Upper Primary Level of Education

States	Variables (Coefficients & p value)	Goodnesss of Fit of Model
Andhra Pradesh	SNCSUP(-0.00656,0.049), SFUUP(0.001348,0.008)	Wald Chi^2=52.39, P>Chi^2=0.00
Assam	NPBUP(-0.000824,0.002),TLMGUP(0.00043,0.020)	Wald Chi^2=23.72, P>Chi^2=0.0013
Bihar	SNCSUP(-0.0077,0.045), DWFUP(0.000311,0.025)	Wald Chi^2=51.8, P>Chi^2=0,00
Gujarat	NPBUP(-0.0009,0.018), CTFUP(0.000471,0.019)	Wald Chi^2=24.07, P>Chi^2=0.0074
Haryana	SWBUP(-0.00364,0.014), NPBUP(-0.00172,0.023), CTFUP(0.000604,0.042)	Wald Chi^2=52.2, P>Chi^2=0.00
Himachal Pradesh	NPBUP(-0.00119,0.011)	Wald Chi^2=18.91, P>Chi^2=0.04
Karnataka	CBCUP(-0.00194,0.003), CTFUP(0.000492,.017), SFSTUP(0.001713,0.020)	Wald Chi^2=65.81, P>Chi^2=0.00
Kerala	NPBUP (-0.001091,0.005)	Wald Chi^2=26.77, P>Chi^2=0.03
Madhya Pradesh	SWBUP(-0.00123,0.007)	Wald Chi^2=88.58, P>Chi^2=0.00
Maharashtra	GTFUP(0.000519,0.021), SFUUP(0.002135,0.001), SDGUP(0.000973,0.041)	Wald Chi^2=82.67, P>Chi^2=0.00
Orissa	NPBUP(-0.0012,0.050), SFUUP(0.000815,.037), SDGUP(0.000659,.008)	Wald Chi^2=44.93, P>Chi^2=0.00
Punjab	NPBUP(-0.00146,.001)	Wald Chi^2=43.28, P>Chi^2=0.0001
Rajasthan	SWBUP(-0.00323,.001), DWFUP(0.000701,0.050)	Wald Chi^2=93.27, P>Chi^2=0.00
Tamil Nadu	NPBUP(-0.00123,0.026), NBBUP(-0.01748,0.00), SFTBUP(0.00341,0.00),SFSTUP(0.001695,0.013)	Wald Chi^2=177.89, P>Chi^2=0.00
Uttar Pradesh	NPBUP(-0.00109,0.00), CTFUP(0.00043,0.021), SFSTUP(0.002478,0.008)	Wald Chi^2=140.9, P>Chi^2=0.00
West Bengal	NPBUP(-0.00619,0.037), SNTSUP(-0.00571,0.017), GTFUP(0.002068,0.00)	Wald Chi^2=81.94, P>Chi^2=0.00

A closer look at the results reveal that there are some common factors which significantly influence input oriented efficiency score for both the primary and upper primary levels. TEINP is negatively influenced by the existence of poor infrastructure. For example, percentage of schools without building (SWB), percentage of schools with no pucca building (NPB), percentage of classrooms in 'bad' condition (CBC), percentage of single teaher schools (SNTS), percentage of single classroom schools (SNCS) and percentage of schools with no blackboard (NBB) are significant determinants in explaining the level of TEINP. On the other hand input oriented efficiency positively depends on different favourable infrastructure. For example, percentage of schools with drinking water facility (DWF), percentage of schools with common toilet facility (CTF) and percentage of schools with girls' toilet facility (GTF) have positive impact on TEINP. Different policy indicators have role to play in explaining the variation of efficiency level. The interpretation is that more availability of free text books, uniforms, stationery and grant increases the level of technical efficiency. Therefore, percentage of students getting free text books (SFTB), percentage of students getting uniforms (SFU), percentage of students getting free stationery

(SFST) and percentage of schools received TLM grant (TLMG) are crucial in explaning TEINP.

Apart from the above mentioned determinants the factors which are additionally responsible for variation of input oriented technical efficiency score at primary level of education are percentage of girls getting free text books to boys (GFTBBP) and percentage of girls getting free stationery to boys (GFSTBP). Similarly in case of upper primary level, percentage of schools received SD grant (SDGUP) is a significant variable in enhancing the level of TEINP.

4.5 Conclusions

The present chapter measures input oriented technical efficiency score (TEINP) of elementary level of education of India over the period 2005-06 to 2013-14 using nonparametric DEA approach and also explains the significant factors responsible for variation of such TEINP taking into account different poor and favourable infrastructural facilities, social and policy indicators. The chapter also finds the extent of inefficiency in the utilization of different inputs employed in the production process. The main outcomes of the chapter can be summarized as follows:

The empirical analysis shows that not all the districts as well as respective states exhibit good performance of TEINP over the nine successive years of the study period. Inter-district variation of efficiency score is present. The grand means consisting of the state specific average (SSA) are 0.914 and 0.931 for primary and upper primary levels of education respectively. The result indicates that mean TEINP is higher for upper primary compared to primary. The findings reveal that most of the districts are not perfectly technically efficient in terms of optimum utilization of inputs. Only 12.56% and 8.87% of the districts out of all are fully technically efficient over the study period for primary and upper primary levels respectively. Though, in case of upper primary level the value of TEINP has increased over the study period, but it has declined corresponding to primary level of education. The states having SSA of TEINP higher than grand mean are (i) AP, AS, HP, KE, OR, PN, RA and WB for primary and (ii) AP, AS, BH, GJ, HP, KA, KE, PN and RA for upper primary, while the states having CV lower than grand mean of CV are namely (i) AP, HA, HP, KE, OR, RA, TN and WB for primary and (ii) AP, AS, BH, HA, HP, KA, KE, OR and TN for upper primary.

Considering primary level of education the empirical analysis finds that the grand mean of combined radial and slack movements is maximum for classroom-student ratio (13.42%). The second and third highest factors are for teacher-pupil ratio (12.79%), number of schools per lakh population (12.27%). The lowest mean is shown for percentage of teachers with qualification graduate and above (9.62%). For upper primary level of education the highest, second highest, and the lowest are shown for respectively number of schools per lakh population (13.31%),

classroom-student ratio (12.24%), teacher-pupil ratio (10.74%) and the input namely percentage of the teachers with qualification graduate and above (8.56%). Therefore regarding inefficient utilization of different inputs it can be concluded that among the four inputs used in the production process the inputs like classroom-student ratio and number of schools per lakh population both are inefficiently used in the primary and upper primary levels of education respectively whereas the level of inefficiency is least for the percentage of teachers with qualification graduate and above in both the levels of education. This implies that the same level of output can be obtained from the lesser amount of inputs.

The comparison of TEINP at primary and upper primary levels of education reveals that (i) the states such as AP, AS, HP, KE, PN and RA have higher SSA as compared to grand mean for both primary as well as upper primary and (ii) the states AP, HA, HP, KE, OR and TN have lower CV of TEINP as compared to grand mean of CV for both primary and upper primary levels of education. Thus performance of the states AP, HP and KE are good for both primary as well as upper primary, as they have SSA of TEINP higher than grand mean TEINP and less CV of TEINP as compared to grand mean of CV or, less variability, (iii) percentage of districts with SSA higher than grand mean is greater for upper primary (55.795%) as compared to primary level (53.43%), (iv) the percentage of districts lying on the frontier is less for upper primary (8.87%) as compared to primary level (12.56%) and (v) the combined radial and slack movements of different inputs namely teacher-pupil ratio, classroom-student ratio and the percentage of teachers with qualification graduate and above is less for upper primary level, except for the input number of schools per lakh population.

The panel regression result shows that there are some factors that influence input oriented efficiency for both primary and upper primary levels of education. The association between TEINP and the poor infrastructures like percentage of schools without building, percentage of schools with no pucca building, percentage of classrooms in ‘bad’ condition, percentage of single teacher schools, percentage of single classroom schools and percentage of schools with no blackboard is negative. But TEINP is positively influenced by some favourable infrastructure such as percentage of schools with drinking water facility, percentage of schools with common toilet facility and percentage of schools with girls’ toilet facility. Different policy indicators such as percentage of students getting free text books, percentage of students getting uniforms, percentage of students getting free stationery and the percentage of schools received TLM grant are important to mention. Additionally, percentage of girls getting free text books to boys and percentage of girls getting free stationery to boys are significant determinants in case of primary level and percentage of schools received SD grant is a significant factor in case of upper primary level of education. Thus TEINP for both the levels

depends on the provision of free text books, uniforms, stationery as well as school development and teaching learning material grants.

Therefore the present analysis reveals that in order to foster the level of input oriented technical efficiency score different aspects of infrastructure, poor, as well as favourable and policy variables as discussed above for primary and upper primary levels of education should be emphasized at both district and state level. After having the analysis on efficiency, the next topic is about the productivity performance of this sector. The next chapter deals with the analysis of productivity in the elementary education sector in India.

Appendix-A4

District wise Input Oriented Technical Efficiency Scores at Primary level of Education

A4.1 Andhra Pradesh	TEINP at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Adilabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Anantpur	0.852	0.909	0.902	0.965	0.931	1.000	0.943	0.957	0.940	0.933
Chittor	0.728	0.868	0.871	0.821	0.814	0.805	1.000	0.898	0.948	0.861
Cuddapah	0.881	1.000	1.000	0.803	1.000	0.772	0.872	0.855	0.865	0.894
East Godavari	0.962	0.989	0.972	0.942	0.932	0.876	1.000	0.933	0.931	0.949
Guntur	0.891	1.000	0.880	0.939	0.876	0.907	0.870	0.948	0.952	0.918
Hyderabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karimnagar	1.000	0.993	0.949	1.000	0.915	0.979	0.990	1.000	1.000	0.981
Khammam	0.877	1.000	0.987	0.997	0.932	1.000	0.976	0.942	1.000	0.968
Krishna	0.962	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.996
Kurnool	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mahbubnagar	1.000	0.989	0.992	0.990	0.959	1.000	0.977	1.000	1.000	0.990
Medak	1.000	1.000	1.000	1.000	1.000	0.970	0.962	1.000	1.000	0.992
Nalgonda	0.797	0.875	0.867	0.861	0.912	0.917	0.921	0.929	1.000	0.898
Nellore	0.767	0.821	0.817	0.871	1.000	0.863	0.939	1.000	0.939	0.891
Nizamabad	1.000	0.959	0.946	0.939	0.983	1.000	0.984	0.975	1.000	0.976
Prakasam	0.862	0.958	0.927	0.863	0.829	0.875	0.864	0.897	0.890	0.885
Rangareddi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Srikakulam	0.870	0.992	1.000	1.000	0.983	1.000	1.000	1.000	0.990	0.982
Visakhapatnam	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Vizianagaram	0.889	0.894	0.873	0.973	1.000	0.923	0.954	1.000	1.000	0.945
Warangal	0.914	1.000	0.970	0.939	0.855	0.818	0.843	0.907	0.913	0.907
West Godavari	0.886	0.917	0.904	1.000	0.954	0.959	0.983	1.000	0.989	0.955
Average	0.919	0.964	0.95	0.952	0.951	0.942	0.96	0.967	0.972	0.953

A4.2 Assam	TEINP at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Baperta	0.828	0.970	1.000	0.848	0.807	0.891	0.764	0.858	0.950	0.880
Bongaigaon	0.891	0.976	1.000	0.846	0.744	0.876	0.828	1.000	1.000	0.907
Cachar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Darrang	0.952	0.959	1.000	0.804	1.000	1.000	1.000	1.000	1.000	0.968
Dhemaji	0.776	1.000	0.826	1.000	1.000	0.750	0.957	0.705	0.671	0.854
Dhubri	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Dibrugarh	0.784	0.966	0.908	0.902	0.927	0.928	1.000	0.932	1.000	0.927
Goalpara	0.889	0.899	0.962	0.949	0.815	0.943	0.966	0.831	0.838	0.899

Golaghat	0.951	0.989	0.960	0.900	0.801	0.935	0.886	0.986	0.963	0.930
Hailakandi	1.000	1.000	0.818	0.939	1.000	0.917	1.000	1.000	1.000	0.964
Jorhat	0.626	0.792	1.000	0.872	1.000	1.000	0.771	0.742	0.850	0.850
Kamrup	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karbi Anglong	1.000	1.000	0.849	1.000	1.000	1.000	1.000	0.784	0.764	0.933
Karimganj	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kokrajhar	0.754	0.812	0.776	0.760	0.881	0.782	0.817	0.728	0.713	0.780
Lakhimpur	0.697	0.838	0.801	0.675	0.672	0.716	0.633	0.733	0.775	0.727
Marigaon	1.000	1.000	1.000	0.969	0.904	1.000	0.953	0.955	0.890	0.963
Nagaon	1.000	1.000	1.000	1.000	1.000	1.000	0.932	1.000	1.000	0.992
Nalbari	0.751	0.883	0.859	0.788	0.743	0.859	0.859	1.000	1.000	0.860
Sibsagar	0.732	1.000	1.000	0.831	1.000	1.000	1.000	1.000	1.000	0.951
Sonitpur	1.000	0.929	0.969	0.917	0.891	1.000	1.000	0.827	0.857	0.932
Tinsukia	1.000	1.000	0.972	1.000	1.000	1.000	0.750	0.855	0.913	0.943
Average	0.892	0.955	0.941	0.909	0.918	0.936	0.914	0.906	0.917	0.921

A4.3 Bihar	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Araria	1.000	1.000	1.000	1.000	0.929	0.954	0.931	0.924	0.827	0.952
Aurangabad (Bihar)	1.000	0.621	0.751	0.759	0.709	0.826	0.875	0.948	1.000	0.832
Banka	0.689	0.657	0.912	0.853	0.815	0.846	1.000	0.824	0.871	0.830
Begusarai	1.000	1.000	1.000	1.000	0.984	1.000	0.940	1.000	1.000	0.992
Bhagalpur	0.875	0.801	0.903	0.936	0.871	0.912	0.846	0.888	0.961	0.888
Bhojpur	1.000	0.669	0.898	0.802	0.800	0.760	0.701	0.682	0.699	0.779
Buxar	0.875	0.727	0.878	0.776	0.732	0.787	0.700	0.810	0.852	0.793
Darbhanga	1.000	0.877	0.927	0.958	0.867	0.906	0.784	0.819	0.799	0.882
Gaya	0.810	0.733	0.909	0.792	0.765	0.833	1.000	0.868	0.889	0.844
Gopalganj	1.000	0.854	0.879	0.847	0.760	0.843	0.714	0.766	0.725	0.821
Jamui	0.829	0.824	0.982	0.994	1.000	1.000	1.000	1.000	1.000	0.959
Jehanabad	0.809	0.711	1.000	0.900	0.844	1.000	1.000	1.000	0.990	0.917
Kaimur (Bhabua)	1.000	0.740	0.754	0.728	0.656	0.704	0.778	0.757	0.910	0.781
Katihar	1.000	1.000	0.921	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Khagaria	0.923	0.848	0.865	0.915	1.000	1.000	1.000	1.000	1.000	0.950
Kishanganj	0.968	0.914	1.000	1.000	0.920	0.830	1.000	1.000	1.000	0.959
Lakhisarai	0.875	0.792	1.000	1.000	0.895	0.834	0.938	1.000	1.000	0.926
Madhepura	1.000	0.808	0.793	0.851	0.838	0.970	1.000	1.000	1.000	0.918
Madhubani	1.000	0.750	0.891	0.830	0.717	1.000	0.764	0.760	1.000	0.857
Munger	0.700	0.712	0.870	0.835	0.770	0.809	0.862	0.881	0.845	0.809
Muzaffarpur	0.925	0.694	1.000	1.000	1.000	1.000	0.803	0.790	0.843	0.895
Nalanda	0.778	0.727	0.863	0.813	0.800	0.759	1.000	0.716	0.680	0.793
Nawada	0.684	0.734	0.788	0.831	0.805	0.839	0.865	0.818	1.000	0.818
Paschim Champaran	0.875	0.756	0.855	0.897	0.806	0.857	1.000	0.858	0.853	0.862

Patna	0.886	0.630	1.000	1.000	0.864	0.812	1.000	0.724	0.743	0.851
Purba Champaran	1.000	0.885	1.000	0.931	0.752	0.866	0.946	0.894	0.913	0.910
Purnia	1.000	1.000	1.000	1.000	0.919	0.975	1.000	1.000	1.000	0.988
Rohtas	0.786	0.659	0.844	0.794	1.000	0.745	1.000	0.909	1.000	0.860
Saharsa	1.000	0.925	0.887	0.994	1.000	1.000	1.000	1.000	1.000	0.978
Samastipur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Saran	1.000	0.716	0.881	0.863	0.790	0.806	0.640	0.717	0.816	0.803
Sheikhpura	1.000	0.913	0.950	0.921	0.865	0.978	0.940	1.000	1.000	0.952
Sheohar	1.000	0.853	0.976	0.991	1.000	1.000	0.935	1.000	1.000	0.973
Sitamarhi	1.000	0.896	1.000	1.000	1.000	0.937	0.886	0.990	1.000	0.968
Siwan	0.875	0.849	0.932	0.865	0.847	0.913	0.715	0.955	0.964	0.879
Supaul	1.000	0.810	0.808	1.000	0.931	0.935	0.933	1.000	1.000	0.935
Vaishali	0.875	0.708	0.915	0.952	0.985	0.942	0.736	0.946	0.936	0.888
Average	0.920	0.805	0.914	0.909	0.871	0.897	0.898	0.898	0.922	0.893

A4.4 Gujarat	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ahmedabad	1.000	1.000	1.000	1.000	1.000	1.000	0.998	1.000	1.000	1.000
Amreli	0.742	1.000	1.000	1.000	0.997	1.000	1.000	1.000	1.000	0.971
Anand	1.000	0.710	0.894	0.791	0.654	0.676	0.850	0.849	1.000	0.825
Banas Kantha	1.000	0.953	0.968	0.923	1.000	0.781	1.000	0.677	0.824	0.903
Bharuch	0.769	0.583	0.738	0.655	0.537	0.615	0.860	0.713	1.000	0.719
Bhavnagar	0.776	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.975
Dohad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.983	1.000	0.998
Gandhinagar	1.000	0.853	1.000	0.733	0.650	0.848	0.960	1.000	0.639	0.854
Jamnagar	1.000	1.000	0.882	1.000	1.000	1.000	0.764	0.667	1.000	0.924
Junagadh	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.840	0.892	0.970
Kachchh	1.000	0.578	1.000	0.750	1.000	1.000	0.856	0.821	0.797	0.867
Kheda	0.946	0.839	0.897	0.958	0.763	0.814	0.952	0.896	0.934	0.889
Mahesana	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Narmada	1.000	0.587	0.585	0.422	0.374	0.421	0.789	0.391	0.501	0.563
Navsari	1.000	0.814	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.979
Panch Mahals	1.000	1.000	1.000	1.000	1.000	0.956	1.000	1.000	1.000	0.995
Patan	0.703	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.967
Porbandar	1.000	0.761	0.573	1.000	0.721	0.670	0.690	0.857	0.756	0.781
Rajkot	0.796	1.000	0.944	1.000	1.000	1.000	1.000	1.000	1.000	0.971
Sabar Kantha	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993	1.000	0.999
Surat	1.000	0.986	1.000	0.997	1.000	1.000	1.000	1.000	0.958	0.993
Surendranagar	1.000	1.000	1.000	0.981	1.000	1.000	0.982	0.983	0.994	0.993
The Dangs	1.000	0.601	0.632	1.000	1.000	0.711	1.000	1.000	1.000	0.883
Vadodara	1.000	0.460	0.514	0.880	0.447	0.496	1.000	0.587	0.673	0.673
Valsad	1.000	0.741	0.836	1.000	0.713	0.704	0.806	0.797	0.920	0.835

Average	0.949	0.859	0.899	0.924	0.874	0.868	0.94	0.882	0.916	0.901

A4.5 Haryana	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ambala	1.000	0.770	0.926	0.911	1.000	0.908	0.980	0.810	0.948	0.917
Bhiwani	0.825	0.817	0.813	0.806	1.000	1.000	1.000	0.895	0.915	0.897
Faridabad	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Fatehabad	1.000	0.822	0.849	0.756	0.909	0.838	0.893	0.837	0.740	0.849
Gurgaon	1.000	0.922	1.000	1.000	1.000	1.000	0.930	0.870	1.000	0.969
Hisar	0.738	1.000	0.909	1.000	1.000	0.971	0.907	0.956	0.919	0.933
Jhajjar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jind	0.890	0.833	0.799	0.752	0.909	0.828	1.000	0.871	0.849	0.859
Kaithal	1.000	0.756	1.000	0.906	1.000	0.813	0.920	0.961	1.000	0.928
Karnal	0.795	0.776	0.802	1.000	1.000	0.952	1.000	0.840	0.828	0.888
Kurukshetra	0.985	0.636	0.705	0.703	1.000	0.731	0.825	0.747	0.812	0.794
Mahendragarh	0.939	1.000	0.797	0.661	1.000	0.625	0.881	0.680	0.667	0.806
Panchkula	0.729	0.700	0.724	0.723	1.000	0.759	0.933	1.000	1.000	0.841
Panipat	0.792	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.977
Rewari	0.965	1.000	1.000	0.632	1.000	0.682	0.840	0.664	0.772	0.839
Rohtak	0.981	1.000	1.000	0.903	1.000	0.938	1.000	1.000	1.000	0.980
Sirsa	1.000	1.000	1.000	0.783	1.000	0.777	0.919	1.000	1.000	0.942
Sonipat	1.000	1.000	1.000	0.782	1.000	0.793	1.000	0.923	0.955	0.939
Yamunanagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.839	0.756	0.955
Average	0.928	0.896	0.912	0.859	0.990	0.874	0.949	0.889	0.903	0.911

A4.6 Himachal Pradesh	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Bilaspur (H.P)	0.858	0.779	0.839	0.840	0.834	0.773	0.867	0.781	0.806	0.820
Chamba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Hamirpur (H.P)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kangra	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kinnaur	1.000	0.908	1.000	0.944	0.937	0.956	1.000	1.000	1.000	0.972
Kullu	1.000	1.000	1.000	1.000	1.000	1.000	0.995	1.000	1.000	0.999
Lahul & Spiti	1.000	1.000	0.942	1.000	1.000	0.914	0.960	0.814	0.916	0.950
Mandi	0.923	1.000	1.000	1.000	0.982	0.958	0.936	0.939	0.942	0.964
Shimla	0.954	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995
Sirmaur	0.991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
Solan	0.937	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993
Una	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.972	0.974	0.982	0.982	0.979	0.967	0.980	0.961	0.972	0.974

A4.7 Karnataka	TEINP at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Bagalkot	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bangalore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bangalore Rural	0.976	0.770	0.984	1.000	0.865	0.880	1.000	0.720	0.583	0.864
Balgaum	1.000	1.000	1.000	1.000	0.951	1.000	1.000	1.000	1.000	0.995
Bellary	0.977	0.811	0.853	0.895	0.862	0.815	1.000	0.619	0.701	0.837
Bidar	1.000	1.000	1.000	0.953	1.000	0.922	0.977	1.000	1.000	0.984
Bijapur	0.969	1.000	0.989	1.000	1.000	0.866	1.000	1.000	1.000	0.980
Chamrajnagar	1.000	1.000	1.000	1.000	0.873	0.655	0.907	0.813	0.516	0.863
Chikmagalur	0.957	0.764	0.689	0.802	0.729	0.617	1.000	0.765	0.398	0.747
Chitradurga	1.000	1.000	1.000	0.770	1.000	0.710	0.850	0.868	0.590	0.865
Dakshina Kannada	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Davangere	0.986	0.889	1.000	0.923	0.926	1.000	1.000	0.799	0.732	0.917
Dharwad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Gadag	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.917	0.991
Gulbarga	1.000	1.000	1.000	0.995	1.000	0.926	1.000	0.872	1.000	0.977
Hassan	1.000	1.000	1.000	1.000	1.000	0.768	0.978	0.573	0.339	0.851
Haveri	1.000	1.000	1.000	0.794	0.745	0.754	0.758	0.699	0.731	0.831
Kodagu	0.824	0.804	0.795	1.000	1.000	1.000	1.000	1.000	0.909	0.926
Kolar	0.860	1.000	0.897	1.000	0.822	0.628	1.000	0.805	1.000	0.890
Koppal	1.000	0.825	1.000	0.813	0.889	0.986	1.000	0.952	0.656	0.902
Mandya	0.820	0.922	0.796	1.000	0.731	0.536	0.849	1.000	0.539	0.799
Mysore	1.000	0.928	0.890	1.000	1.000	0.779	1.000	0.784	0.578	0.884
Raichur	0.867	0.702	0.816	1.000	1.000	0.978	1.000	0.848	0.777	0.888
Shimoga	0.749	0.831	0.842	0.869	0.881	0.604	0.923	0.784	0.981	0.829
Tumkur	1.000	0.873	0.953	0.974	0.967	0.763	1.000	0.707	0.725	0.885
Udupi	1.000	1.000	0.971	1.000	1.000	1.000	0.981	1.000	1.000	0.995
Uttara Kannada	0.631	1.000	0.686	0.693	0.680	1.000	1.000	1.000	0.662	0.817
Average	0.949	0.930	0.932	0.944	0.923	0.859	0.971	0.874	0.790	0.908

A4.8 Kerala	TEINP at Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Alappuzha	1.000	0.949	1.000	1.000	0.983	1.000	0.904	0.927	0.898	0.962
Ernakulam	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Idukki	1.000	1.000	1.000	1.000	1.000	1.000	0.928	1.000	1.000	0.992
Kannur	1.000	0.996	1.000	0.801	0.798	0.833	0.834	0.810	1.000	0.897
Kasaragod	1.000	1.000	1.000	0.926	1.000	0.949	1.000	1.000	0.876	0.972
Kollam	1.000	0.995	1.000	1.000	1.000	0.952	0.811	0.882	0.957	0.955
Kottayam	1.000	0.953	0.847	0.794	0.797	0.831	0.850	0.836	0.972	0.876
Kozhikode	1.000	0.972	1.000	1.000	1.000	1.000	1.000	0.909	0.942	0.980
Malappuram	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Palakkad	1.000	1.000	1.000	1.000	1.000	1.000	0.980	1.000	0.843	0.980
Pathanamthitta	1.000	1.000	0.835	0.729	0.758	0.698	0.688	0.702	0.749	0.795
Thiruvananthapuram	1.000	0.974	0.959	0.833	0.979	1.000	0.744	0.978	1.000	0.941
Thrissur	1.000	0.975	1.000	0.952	0.995	1.000	1.000	1.000	1.000	0.991
Wayanad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	1.000	0.987	0.974	0.931	0.951	0.947	0.910	0.932	0.945	0.953

A4.9 Madhya Pradesh	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Anuppur	1.000	1.000	1.000	1.000	1.000	1.000	0.929	0.671	0.760	0.929
Ashoknagar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.866	0.856	0.969
Balaghat	0.703	0.755	0.775	0.752	1.000	1.000	1.000	1.000	1.000	0.887
Barwani	1.000	0.925	0.913	0.839	0.925	0.934	1.000	1.000	1.000	0.948
Betul	1.000	0.790	0.834	0.788	0.752	0.781	0.781	0.694	0.698	0.791
Bhind	0.906	0.956	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.985
Bhopal	1.000	1.000	1.000	0.956	1.000	1.000	1.000	1.000	1.000	0.995
Burhanpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.931	0.992
Chhatarpur	1.000	0.841	0.970	0.946	1.000	0.979	0.957	0.941	0.950	0.954
Chhindwara	1.000	0.842	0.835	0.740	0.807	0.836	0.916	0.703	0.712	0.821
Damoh	0.649	0.820	0.878	0.837	0.845	1.000	0.961	0.761	0.840	0.843
Datia	0.640	0.798	0.880	0.827	0.825	0.869	0.968	0.765	0.874	0.827
Dewas	0.697	0.980	0.951	0.880	0.872	0.943	0.984	0.823	0.850	0.887
Dhar	0.896	0.873	1.000	0.961	1.000	0.982	1.000	0.778	0.824	0.924
Dindori	0.998	1.000	0.839	0.699	0.932	1.000	1.000	0.962	0.544	0.886
Guna	1.000	0.910	0.922	0.911	0.945	0.954	0.998	1.000	1.000	0.960
Gwalior	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.953	0.995
Harda	0.861	0.895	0.956	0.982	1.000	1.000	1.000	0.998	0.923	0.957
Hoshangabad	0.826	0.785	0.798	0.806	0.851	0.836	0.897	0.799	0.791	0.821
Indore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jabalpur	0.678	0.761	0.753	0.756	0.942	0.891	1.000	0.967	1.000	0.861
Jhabua	0.986	1.000	0.878	0.847	1.000	1.000	1.000	0.964	1.000	0.964
Katni	0.708	0.915	0.934	0.854	0.871	0.878	0.874	0.807	0.798	0.849
Khandwa	0.990	0.822	0.915	0.941	0.915	0.934	1.000	0.838	0.859	0.913
Khargone	0.714	1.000	0.909	0.820	0.809	0.851	0.881	0.785	0.795	0.840
Mandla	0.677	0.722	0.693	0.847	1.000	1.000	1.000	1.000	1.000	0.882
Mandsaur	0.777	0.779	0.821	1.000	0.865	0.977	1.000	0.993	1.000	0.912
Morena	1.000	1.000	1.000	1.000	1.000	0.988	1.000	0.917	0.877	0.976
Narsinghpur	0.617	0.801	0.888	0.904	0.953	1.000	1.000	1.000	1.000	0.907
Neemuch	0.824	0.751	0.810	0.790	0.905	0.928	1.000	1.000	1.000	0.890
Panna	1.000	0.839	0.784	0.732	0.836	0.885	0.920	0.751	0.736	0.831
Raisen	1.000	0.988	0.840	0.841	0.764	0.843	0.907	0.733	0.724	0.849
Rajgarh	0.754	0.898	0.808	0.719	0.710	0.770	0.823	0.741	0.730	0.773

Ratlam	0.747	0.898	0.878	0.820	0.854	0.937	1.000	0.900	0.867	0.878
Rewa	1.000	0.933	0.757	0.739	0.806	0.913	1.000	0.817	0.829	0.866
Sagar	0.598	0.987	0.923	0.856	0.866	0.964	1.000	0.836	0.831	0.873
Satna	0.948	0.788	0.841	0.833	0.925	0.906	0.974	0.989	1.000	0.912
Sehore	1.000	0.996	0.858	0.865	0.910	0.954	1.000	0.866	0.851	0.922
Seoni	0.689	0.752	0.708	0.619	0.703	0.773	0.885	0.702	0.643	0.719
Shahdol	0.911	0.671	0.733	0.657	0.833	0.850	0.849	0.739	0.716	0.773
Shajapur	0.577	0.823	0.863	0.863	0.819	0.917	1.000	0.749	0.770	0.820
Sheopur	1.000	0.922	1.000	0.998	0.956	0.930	1.000	0.890	0.882	0.953
Shivpuri	0.819	0.862	0.871	0.840	0.915	0.922	1.000	0.883	0.917	0.892
Sidhi	1.000	0.885	0.930	0.841	0.828	0.754	1.000	0.718	0.756	0.857
Tikamgarh	0.847	1.000	0.950	1.000	0.918	1.000	1.000	0.900	0.940	0.951
Ujjain	0.712	0.838	0.858	1.000	0.883	0.978	0.962	0.926	0.913	0.897
Umaria	1.000	0.841	0.906	1.000	0.770	0.861	0.914	0.764	0.782	0.871
Vidisha	0.775	0.741	0.808	1.000	0.814	0.838	0.888	0.730	0.742	0.815
Average	0.865	0.883	0.885	0.873	0.898	0.928	0.964	0.868	0.864	0.892

A4.10 Maharashtra	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Ahmadnagar	0.542	0.260	0.636	0.595	0.615	0.566	0.931	0.621	0.626	0.599
Akola	0.783	0.074	0.812	0.846	0.890	0.907	0.769	0.688	0.797	0.730
Amravati	0.797	1.000	0.837	0.817	0.812	0.831	0.750	0.660	0.761	0.807
Aurangabad (MH)	0.837	0.200	1.000	0.971	0.917	1.000	1.000	1.000	0.875	0.867
Bhandara	1.000	0.101	1.000	1.000	0.837	0.801	0.778	0.645	0.672	0.759
Bid	0.872	0.782	0.916	0.840	0.753	0.702	1.000	0.745	0.726	0.815
Buldana	0.860	0.092	0.954	1.000	0.900	0.988	1.000	0.808	0.833	0.826
Chandrapur	0.676	0.074	0.738	0.769	0.731	0.747	0.909	0.608	0.662	0.657
Dhule	0.685	0.083	0.843	0.843	0.731	0.681	0.843	0.743	0.731	0.687
Gadchiroli	0.611	0.110	0.981	0.971	0.766	0.764	0.878	0.760	0.727	0.730
Gondiya	0.933	0.086	0.869	0.814	0.788	0.761	1.000	0.805	0.782	0.760
Hingoli	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.758	0.973
Jalgaon	0.901	0.425	0.981	1.000	1.000	0.927	1.000	0.777	0.813	0.869
Jalna	1.000	0.582	1.000	0.944	1.000	1.000	1.000	0.809	0.754	0.899
Kolhapur	0.902	1.000	0.960	1.000	1.000	0.971	0.825	0.746	0.793	0.911
Latur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mumbai	1.000	0.419	1.000	0.737	0.749	1.000	1.000	1.000	1.000	0.878
Mumbai (Suburban)	1.000	0.333	1.000	1.000	0.929	1.000	1.000	1.000	1.000	0.918
Nagpur	0.771	0.080	0.846	0.933	0.954	1.000	0.900	0.821	0.815	0.791
Nanded	1.000	0.269	0.916	1.000	0.923	0.896	1.000	0.706	0.766	0.831
Nandurbar	0.763	0.081	0.888	0.917	0.697	0.622	0.855	0.713	0.633	0.685
Nashik	1.000	0.082	0.878	0.808	0.769	0.775	1.000	0.787	0.783	0.765
Osmanabad	1.000	1.000	1.000	1.000	1.000	0.991	0.992	0.750	0.741	0.942

Parbhani	1.000	1.000	1.000	1.000	1.000	1.000	0.990	1.000	0.852	0.982
Pune	0.724	0.230	0.719	0.861	0.864	0.828	0.730	0.749	0.871	0.731
Raigarh (MH)	0.524	0.066	0.680	0.661	0.636	0.662	0.943	0.664	0.651	0.610
Ratnagiri	0.479	0.083	0.921	0.748	0.738	0.696	1.000	0.738	0.673	0.675
Sangli	0.642	0.134	0.722	0.718	0.719	0.825	1.000	0.605	0.640	0.667
Satara	0.556	0.417	0.714	0.714	0.700	0.648	1.000	0.578	0.532	0.651
Sindhudurg	0.371	0.774	1.000	0.679	0.636	0.731	0.774	0.539	0.485	0.665
Solapur	0.768	0.509	0.732	0.700	0.701	0.712	0.907	0.666	0.689	0.709
Thane	0.878	0.468	0.946	0.939	0.987	1.000	1.000	1.000	1.000	0.913
Wardha	0.860	0.226	0.697	0.647	0.665	0.668	0.747	0.614	0.630	0.639
Washim	0.786	0.091	0.929	0.822	0.792	0.769	0.904	0.714	0.807	0.735
Yavatmal	0.786	0.077	0.837	0.742	0.726	0.724	1.000	0.651	0.733	0.697
Average	0.809	0.377	0.884	0.858	0.826	0.834	0.926	0.763	0.760	0.782

A4.11 Orissa	**TEINP at Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Angul	1.000	0.905	0.959	0.931	0.939	0.979	1.000	1.000	0.987	0.967
Balasore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bargarh	0.887	0.902	0.963	0.938	1.000	0.986	0.878	0.909	0.820	0.920
Bhadrak	1.000	1.000	1.000	1.000	1.000	1.000	0.985	1.000	1.000	0.998
Bolangir	0.971	1.000	0.866	0.931	0.956	1.000	1.000	1.000	0.996	0.969
Boudh	1.000	0.828	0.842	0.870	0.883	0.945	0.874	1.000	1.000	0.916
Cuttack	0.965	1.000	1.000	1.000	1.000	1.000	0.840	0.913	0.882	0.956
Deogarh	0.841	0.786	1.000	0.781	1.000	0.867	1.000	1.000	1.000	0.919
Dhenkanal	0.883	0.907	1.000	0.949	0.956	0.925	0.915	0.882	0.889	0.923
Gajapati	0.900	0.726	0.850	0.833	0.840	0.691	0.798	0.819	1.000	0.829
Ganjam	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.963	0.924	0.987
Jagatsinghpur	0.932	0.998	1.000	0.964	0.981	0.846	0.689	0.799	0.725	0.882
Jajpur	1.000	0.926	0.906	0.907	0.935	0.882	0.992	1.000	1.000	0.950
Jharsuguda	0.845	0.909	0.881	0.921	1.000	0.884	0.876	0.997	0.896	0.912
Kalahandi	0.956	1.000	1.000	0.976	0.975	0.927	1.000	0.890	1.000	0.969
Kandhamal	0.877	0.870	0.903	0.853	0.908	0.744	1.000	1.000	0.816	0.886
Kendrapara	1.000	1.000	0.887	0.898	0.909	0.909	0.833	0.873	0.857	0.907
Keonjhar	0.986	0.921	0.861	0.881	0.866	1.000	1.000	1.000	1.000	0.946
Khordha	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Koraput	1.000	0.855	0.864	0.833	0.852	0.802	1.000	0.865	0.843	0.879
Malkangiri	1.000	1.000	1.000	1.000	0.971	1.000	1.000	1.000	1.000	0.997
Mayurbhanj	1.000	0.856	1.000	0.861	0.943	0.925	0.959	1.000	1.000	0.949
Nawarangapur	1.000	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	0.999
Nayagarh	0.949	0.906	0.916	0.855	0.923	0.906	0.913	0.850	0.935	0.906
Nuapada	1.000	0.989	1.000	0.920	1.000	0.976	1.000	1.000	1.000	0.987
Puri	0.925	0.904	1.000	0.855	0.911	0.858	1.000	0.862	0.850	0.907

Rayagada	0.815	0.739	0.736	0.730	0.826	0.838	1.000	0.940	0.986	0.846
Sambalpur	0.814	0.838	0.820	0.914	0.966	0.935	1.000	1.000	0.995	0.920
Sonepur	1.000	0.892	0.921	0.813	0.847	0.857	0.848	0.805	0.825	0.868
Sundargarh	1.000	1.000	1.000	0.993	1.000	1.000	0.902	0.966	1.000	0.985
Average	0.952	0.922	0.939	0.914	0.946	0.923	0.943	0.944	0.941	0.936

A4.12 Punjab	**TEINP at Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Amritsar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bathinda	1.000	1.000	1.000	1.000	1.000	1.000	0.968	1.000	1.000	0.996
Faridkot	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Fatehgarh Sahib	0.681	0.679	0.810	0.742	0.796	0.832	0.795	0.908	1.000	0.805
Ferozepur	1.000	0.953	0.928	0.936	1.000	1.000	1.000	1.000	1.000	0.980
Gurdaspur	1.000	1.000	1.000	1.000	1.000	0.972	1.000	1.000	1.000	0.997
Hoshiarpur	0.983	1.000	0.964	0.932	0.861	0.870	0.835	0.990	0.984	0.935
Jalandhar	0.806	0.697	0.730	0.760	0.772	0.884	0.973	0.892	0.904	0.824
Kapurthala	0.804	0.908	0.861	0.850	0.889	0.859	0.878	1.000	0.919	0.885
Ludhiana	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mansa	1.000	0.967	0.918	0.962	0.983	0.998	0.972	0.976	0.942	0.969
Moga	1.000	1.000	1.000	1.000	1.000	0.982	1.000	1.000	1.000	0.998
Muktsar	0.982	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.966	0.994
Nawanshahr	0.658	0.846	0.728	0.761	0.852	0.770	0.819	0.894	0.870	0.800
Patiala	0.863	0.770	0.809	0.815	0.879	1.000	0.981	0.977	0.869	0.885
Ropar	0.762	0.634	0.833	0.712	0.836	0.745	0.889	1.000	0.872	0.809
Sangrur	1.000	0.843	1.000	1.000	1.000	1.000	1.000	0.897	0.877	0.957
Average	0.914	0.900	0.917	0.910	0.934	0.936	0.948	0.973	0.953	0.931

A4.13 Rajasthan	**TEINP at Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Ajmer	1.000	0.990	1.000	1.000	0.983	0.926	0.862	0.942	0.974	0.964
Alwar	0.897	0.953	1.000	1.000	1.000	1.000	1.000	1.000	0.940	0.977
Banswara	0.898	0.938	0.870	0.831	0.849	0.834	1.000	1.000	0.962	0.909
Baran	0.946	0.946	0.925	0.969	1.000	1.000	0.957	1.000	1.000	0.971
Barmer	1.000	1.000	1.000	1.000	1.000	0.974	0.967	0.967	0.968	0.986
Bharatpur	1.000	1.000	1.000	1.000	1.000	0.935	0.961	1.000	0.985	0.987
Bhilwara	0.871	1.000	0.959	0.937	0.928	0.891	0.998	0.857	0.840	0.920
Bikaner	1.000	1.000	1.000	1.000	0.956	0.897	0.901	0.890	0.878	0.947
Bundi	0.824	0.880	0.880	0.857	0.823	0.793	0.802	0.742	0.773	0.819
Chittaurgarh	0.839	0.960	0.849	0.897	0.899	0.948	0.900	0.939	0.872	0.900
Churu	1.000	1.000	0.994	1.000	0.893	0.980	1.000	0.953	0.964	0.976
Dausa	0.910	0.978	1.000	0.985	1.000	0.931	0.967	0.836	1.000	0.956
Dhaulpur	1.000	1.000	1.000	0.994	1.000	1.000	1.000	1.000	1.000	0.999

Dungarpur	0.786	0.777	0.759	0.797	0.828	0.773	0.882	0.838	0.810	0.806
Ganganagar	1.000	1.000	1.000	1.000	0.815	0.825	1.000	0.922	0.981	0.949
Hanumangarh	0.980	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Jaipur	1.000	1.000	1.000	0.946	0.846	0.838	0.879	0.773	0.830	0.901
Jaisalmer	0.863	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.985
Jalor	1.000	1.000	1.000	1.000	0.995	0.982	1.000	0.905	0.932	0.979
Jhalawar	0.910	1.000	0.961	1.000	1.000	1.000	1.000	1.000	0.969	0.982
Jhunjhunun	0.921	0.872	0.866	0.937	0.792	0.803	0.808	0.817	0.875	0.855
Jodhpur	0.908	0.996	0.951	1.000	0.981	0.989	0.949	0.962	1.000	0.971
Karauli	1.000	0.923	0.904	0.982	0.957	0.893	1.000	1.000	0.924	0.954
Kota	1.000	1.000	1.000	0.970	0.919	0.929	0.930	1.000	1.000	0.972
Nagaur	0.906	1.000	0.988	1.000	0.842	0.846	1.000	0.837	0.899	0.924
Pali	0.846	0.883	0.908	1.000	0.933	0.949	0.934	0.911	0.954	0.924
Rajsamand	0.945	1.000	1.000	1.000	1.000	1.000	1.000	0.983	0.891	0.980
Sawai Madhopur	0.871	0.853	0.835	0.909	0.786	0.864	1.000	0.744	0.865	0.859
Sikar	0.934	0.989	0.879	0.998	0.824	0.807	0.916	0.816	0.897	0.896
Sirohi	0.934	0.968	0.963	0.962	0.946	0.954	0.894	1.000	1.000	0.958
Tonk	0.888	0.921	0.899	0.919	0.838	0.756	0.719	0.747	0.806	0.833
Udaipur	0.855	0.946	0.949	0.966	0.984	0.963	0.906	1.000	0.985	0.950
Average	0.929	0.962	0.948	0.964	0.925	0.915	0.942	0.918	0.930	0.937

A4.14 Tamil Nadu	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Chennai	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Coimbatore	0.978	0.965	0.915	0.969	0.992	0.925	1.000	0.750	1.000	0.944
Cuddalore	0.950	1.000	0.995	1.000	0.924	0.869	0.754	0.610	0.669	0.863
Dharamapuri	0.912	0.862	1.000	1.000	1.000	0.894	0.801	0.652	0.733	0.873
Dindigul	0.982	0.985	0.966	0.901	0.917	0.935	1.000	0.828	1.000	0.946
Erode	0.862	0.902	0.859	0.865	0.912	0.808	0.847	1.000	1.000	0.895
Kancheepuram	1.000	1.000	1.000	1.000	0.998	1.000	1.000	1.000	0.956	0.995
Kanniyakumari	1.000	0.997	0.947	0.904	0.941	0.892	0.951	0.704	0.804	0.904
Karur	0.797	0.769	0.781	0.815	0.907	0.906	0.865	1.000	0.679	0.835
Krishanagari	1.000	1.000	1.000	1.000	0.970	1.000	1.000	0.923	0.757	0.961
Madurai	0.902	0.979	0.964	0.976	0.927	0.932	1.000	0.722	1.000	0.934
Nagapattinam	1.000	1.000	0.966	0.979	1.000	0.980	0.960	0.834	0.727	0.938
Namakkal	0.974	0.993	1.000	1.000	0.901	0.875	0.871	0.691	0.702	0.890
Perambalur	0.937	0.899	0.874	0.877	0.828	0.800	0.826	0.708	1.000	0.861
Pudukkottai	1.000	0.849	0.931	0.910	1.000	1.000	1.000	0.924	0.694	0.923
Ramanathapuram	0.999	0.977	0.975	0.965	0.903	0.856	1.000	0.760	0.824	0.918
Salem	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.643	0.787	0.937
Sivaganga	0.860	0.879	0.869	0.891	0.829	0.725	0.897	0.735	0.749	0.826
Thanjavur	0.929	0.904	0.849	0.895	0.760	0.746	0.692	0.628	0.704	0.790

The Nilgiris	0.822	0.857	0.914	0.931	0.844	0.991	0.871	0.924	0.755	0.879
Theni	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Thiruvallur	0.902	1.000	1.000	0.972	1.000	1.000	0.926	0.947	0.880	0.959
Thiruvarur	1.000	1.000	1.000	1.000	1.000	1.000	0.690	0.600	0.666	0.884
Thoothukkudi	0.985	1.000	1.000	1.000	0.966	0.924	1.000	1.000	1.000	0.986
Tiruchirappalli	0.834	0.820	0.773	0.814	0.924	0.916	1.000	1.000	1.000	0.898
Tirunelveli	0.953	1.000	0.981	0.924	0.906	1.000	1.000	0.939	1.000	0.967
Tiruvannamalai	0.856	0.899	0.864	0.873	0.855	0.809	0.918	0.681	0.682	0.826
Vellore	0.801	0.845	0.874	0.886	0.873	0.897	0.881	0.692	0.737	0.832
Vilippuram	0.981	1.000	0.931	0.944	0.979	0.932	0.874	0.643	0.759	0.894
Virudhunagar	0.931	1.000	1.000	1.000	0.899	0.955	0.891	0.958	0.928	0.951
Average	0.938	0.946	0.941	0.943	0.932	0.919	0.917	0.817	0.840	0.910

A4.15 Uttar Pradesh	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Agra	0.899	0.914	0.934	0.927	0.898	0.888	0.678	1.000	0.940	0.898
Aligarh	0.796	0.969	0.915	0.916	0.875	0.798	0.608	0.809	0.767	0.828
Allahabad	0.812	1.000	1.000	1.000	0.976	0.955	0.728	0.969	0.963	0.934
Ambedkar Nagar	0.864	0.937	0.810	0.738	0.765	0.768	0.696	0.812	0.805	0.799
Auraiya	0.752	0.665	0.666	0.606	0.624	0.612	0.508	0.645	0.674	0.639
Azamgarh	0.928	0.930	0.907	0.911	0.922	0.923	0.594	0.870	0.878	0.874
Baghpat	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bahraich	0.955	1.000	0.977	0.969	1.000	0.952	0.805	0.863	0.838	0.929
Ballia	1.000	1.000	0.963	0.822	0.926	0.880	0.652	0.880	0.899	0.891
Balarampur	1.000	0.944	1.000	1.000	0.978	0.947	0.832	0.995	0.938	0.959
Banda	0.750	0.809	0.758	0.738	0.748	0.752	0.602	0.778	0.822	0.751
Barabanki	0.822	1.000	0.841	0.847	0.820	0.826	0.678	0.859	0.806	0.833
Bareilly	0.941	1.000	0.952	0.937	1.000	0.991	0.737	1.000	1.000	0.951
Basti	0.842	0.990	0.954	0.937	0.944	0.945	0.922	0.955	0.983	0.941
Bhadohi	1.000	1.000	1.000	0.958	0.810	0.725	0.539	0.880	0.852	0.863
Bijnor	0.642	0.878	0.750	0.748	0.851	0.849	0.757	0.922	0.906	0.811
Budaun	0.833	0.929	0.814	0.834	0.842	0.869	0.669	0.783	0.852	0.825
Bulandshahr	0.691	0.729	0.809	0.808	0.814	1.000	0.872	0.830	0.793	0.816
Chandauli	1.000	1.000	1.000	0.977	1.000	1.000	0.940	1.000	1.000	0.991
Chitrakoot	1.000	0.819	0.739	0.781	0.845	0.779	1.000	0.839	0.836	0.849
Deoria	0.928	1.000	0.961	0.955	0.946	0.898	0.966	0.868	0.864	0.932
Etah	0.833	0.940	0.825	0.774	0.913	1.000	0.812	0.758	0.724	0.842
Etawah	0.755	0.711	0.547	0.554	0.595	0.593	0.633	0.660	0.683	0.637
Faizabad	0.768	0.788	0.739	0.714	0.794	0.772	0.652	0.740	0.738	0.745
Farrukhabad	0.943	0.919	0.808	0.809	0.784	0.767	0.611	0.813	0.861	0.813
Fatehpur	1.000	0.923	0.856	0.766	0.919	0.806	0.724	0.751	0.741	0.832
Firozabad	0.790	0.947	0.844	0.844	0.844	0.835	0.747	0.861	0.878	0.843

Gautam Buddha Nagar	0.780	0.802	0.857	0.834	0.854	0.862	0.611	1.000	1.000	0.844
Ghaziabad	1.000	1.000	1.000	1.000	1.000	1.000	0.772	1.000	1.000	0.975
Ghazipur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.884	0.905	0.977
Gonda	1.000	1.000	0.961	0.929	0.958	0.948	0.854	0.844	0.852	0.927
Gorakhpur	0.866	0.940	1.000	1.000	0.901	0.926	1.000	0.911	0.852	0.933
Hamirpur	0.684	0.724	0.647	0.638	0.745	0.710	0.709	0.703	0.748	0.701
Hardoi	0.789	0.803	0.829	0.989	0.754	0.782	0.927	0.916	1.000	0.865
Hathras	0.831	0.932	0.963	0.971	0.984	0.951	0.960	0.928	1.000	0.947
Jalaun	0.657	0.736	0.752	0.707	0.739	0.716	0.706	0.782	0.753	0.728
Jaunpur	0.956	1.000	0.952	0.909	0.856	0.892	1.000	0.925	0.962	0.939
Jhansi	0.729	0.779	0.711	0.800	0.850	0.883	0.770	0.941	1.000	0.829
Jyotiba Phule Nagar	0.818	1.000	0.891	0.738	1.000	1.000	1.000	1.000	1.000	0.939
Kannauj	0.980	0.981	1.000	1.000	1.000	1.000	1.000	1.000	0.855	0.980
Kanpur Dehat	0.628	0.696	0.626	0.620	0.634	0.598	0.626	0.603	0.607	0.626
Kanpur Nagar	0.827	0.713	0.743	0.813	0.811	0.824	0.605	1.000	1.000	0.815
Kaushambi	1.000	0.944	0.939	0.894	0.885	0.880	0.671	0.784	0.794	0.866
Kheri	0.891	0.993	0.963	0.969	1.000	1.000	1.000	1.000	0.919	0.971
Kushinagar	1.000	1.000	1.000	0.973	0.936	0.949	0.967	0.874	0.931	0.959
Lalitpur	0.714	0.774	0.729	0.770	0.878	0.798	0.948	0.867	0.902	0.820
Lucknow	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Maharajganj	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.910	0.972	0.987
Mahoba	0.812	0.839	0.848	1.000	0.999	0.935	0.916	0.995	1.000	0.927
Mainpuri	0.714	0.788	0.723	0.703	0.716	0.716	0.743	0.685	0.727	0.724
Mathura	0.703	0.781	0.782	0.826	0.830	0.848	0.742	0.901	0.910	0.814
Mau	1.000	0.974	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.997
Meerut	0.844	0.724	0.768	0.838	0.845	0.847	0.856	1.000	1.000	0.858
Mirzapur	0.933	0.834	0.830	0.814	0.842	0.844	0.828	0.834	0.944	0.856
Moradabad	1.000	0.995	0.940	0.948	0.994	0.974	0.937	1.000	0.904	0.966
Muzaffarnagar	1.000	0.885	0.935	0.931	0.869	0.835	0.748	0.907	0.885	0.888
Pilbhit	0.914	0.939	0.942	0.889	0.914	0.837	0.888	0.890	0.861	0.897
Pratapgarh	0.842	0.847	0.876	0.841	0.896	0.825	0.812	0.839	0.852	0.848
Rae Bareli	0.919	0.855	0.818	0.811	0.855	0.813	1.000	1.000	0.794	0.874
Rampur	0.924	0.939	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.985
Saharanpur	0.786	0.696	0.694	0.667	1.000	1.000	1.000	1.000	0.857	0.856
Sant Kabir Nagar	0.959	1.000	0.975	0.931	0.911	0.919	0.994	0.859	0.834	0.931
Shahjahanpur	0.840	1.000	0.924	0.961	0.900	0.833	0.912	0.835	0.891	0.900
Shrawasti	0.950	1.000	1.000	0.997	0.846	0.775	0.838	0.737	0.840	0.887
Siddharthnagar	1.000	1.000	1.000	1.000	0.999	0.925	0.927	0.918	0.899	0.963
Sitapur	0.925	0.924	0.992	0.974	0.978	0.928	1.000	1.000	0.961	0.965
Sonbhadra	0.791	0.840	0.802	0.821	1.000	0.841	1.000	0.841	0.973	0.879
Sultanpur	0.866	0.850	0.779	0.754	0.777	0.748	0.614	0.842	0.787	0.780
Unnao	0.789	0.817	0.780	0.776	0.887	0.903	0.752	0.828	0.888	0.824
Varanasi	0.762	1.000	1.000	1.000	1.000	0.954	0.553	1.000	0.997	0.918

Average	0.871	0.901	0.876	0.87	0.89	0.874	0.816	0.885	0.884	0.874

A4.16 West Bengal	**TEINP at Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Bankura	0.800	0.738	0.621	0.677	0.834	0.803	1.000	0.786	0.748	0.779
Burdwan	0.808	0.813	0.941	1.000	1.000	1.000	1.000	1.000	1.000	0.951
Birbhum	0.763	0.712	0.796	0.895	1.000	1.000	1.000	1.000	1.000	0.907
Dakshin Dinajpur	1.000	1.000	0.809	1.000	1.000	1.000	1.000	1.000	1.000	0.979
Darjeeling	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Howrah	0.959	1.000	1.000	1.000	1.000	1.000	0.878	1.000	1.000	0.982
Hooghly	0.947	0.830	0.949	0.938	1.000	1.000	0.895	1.000	0.993	0.950
Jalpaiguri	0.937	1.000	0.783	0.833	0.937	0.908	0.946	1.000	0.885	0.914
Cooch Bihar	0.875	1.000	0.808	0.849	0.792	1.000	0.873	1.000	1.000	0.911
Kolkata	1.000	1.000	1.000	1.000	1.000	1.000	0.759	1.000	1.000	0.973
Malda	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Murshidabad	1.000	0.874	0.969	1.000	1.000	1.000	0.984	1.000	1.000	0.981
Nadia	1.000	0.906	0.963	0.950	1.000	1.000	0.807	1.000	0.948	0.953
North Twenty Four Parganas	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Paschim Midnapore	1.000	0.933	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.993
Purba Midnapore	1.000	0.922	1.000	1.000	0.870	1.000	1.000	0.924	0.800	0.946
Purulia	0.807	1.000	0.856	0.781	1.000	1.000	1.000	1.000	0.769	0.913
Siliguri	1.000	1.000	1.000	1.000	1.000	1.000	0.867	0.794	1.000	0.962
South Twenty Four Pargans	1.000	0.849	0.892	1.000	1.000	1.000	1.000	1.000	1.000	0.971
Uttar Dinajpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.945	0.929	0.919	0.946	0.972	0.986	0.95	0.975	0.957	0.953

District wise Input Oriented Technical Efficiency Scores at Upper Primary level of Education

A4.17 Andhra Pradesh	**TEINP at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Adilabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Anantpur	0.948	0.923	0.877	0.864	0.905	0.983	0.868	0.920	0.936	0.914
Chittor	0.880	0.935	0.868	0.875	0.905	1.000	1.000	1.000	1.000	0.940
Cuddapah	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.950	0.930	0.987
East Godavari	0.953	0.961	0.720	0.966	1.000	1.000	0.840	0.897	0.893	0.914
Guntur	0.992	1.000	0.886	1.000	1.000	0.949	0.952	0.880	0.922	0.953
Hyderabad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Karimnagar	0.892	0.890	0.976	0.885	0.956	1.000	0.860	1.000	1.000	0.940
Khammam	0.938	0.989	0.972	0.930	0.950	0.997	0.979	0.909	0.891	0.951
Krishna	0.836	0.883	1.000	0.878	0.986	0.981	0.805	0.908	1.000	0.920
Kurnool	0.770	0.945	0.780	0.960	0.954	0.984	1.000	1.000	1.000	0.933

Mahbubnagar	0.832	0.936	0.976	0.963	0.934	0.922	0.947	0.977	1.000	0.943
Medak	0.926	0.962	1.000	1.000	1.000	0.935	0.977	1.000	0.986	0.976
Nalgonda	1.000	1.000	1.000	0.974	1.000	0.956	0.947	0.974	0.890	0.971
Nellore	0.770	0.852	0.742	0.812	0.836	0.830	1.000	1.000	1.000	0.871
Nizamabad	0.917	0.921	1.000	0.942	0.955	1.000	0.883	0.980	0.988	0.954
Prakasam	0.895	0.915	1.000	0.951	0.941	0.846	0.842	0.880	0.892	0.907
Rangareddi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Srikakulam	0.806	0.844	0.870	0.822	0.812	0.731	0.814	0.946	0.936	0.842
Visakhapatnam	1.000	1.000	1.000	0.977	0.994	0.935	0.893	0.964	0.934	0.966
Vizianagaram	0.875	0.893	0.867	0.893	0.884	0.957	0.922	1.000	0.990	0.920
Warangal	1.000	0.932	0.942	0.953	0.954	0.917	0.875	0.955	1.000	0.948
West Godavari	1.000	1.000	0.916	0.968	0.996	0.901	1.000	0.881	0.912	0.953
Average	0.923	0.947	0.930	0.940	0.955	0.949	0.931	0.957	0.961	0.944

A4.18 Assam	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Baperta	0.995	0.946	0.996	1.000	0.990	1.000	1.000	0.847	0.864	0.960
Bongaigaon	0.972	0.912	1.000	0.983	0.882	0.884	0.873	0.847	0.890	0.916
Cachar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Darrang	0.970	0.921	0.928	0.850	0.846	0.891	0.914	1.000	1.000	0.924
Dhemaji	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Dhubri	0.873	0.893	0.923	1.000	1.000	1.000	1.000	0.947	0.995	0.959
Dibrugarh	0.951	0.856	0.920	0.839	0.822	0.877	0.816	0.894	1.000	0.886
Goalpara	1.000	1.000	1.000	1.000	0.928	0.986	1.000	0.983	1.000	0.989
Golaghat	0.956	0.934	0.920	0.860	0.944	0.878	0.901	0.891	0.936	0.913
Hailakandi	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jorhat	1.000	0.966	0.878	0.795	0.768	0.772	0.726	0.808	0.820	0.837
Kamrup	1.000	1.000	0.948	0.898	0.862	0.997	1.000	1.000	1.000	0.967
Karbi Anglong	1.000	0.903	1.000	1.000	1.000	1.000	1.000	1.000	0.992	0.988
Karimganj	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.996	1.000
Kokrajhar	0.896	0.841	0.981	0.858	0.917	0.956	0.989	0.970	0.954	0.929
Lakhimpur	1.000	1.000	0.898	1.000	0.852	1.000	0.812	0.923	1.000	0.943
Marigaon	0.967	0.880	1.000	0.993	1.000	1.000	1.000	0.875	0.911	0.958
Nagaon	0.949	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.994
Nalbari	1.000	1.000	0.791	0.877	0.897	0.893	1.000	0.993	1.000	0.939
Sibsagar	0.933	0.972	1.000	0.837	0.805	1.000	0.763	0.858	0.862	0.892
Sonitpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Tinsukia	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.976	0.956	0.963	0.945	0.932	0.961	0.945	0.947	0.965	0.954

A4.19 Bihar	TEINP at Upper Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Araria	1.000	1.000	0.941	0.981	1.000	1.000	1.000	1.000	1.000	0.991
Aurangabad (Bihar)	1.000	0.887	0.963	0.986	0.942	1.000	0.930	1.000	1.000	0.968
Banka	1.000	0.888	1.000	1.000	1.000	0.934	1.000	1.000	1.000	0.980
Begusarai	1.000	0.918	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.991
Bhagalpur	1.000	0.733	0.823	0.853	0.895	0.778	0.928	0.963	0.967	0.882
Bhojpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.907	0.990
Buxar	1.000	1.000	1.000	0.926	0.835	0.789	0.927	1.000	1.000	0.942
Darbhanga	1.000	0.983	0.953	0.992	0.948	0.934	0.933	0.901	0.917	0.951
Gaya	1.000	1.000	0.943	1.000	0.962	0.862	1.000	0.933	0.906	0.956
Gopalganj	1.000	0.947	0.944	0.996	0.890	0.777	0.876	0.767	0.742	0.882
Jamui	1.000	0.597	0.801	0.885	0.795	0.923	1.000	1.000	0.962	0.885
Jehanabad	1.000	0.823	0.923	0.983	0.913	1.000	1.000	1.000	1.000	0.960
Kaimur (Bhabua)	1.000	1.000	0.961	0.920	1.000	1.000	1.000	1.000	1.000	0.987
Katihar	1.000	0.941	0.986	1.000	1.000	1.000	0.970	1.000	1.000	0.989
Khagaria	1.000	0.852	1.000	1.000	0.870	0.746	0.959	0.990	0.965	0.931
Kishanganj	1.000	0.966	0.898	1.000	0.882	1.000	0.880	0.908	0.917	0.939
Lakhisarai	1.000	1.000	1.000	1.000	0.947	0.807	1.000	1.000	1.000	0.973
Madhepura	1.000	0.965	0.920	0.946	0.961	0.811	0.927	1.000	1.000	0.948
Madhubani	1.000	0.914	0.863	1.000	1.000	1.000	1.000	1.000	1.000	0.975
Munger	1.000	0.778	0.868	0.864	0.887	0.710	0.985	0.966	0.977	0.893
Muzaffarpur	1.000	0.885	1.000	1.000	1.000	1.000	0.869	0.979	1.000	0.970
Nalanda	1.000	1.000	0.804	0.849	0.947	0.841	0.910	0.803	0.751	0.878
Nawada	1.000	0.921	0.945	0.852	0.992	0.953	0.933	0.914	0.870	0.931
Paschim Champaran	1.000	0.744	0.875	0.812	0.858	0.804	0.850	0.897	0.946	0.865
Patna	1.000	1.000	0.729	0.842	0.824	0.957	0.954	0.902	0.953	0.907
Purba Champaran	1.000	0.840	1.000	1.000	1.000	0.833	0.980	0.998	1.000	0.961
Purnia	1.000	1.000	1.000	1.000	0.951	0.953	0.994	0.954	0.992	0.983
Rohtas	1.000	0.922	0.944	0.985	0.979	0.853	1.000	1.000	1.000	0.965
Saharsa	1.000	0.997	0.854	0.933	0.933	0.798	1.000	0.882	0.847	0.916
Samastipur	1.000	1.000	1.000	1.000	0.995	1.000	1.000	1.000	1.000	0.999
Saran	1.000	0.942	0.848	0.962	0.898	0.824	1.000	0.902	1.000	0.931
Sheikhpura	1.000	0.735	0.872	0.830	0.874	0.787	1.000	0.940	1.000	0.893
Sheohar	1.000	0.826	0.915	0.855	0.892	0.757	1.000	0.962	1.000	0.912
Sitamarhi	1.000	0.667	0.830	0.753	0.819	1.000	0.906	1.000	1.000	0.886
Siwan	1.000	1.000	0.893	0.920	0.858	0.762	0.979	0.819	0.709	0.882
Supaul	1.000	0.807	0.834	0.952	1.000	0.942	1.000	1.000	1.000	0.948
Vaishali	1.000	1.000	1.000	0.937	0.823	1.000	1.000	1.000	0.929	0.965
Average	1.000	0.905	0.922	0.941	0.929	0.896	0.965	0.956	0.953	0.941

A4.20 Gujarat	TEINP at Upper Primary Level									
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Average
Ahmedabad	1.000	0.993	1.000	1.000	1.000	1.000	0.869	1.000	1.000	0.985
Amreli	0.742	0.892	0.668	0.777	0.817	0.668	0.815	0.774	0.750	0.767
Anand	1.000	0.976	0.846	0.985	1.000	1.000	0.974	1.000	1.000	0.976
Banas Kantha	1.000	0.967	0.790	0.838	0.893	1.000	0.918	0.943	0.965	0.924
Bharuch	0.769	1.000	0.797	0.880	0.895	0.873	0.815	1.000	1.000	0.892
Bhavnagar	0.776	1.000	0.968	1.000	1.000	1.000	1.000	1.000	1.000	0.972
Dohad	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Gandhinagar	1.000	0.989	0.807	1.000	0.905	0.817	0.838	1.000	0.845	0.911
Jamnagar	1.000	1.000	1.000	1.000	0.723	1.000	0.728	0.765	0.721	0.882
Junagadh	1.000	1.000	0.908	1.000	0.931	1.000	0.937	0.912	0.841	0.948
Kachchh	1.000	0.752	0.712	0.702	0.694	0.702	0.709	0.733	0.752	0.751
Kheda	0.946	1.000	0.874	1.000	1.000	1.000	1.000	1.000	1.000	0.980
Mahesana	1.000	0.946	1.000	0.940	1.000	0.984	0.893	0.951	0.944	0.962
Narmada	1.000	1.000	1.000	1.000	0.876	0.694	0.823	0.705	0.724	0.869
Navsari	1.000	1.000	1.000	1.000	1.000	1.000	0.934	1.000	1.000	0.993
Panch Mahals	1.000	1.000	1.000	1.000	1.000	1.000	0.945	1.000	1.000	0.994
Patan	0.703	0.951	0.827	1.000	1.000	1.000	1.000	1.000	0.953	0.937
Porbandar	1.000	1.000	1.000	1.000	0.794	0.638	0.744	0.753	0.692	0.847
Rajkot	0.796	0.963	1.000	1.000	0.843	1.000	0.848	1.000	1.000	0.939
Sabar Kantha	1.000	1.000	1.000	1.000	1.000	1.000	0.950	0.988	0.967	0.989
Surat	1.000	1.000	1.000	1.000	1.000	0.986	0.981	1.000	1.000	0.996
Surendranagar	1.000	1.000	0.828	0.822	0.894	0.718	0.836	0.824	0.806	0.859
The Dangs	1.000	1.000	1.000	0.989	1.000	1.000	1.000	0.885	0.911	0.976
Vadodara	1.000	1.000	1.000	0.951	1.000	1.000	0.869	1.000	1.000	0.980
Valsad	1.000	1.000	0.975	1.000	1.000	1.000	1.000	1.000	1.000	0.997
Average	0.949	0.977	0.920	0.955	0.931	0.923	0.897	0.929	0.915	0.933

A4.21 Haryana	TEINP at Upper Primary Level									
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Average
Ambala	1.000	1.000	0.928	0.904	0.949	0.630	0.770	1.000	0.975	0.906
Bhiwani	0.825	0.867	0.825	0.913	1.000	1.000	1.000	1.000	1.000	0.937
Faridabad	0.999	1.000	0.860	0.916	0.998	1.000	0.802	0.831	1.000	0.934
Fatehabad	1.000	1.000	1.000	1.000	0.963	1.000	1.000	0.861	1.000	0.980
Gurgaon	1.000	0.954	1.000	0.974	0.866	1.000	0.623	0.885	1.000	0.922
Hisar	0.738	0.757	0.870	1.000	0.924	0.906	0.819	1.000	1.000	0.890
Jhajjar	1.000	0.876	1.000	0.976	1.000	1.000	1.000	1.000	1.000	0.984
Jind	0.890	0.876	0.994	1.000	0.993	1.000	1.000	1.000	1.000	0.973
Kaithal	1.000	1.000	1.000	1.000	1.000	0.878	0.755	0.834	1.000	0.941
Karnal	0.795	1.000	0.966	1.000	0.942	0.883	0.789	0.899	0.984	0.918
Kurukshetra	0.985	0.799	0.884	0.838	1.000	0.700	0.775	0.849	1.000	0.870

Mahendragarh	0.939	1.000	0.875	0.806	0.851	1.000	0.979	0.892	0.857	0.911
Panchkula	0.729	0.746	0.780	0.854	0.856	0.676	0.954	0.716	0.965	0.808
Panipat	0.792	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.977
Rewari	0.965	1.000	1.000	1.000	0.822	0.689	0.636	0.695	0.968	0.864
Rohtak	0.981	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Sirsa	1.000	1.000	0.962	0.931	1.000	1.000	0.989	1.000	1.000	0.987
Sonipat	1.000	1.000	0.907	0.870	0.836	0.903	0.800	0.814	0.956	0.898
Yamunanagar	1.000	1.000	1.000	1.000	1.000	1.000	0.682	0.863	0.899	0.938
Average	0.928	0.941	0.940	0.946	0.947	0.909	0.862	0.902	0.979	0.928

A4.22 Himachal Pradesh	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Bilaspur (H.P)	0.858	0.798	0.849	0.910	1.000	0.925	0.917	0.910	0.970	0.904
Chamba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Hamirpur (H.P)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kangra	1.000	1.000	0.996	0.995	0.985	1.000	0.878	1.000	1.000	0.984
Kinnaur	1.000	1.000	0.827	0.828	0.837	0.816	1.000	0.901	0.841	0.894
Kullu	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lahul & Spiti	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mandi	0.923	0.838	0.923	1.000	1.000	1.000	0.968	1.000	1.000	0.961
Shimla	0.954	0.956	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.990
Sirmaur	0.991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
Solan	0.937	0.951	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.988
Una	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average	0.972	0.962	0.966	0.978	0.985	0.978	0.98	0.984	0.984	0.977

A4.23 Karnataka	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Bagalkot	1.000	1.000	0.806	0.971	0.932	1.000	0.877	1.000	1.000	0.954
Bangalore	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bangalore Rural	1.000	1.000	1.000	1.000	1.000	0.978	0.898	0.830	0.843	0.950
Balgaum	1.000	1.000	1.000	1.000	1.000	1.000	0.879	0.970	1.000	0.983
Bellary	1.000	1.000	1.000	1.000	0.970	0.911	0.909	0.823	0.884	0.944
Bidar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.777	1.000	0.975
Bijapur	1.000	1.000	0.964	1.000	1.000	1.000	1.000	1.000	1.000	0.996
Chamrajnagar	1.000	0.967	1.000	1.000	1.000	0.900	0.904	0.819	0.768	0.929
Chikmagalur	1.000	0.851	1.000	1.000	1.000	1.000	1.000	1.000	0.617	0.941
Chitradurga	1.000	1.000	1.000	0.983	1.000	0.965	0.965	0.799	0.805	0.946
Dakshina Kannada	1.000	0.933	0.884	1.000	1.000	0.880	0.953	1.000	0.971	0.958
Davangere	1.000	0.845	1.000	0.993	1.000	1.000	1.000	0.806	0.876	0.947

Dharwad	1.000	1.000	0.877	1.000	1.000	1.000	1.000	1.000	1.000	0.986
Gadag	1.000	0.914	1.000	1.000	1.000	1.000	1.000	0.963	1.000	0.986
Gulbarga	1.000	0.991	1.000	1.000	1.000	1.000	0.913	1.000	0.924	0.981
Hassan	1.000	1.000	1.000	1.000	1.000	1.000	0.859	0.748	0.719	0.925
Haveri	1.000	0.842	0.780	0.934	0.870	0.838	0.968	0.800	0.871	0.878
Kodagu	1.000	0.912	0.745	0.973	0.952	0.806	0.921	1.000	1.000	0.923
Kolar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Koppal	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.825	0.843	0.963
Mandya	1.000	0.759	0.934	1.000	0.951	0.866	1.000	1.000	0.787	0.922
Mysore	1.000	1.000	0.912	1.000	1.000	1.000	0.946	1.000	0.931	0.977
Raichur	1.000	1.000	1.000	1.000	0.957	0.969	0.976	0.838	0.956	0.966
Shimoga	1.000	0.871	0.813	1.000	1.000	1.000	0.999	1.000	1.000	0.965
Tumkur	1.000	0.811	0.909	0.995	0.950	0.908	0.912	0.798	0.928	0.912
Udupi	1.000	0.918	0.837	0.917	1.000	0.894	0.898	1.000	0.903	0.930
Uttara Kannada	1.000	0.789	0.740	0.830	0.796	1.000	1.000	1.000	1.000	0.906
Average	1.000	0.941	0.933	0.985	0.977	0.960	0.955	0.918	0.912	0.953

A4.24 Kerala	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Alappuzha	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Ernakulam	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Idukki	1.000	0.818	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.980
Kannur	1.000	0.753	1.000	0.951	0.950	0.991	1.000	1.000	1.000	0.961
Kasaragod	1.000	1.000	0.968	0.963	0.984	1.000	1.000	0.942	0.898	0.973
Kollam	1.000	1.000	1.000	1.000	1.000	0.930	1.000	1.000	1.000	0.992
Kottayam	1.000	0.838	0.999	0.900	0.906	0.954	0.902	0.937	1.000	0.937
Kozhikode	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Malappuram	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Palakkad	1.000	1.000	1.000	1.000	1.000	1.000	0.990	1.000	0.932	0.991
Pathanamthitta	1.000	1.000	0.870	0.898	1.000	0.847	0.745	0.854	0.852	0.896
Thiruvananthapuram	1.000	1.000	1.000	1.000	1.000	1.000	0.828	1.000	1.000	0.981
Thrissur	1.000	1.000	0.963	0.979	1.000	1.000	0.986	0.980	1.000	0.990
Wayanad	1.000	1.000	1.000	0.948	0.973	0.988	1.000	0.972	1.000	0.987
Average	1.000	0.958	0.986	0.974	0.987	0.979	0.961	0.978	0.977	0.978

A4.25 Madhya Pradesh	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Anuppur	0.721	1.000	1.000	1.000	1.000	1.000	0.797	0.887	0.875	0.920
Ashoknagar	1.000	1.000	1.000	1.000	1.000	1.000	0.828	0.878	0.848	0.950
Balaghat	0.843	0.768	0.864	0.831	0.959	1.000	0.940	1.000	1.000	0.912
Barwani	0.925	0.665	0.915	0.927	1.000	1.000	1.000	0.940	0.950	0.925

Betul	0.752	0.740	0.780	0.797	0.850	0.795	0.897	0.854	0.841	0.812
Bhind	1.000	1.000	1.000	1.000	0.911	0.913	0.916	1.000	0.831	0.952
Bhopal	1.000	0.865	0.826	0.878	0.895	0.864	0.692	0.826	0.818	0.852
Burhanpur	1.000	0.828	0.949	1.000	0.964	0.904	0.922	0.902	0.902	0.930
Chhatarpur	0.960	0.952	0.837	0.850	0.944	1.000	0.823	1.000	1.000	0.930
Chhindwara	0.767	0.761	0.791	0.837	0.892	0.847	0.894	0.901	0.909	0.844
Damoh	0.541	0.699	0.796	0.803	0.949	1.000	1.000	0.933	0.969	0.854
Datia	0.933	0.685	0.744	0.857	0.859	0.792	0.910	0.940	0.929	0.850
Dewas	0.811	0.916	0.898	0.915	0.781	0.887	0.770	1.000	0.942	0.880
Dhar	0.696	0.779	1.000	1.000	1.000	1.000	1.000	1.000	0.974	0.939
Dindori	0.809	0.737	0.844	0.833	0.873	0.793	0.944	1.000	0.775	0.845
Guna	1.000	0.860	0.768	0.824	0.854	1.000	0.750	0.823	0.844	0.858
Gwalior	1.000	1.000	1.000	1.000	0.984	1.000	0.972	1.000	0.959	0.991
Harda	1.000	0.902	0.779	0.809	0.761	1.000	1.000	0.885	0.932	0.896
Hoshangabad	0.710	0.702	0.711	0.765	0.800	0.802	0.768	0.865	0.844	0.774
Indore	0.780	1.000	0.906	0.924	1.000	1.000	0.985	1.000	1.000	0.955
Jabalpur	0.671	0.809	0.814	0.795	1.000	0.895	0.832	0.854	0.750	0.824
Jhabua	0.818	0.899	0.891	0.897	1.000	0.957	0.751	0.900	0.930	0.894
Katni	1.000	0.997	0.926	0.851	0.920	0.893	0.917	0.979	0.965	0.939
Khandwa	0.906	0.989	0.963	1.000	1.000	1.000	0.966	0.984	0.931	0.971
Khargone	0.720	0.793	0.797	0.754	0.797	0.866	0.746	0.961	0.954	0.821
Mandla	0.712	0.645	0.746	0.748	0.993	0.763	1.000	1.000	1.000	0.845
Mandsaur	0.751	0.722	0.796	1.000	0.823	0.915	0.854	1.000	1.000	0.873
Morena	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.909	0.990
Narsinghpur	0.576	0.747	0.852	0.956	1.000	1.000	1.000	1.000	1.000	0.903
Neemuch	0.783	0.550	0.745	1.000	1.000	1.000	1.000	1.000	1.000	0.898
Panna	1.000	0.833	0.845	0.780	0.862	0.759	0.893	0.917	0.858	0.861
Raisen	1.000	0.810	0.801	0.734	0.736	0.800	0.801	0.860	0.792	0.815
Rajgarh	0.752	0.841	0.750	0.767	0.795	0.764	0.675	0.855	0.823	0.780
Ratlam	0.641	0.686	0.796	0.787	0.831	0.743	0.786	0.916	0.875	0.785
Rewa	1.000	1.000	0.896	0.916	0.868	0.862	0.749	0.942	0.916	0.905
Sagar	0.862	0.977	0.868	0.829	0.913	1.000	1.000	0.921	0.942	0.924
Satna	1.000	0.689	0.768	0.783	0.848	0.798	0.883	0.944	0.934	0.850
Sehore	1.000	1.000	0.748	0.962	0.894	1.000	1.000	0.875	0.915	0.933
Seoni	0.805	0.683	0.756	0.720	0.786	0.720	0.899	0.873	0.829	0.786
Shahdol	0.872	0.892	0.845	0.867	1.000	0.870	0.902	1.000	1.000	0.916
Shajapur	0.738	0.710	0.731	0.866	0.785	0.778	0.717	0.895	0.865	0.787
Sheopur	0.985	0.862	0.901	0.897	0.963	0.824	1.000	0.928	0.950	0.923
Shivpuri	0.973	0.811	0.812	0.831	1.000	1.000	1.000	1.000	1.000	0.936
Sidhi	1.000	0.776	0.805	0.836	0.862	0.841	1.000	0.901	0.894	0.879
Tikamgarh	0.954	0.832	1.000	0.980	1.000	0.926	1.000	1.000	1.000	0.966
Ujjain	0.615	0.676	0.754	0.780	0.771	0.842	0.876	0.914	0.871	0.789

Umaria	0.955	0.696	1.000	1.000	0.811	0.796	1.000	0.952	1.000	0.912
Vidisha	0.899	0.822	0.779	0.739	0.783	0.840	0.962	0.930	0.926	0.853
Average	0.859	0.825	0.850	0.873	0.902	0.897	0.896	0.936	0.916	0.884

A4.26 Maharashtra	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Ahmadnagar	1.000	1.000	0.869	0.844	0.822	1.000	1.000	0.972	0.991	0.944
Akola	1.000	0.713	1.000	0.895	0.848	0.921	1.000	0.883	0.881	0.905
Amravati	1.000	1.000	0.941	0.846	0.975	0.867	1.000	1.000	1.000	0.959
Aurangabad (MH)	1.000	0.817	0.840	0.988	0.925	1.000	1.000	0.866	0.936	0.930
Bhandara	1.000	0.861	0.860	0.893	0.876	0.911	1.000	1.000	1.000	0.933
Bid	1.000	0.911	1.000	0.968	0.944	1.000	1.000	1.000	1.000	0.980
Buldana	1.000	0.851	0.957	1.000	0.951	0.925	1.000	1.000	1.000	0.965
Chandrapur	1.000	0.681	0.683	0.661	0.669	0.689	0.711	0.776	0.789	0.740
Dhule	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Gadchiroli	1.000	0.889	0.864	0.785	0.824	0.894	0.794	0.876	1.000	0.881
Gondiya	1.000	0.919	0.832	0.790	0.832	0.779	0.918	0.928	0.905	0.878
Hingoli	1.000	0.780	1.000	1.000	1.000	1.000	1.000	1.000	0.874	0.962
Jalgaon	1.000	0.914	0.998	0.965	0.945	1.000	0.935	1.000	1.000	0.973
Jalna	1.000	0.720	0.956	0.869	0.940	0.960	0.951	0.897	0.905	0.911
Kolhapur	1.000	1.000	1.000	0.815	0.923	0.941	0.756	1.000	1.000	0.937
Latur	1.000	1.000	1.000	1.000	1.000	0.989	1.000	1.000	1.000	0.999
Mumbai	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mumbai (Suburban)	1.000	1.000	1.000	0.871	0.696	1.000	1.000	1.000	1.000	0.952
Nagpur	1.000	1.000	0.923	0.908	0.915	0.929	0.806	1.000	1.000	0.942
Nanded	1.000	0.944	0.804	0.787	0.849	0.808	0.743	0.815	0.834	0.843
Nandurbar	1.000	0.989	1.000	1.000	0.968	0.958	0.942	1.000	0.876	0.970
Nashik	1.000	0.768	0.940	0.874	0.947	1.000	1.000	1.000	1.000	0.948
Osmanabad	1.000	0.673	1.000	1.000	1.000	1.000	1.000	1.000	0.845	0.946
Parbhani	1.000	0.631	0.864	0.910	0.836	0.806	0.824	0.834	0.859	0.840
Pune	1.000	0.970	0.895	0.947	0.679	0.739	0.590	0.860	1.000	0.853
Raigarh (MH)	1.000	0.679	0.777	0.729	0.774	0.753	0.755	0.784	0.805	0.784
Ratnagiri	1.000	0.862	0.792	0.701	0.733	0.741	0.753	1.000	0.770	0.817
Sangli	1.000	0.728	0.744	0.759	0.852	0.835	1.000	1.000	1.000	0.880
Satara	1.000	0.711	0.763	0.765	0.766	0.781	0.842	0.837	0.969	0.826
Sindhudurg	1.000	1.000	0.832	0.694	0.669	0.816	0.985	1.000	1.000	0.888
Solapur	1.000	0.968	0.868	0.838	0.842	0.868	0.806	0.988	1.000	0.909
Thane	1.000	0.975	0.733	0.860	0.791	1.000	1.000	0.887	0.904	0.906
Wardha	1.000	0.892	0.796	0.771	0.922	0.774	0.966	0.964	1.000	0.898
Washim	1.000	0.785	0.942	0.947	1.000	0.864	1.000	1.000	1.000	0.949
Yavatmal	1.000	0.899	0.776	0.741	0.782	0.868	0.765	0.966	0.940	0.860
Average	1.000	0.872	0.893	0.869	0.871	0.898	0.910	0.947	0.945	0.912

A4.27 Orissa	TEINP at Upper Primary Level									
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Average
Angul	1.000	0.905	0.884	0.944	0.924	0.944	0.832	1.000	1.000	0.937
Balasore	1.000	1.000	1.000	1.000	0.957	1.000	0.911	0.883	0.862	0.957
Bargarh	0.631	1.000	0.926	0.915	0.927	0.791	0.844	1.000	0.868	0.878
Bhadrak	0.945	0.929	1.000	1.000	1.000	0.977	1.000	0.931	1.000	0.976
Bolangir	0.948	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.958	0.990
Boudh	0.986	0.894	0.855	0.971	1.000	1.000	1.000	1.000	1.000	0.967
Cuttack	0.622	1.000	0.989	1.000	1.000	0.997	0.911	0.877	1.000	0.933
Deogarh	0.734	0.602	0.880	0.993	1.000	1.000	1.000	0.956	1.000	0.907
Dhenkanal	0.874	0.918	0.918	0.954	0.862	0.916	0.736	0.843	0.802	0.869
Gajapati	1.000	0.794	0.780	0.858	0.879	0.873	0.952	1.000	1.000	0.904
Ganjam	0.720	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.969
Jagatsinghpur	0.827	0.859	0.949	1.000	0.874	0.833	0.849	0.950	0.963	0.900
Jajpur	0.974	1.000	0.955	1.000	0.903	0.985	0.801	0.882	0.830	0.926
Jharsuguda	1.000	0.788	0.910	0.959	1.000	1.000	0.981	1.000	1.000	0.960
Kalahandi	0.783	0.971	1.000	1.000	0.984	1.000	1.000	1.000	1.000	0.971
Kandhamal	1.000	1.000	0.859	0.801	0.803	0.841	1.000	1.000	0.736	0.893
Kendrapara	0.604	0.877	0.978	0.992	0.886	0.799	0.802	0.793	0.903	0.848
Keonjhar	0.774	0.685	0.787	0.921	0.874	0.993	0.851	0.901	0.967	0.861
Khordha	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998
Koraput	1.000	1.000	1.000	1.000	0.969	0.934	0.867	1.000	0.938	0.968
Malkangiri	1.000	1.000	0.918	0.958	0.889	0.995	1.000	1.000	0.948	0.968
Mayurbhanj	1.000	0.647	0.892	0.836	0.848	1.000	0.849	1.000	1.000	0.897
Nawarangapur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.990	0.999
Nayagarh	0.699	0.913	0.891	0.892	0.896	0.880	0.843	0.818	0.895	0.859
Nuapada	0.905	0.704	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.956
Puri	0.607	0.949	1.000	0.907	0.838	0.786	0.684	0.743	0.762	0.808
Rayagada	0.918	1.000	0.907	1.000	0.854	0.968	1.000	1.000	1.000	0.961
Sambalpur	0.707	0.858	0.875	0.877	1.000	1.000	1.000	1.000	1.000	0.924
Sonepur	0.810	1.000	1.000	1.000	1.000	0.906	1.000	0.919	0.808	0.938
Sundargarh	0.751	1.000	1.000	1.000	1.000	1.000	0.991	1.000	1.000	0.971
Average	0.860	0.910	0.938	0.959	0.939	0.947	0.924	0.950	0.941	0.930

A4.28 Punjab	TEINP at Upper Primary Level									
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Average
Amritsar	0.974	1.000	1.000	1.000	1.000	1.000	0.981	1.000	1.000	0.995
Bathinda	1.000	1.000	1.000	1.000	1.000	0.923	1.000	1.000	1.000	0.991
Faridkot	1.000	1.000	1.000	1.000	1.000	1.000	0.885	1.000	1.000	0.987
Fatehgarh Sahib	0.858	0.842	1.000	0.945	1.000	0.841	0.796	1.000	0.880	0.907
Ferozepur	0.859	0.916	0.904	0.942	0.974	1.000	1.000	1.000	1.000	0.955

Gurdaspur	1.000	0.923	0.970	0.938	1.000	1.000	1.000	1.000	1.000	0.981
Hoshiarpur	1.000	1.000	1.000	1.000	1.000	0.769	0.796	1.000	0.985	0.950
Jalandhar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Kapurthala	0.959	1.000	1.000	1.000	0.932	0.943	0.929	1.000	0.931	0.966
Ludhiana	0.970	0.955	0.877	1.000	1.000	1.000	1.000	1.000	1.000	0.978
Mansa	0.929	1.000	1.000	0.951	0.964	0.944	1.000	1.000	1.000	0.976
Moga	1.000	0.996	1.000	1.000	1.000	1.000	1.000	0.960	0.982	0.993
Muktsar	1.000	1.000	0.958	0.945	0.973	0.883	0.740	1.000	0.957	0.940
Nawanshahr	0.977	1.000	1.000	1.000	1.000	0.837	0.951	1.000	1.000	0.974
Patiala	0.828	1.000	1.000	1.000	1.000	1.000	0.899	1.000	1.000	0.970
Ropar	0.894	1.000	0.985	0.979	1.000	0.987	1.000	1.000	0.934	0.975
Sangrur	0.868	1.000	0.925	0.954	1.000	1.000	1.000	1.000	0.980	0.970
Average	0.948	0.978	0.978	0.980	0.991	0.949	0.940	0.998	0.979	0.971

A4.29 Rajasthan	**TEINP at Upper Primary Level**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Ajmer	0.898	0.999	0.973	1.000	1.000	1.000	0.890	1.000	1.000	0.973
Alwar	0.882	0.897	0.918	0.924	0.894	1.000	1.000	1.000	1.000	0.946
Banswara	1.000	1.000	0.946	0.959	0.991	1.000	1.000	1.000	1.000	0.988
Baran	0.745	0.958	0.930	0.918	0.960	0.978	1.000	1.000	1.000	0.943
Barmer	0.672	0.984	0.991	1.000	1.000	1.000	1.000	1.000	1.000	0.961
Bharatpur	0.844	1.000	0.926	1.000	0.967	0.966	0.953	0.932	0.949	0.949
Bhilwara	1.000	0.946	0.955	0.940	0.944	0.968	0.959	0.962	0.955	0.959
Bikaner	1.000	0.956	0.954	0.971	0.920	0.935	0.875	0.914	0.903	0.936
Bundi	1.000	0.969	0.953	0.916	0.986	0.964	0.981	0.945	0.974	0.965
Chittaurgarh	1.000	1.000	0.905	0.936	0.954	0.965	0.943	0.931	0.910	0.949
Churu	1.000	0.941	0.934	0.974	0.923	0.965	0.927	0.915	0.930	0.945
Dausa	1.000	1.000	1.000	1.000	0.911	0.977	0.963	1.000	1.000	0.983
Dhaulpur	0.796	0.969	1.000	1.000	1.000	1.000	1.000	0.999	1.000	0.974
Dungarpur	1.000	0.978	0.943	0.931	0.955	1.000	1.000	1.000	1.000	0.979
Ganganagar	1.000	1.000	0.925	1.000	1.000	1.000	0.875	0.975	1.000	0.975
Hanumangarh	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Jaipur	0.723	1.000	1.000	0.974	1.000	1.000	0.882	1.000	1.000	0.953
Jaisalmer	0.487	0.897	1.000	0.941	0.955	0.961	1.000	1.000	1.000	0.916
Jalor	1.000	0.963	0.965	0.985	0.953	1.000	0.941	0.987	0.960	0.973
Jhalawar	0.810	0.895	0.920	0.905	0.936	0.952	1.000	0.951	0.995	0.929
Jhunjhunun	1.000	1.000	1.000	1.000	1.000	0.992	0.915	1.000	1.000	0.990
Jodhpur	1.000	1.000	1.000	1.000	1.000	1.000	0.960	0.972	0.963	0.988
Karauli	0.782	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.976
Kota	1.000	0.985	0.979	0.919	0.979	1.000	0.930	1.000	1.000	0.977
Nagaur	0.740	1.000	0.972	0.923	0.915	1.000	0.884	0.974	0.982	0.932
Pali	0.827	0.913	0.932	0.904	0.926	0.965	1.000	0.951	0.977	0.933
Rajsamand	1.000	0.909	0.935	0.905	0.928	0.987	0.951	0.954	0.936	0.945

Sawai Madhopur	0.762	0.869	0.910	0.909	0.933	0.913	0.867	0.889	0.938	0.888
Sikar	1.000	1.000	1.000	1.000	0.941	1.000	0.853	0.958	0.986	0.971
Sirohi	1.000	1.000	1.000	1.000	1.000	0.955	1.000	0.922	0.921	0.978
Tonk	0.838	0.922	0.964	0.905	0.875	0.916	0.901	0.921	0.932	0.908
Udaipur	1.000	0.995	0.998	1.000	1.000	1.000	1.000	1.000	1.000	0.999
Average	0.900	0.967	0.963	0.961	0.961	0.980	0.952	0.970	0.975	0.959

A4.30 Tamil Nadu	**TEINP at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Chennai	0.568	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952
Coimbatore	0.718	1.000	1.000	0.968	1.000	1.000	0.959	1.000	1.000	0.961
Cuddalore	0.784	1.000	1.000	1.000	0.762	0.666	0.849	0.594	0.633	0.810
Dharamapuri	0.747	1.000	1.000	0.778	1.000	0.728	0.729	0.876	1.000	0.873
Dindigul	0.575	1.000	1.000	0.935	0.964	0.858	0.922	0.728	0.767	0.861
Erode	0.700	1.000	1.000	0.812	1.000	0.826	0.787	1.000	1.000	0.903
Kancheepuram	0.684	1.000	1.000	0.901	0.845	0.724	0.662	0.618	0.636	0.786
Kanniyakumari	0.788	0.860	0.924	0.929	0.805	0.784	1.000	0.623	0.690	0.823
Karur	1.000	0.881	0.987	0.959	0.932	0.759	1.000	0.677	0.609	0.867
Krishanagari	0.915	1.000	1.000	1.000	0.753	0.757	1.000	0.605	0.657	0.854
Madurai	0.739	0.951	1.000	1.000	1.000	1.000	1.000	0.775	0.983	0.939
Nagapattinam	0.828	0.980	0.917	1.000	0.893	0.782	1.000	0.835	0.650	0.876
Namakkal	1.000	1.000	1.000	1.000	0.766	0.810	0.940	0.573	0.607	0.855
Perambalur	1.000	1.000	1.000	1.000	1.000	0.778	0.915	1.000	1.000	0.966
Pudukkottai	0.702	0.946	0.932	0.911	0.724	0.671	0.794	0.612	0.668	0.773
Ramanathapuram	1.000	1.000	0.864	0.920	0.728	0.676	0.654	0.639	0.703	0.798
Salem	0.556	1.000	1.000	0.819	1.000	0.975	0.931	0.851	0.634	0.863
Sivaganga	1.000	0.951	1.000	0.922	0.733	0.642	0.908	0.629	0.714	0.833
Thanjavur	1.000	0.927	0.997	0.906	0.820	0.669	0.849	0.620	0.645	0.826
The Nilgiris	0.778	0.877	1.000	0.943	0.756	0.759	1.000	0.723	0.702	0.838
Theni	0.755	1.000	1.000	0.969	1.000	1.000	1.000	0.832	0.891	0.939
Thiruvallur	0.637	0.906	0.988	0.981	1.000	1.000	1.000	1.000	1.000	0.946
Thiruvarur	1.000	1.000	0.944	1.000	0.735	0.635	0.635	0.601	0.641	0.799
Thoothukkudi	1.000	0.997	1.000	1.000	0.991	0.899	1.000	0.991	0.986	0.985
Tiruchirappalli	0.803	0.984	1.000	0.958	0.869	0.928	1.000	0.723	0.762	0.892
Tirunelveli	0.975	1.000	1.000	1.000	1.000	1.000	1.000	0.868	0.914	0.973
Tiruvannamalai	0.773	0.957	0.957	0.923	0.632	0.600	0.536	0.599	0.619	0.733
Vellore	0.681	1.000	1.000	1.000	0.940	0.841	1.000	0.632	0.668	0.862
Vilippuram	0.701	0.967	1.000	0.941	0.652	0.596	0.537	0.607	0.631	0.737
Virudhunagar	0.983	1.000	1.000	1.000	0.928	0.844	1.000	0.791	0.848	0.933
Average	0.813	0.973	0.984	0.949	0.874	0.807	0.887	0.754	0.775	0.868

A4.31 Uttar Pradesh	TEINP at Upper Primary Level									Average
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	
Agra	0.952	0.830	0.589	0.795	0.862	0.890	0.674	1.000	1.000	0.844
Aligarh	0.781	0.753	0.591	0.810	0.728	0.771	0.624	0.644	0.668	0.708
Allahabad	0.749	0.654	0.690	0.940	0.725	0.826	0.600	0.748	0.764	0.744
Ambedkar Nagar	1.000	0.793	0.743	0.917	0.871	0.816	0.872	0.691	0.673	0.820
Auraiya	1.000	0.777	0.822	0.820	0.732	0.715	0.794	0.839	1.000	0.833
Azamgarh	1.000	0.867	0.662	0.946	0.855	0.964	0.818	0.854	0.836	0.867
Baghpat	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bahraich	0.782	0.749	0.589	0.868	0.783	0.980	0.833	0.999	1.000	0.843
Ballia	1.000	0.849	0.819	0.825	0.828	0.921	0.860	0.829	0.854	0.865
Balarampur	0.793	0.707	0.408	0.801	0.770	0.870	0.833	0.727	0.800	0.745
Banda	0.692	0.726	0.693	0.769	0.769	0.742	0.938	0.785	0.864	0.775
Barabanki	0.884	0.770	0.693	0.760	0.702	0.744	0.747	0.723	0.717	0.749
Bareilly	0.850	0.701	0.550	0.844	0.833	0.861	0.664	0.797	0.802	0.767
Basti	0.865	0.985	0.834	0.983	0.809	0.901	0.873	0.726	0.841	0.869
Bhadohi	0.849	0.814	0.752	0.813	0.734	0.853	0.839	0.626	0.741	0.780
Bijnor	0.718	0.770	0.729	1.000	0.847	1.000	0.969	1.000	1.000	0.893
Budaun	0.677	0.885	0.609	0.865	0.833	0.831	0.923	0.807	0.789	0.802
Bulandshahr	0.714	0.701	0.700	0.788	0.785	0.808	0.685	0.769	0.748	0.744
Chandauli	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Chitrakoot	1.000	0.753	0.515	0.861	0.847	0.809	1.000	0.779	0.770	0.815
Deoria	1.000	0.826	0.651	0.831	0.790	0.927	0.734	0.798	0.731	0.810
Etah	0.496	0.690	0.896	0.717	0.949	1.000	0.697	0.680	0.672	0.755
Etawah	1.000	0.784	0.703	0.746	0.715	0.702	0.692	1.000	0.700	0.782
Faizabad	0.839	0.762	0.790	0.881	0.759	0.770	0.689	0.721	0.708	0.769
Farrukhabad	0.849	0.810	0.632	0.749	0.741	0.697	0.659	0.707	0.701	0.727
Fatehpur	1.000	0.840	0.849	0.799	0.754	0.956	0.730	0.965	1.000	0.877
Firozabad	0.811	0.748	0.751	0.766	0.719	0.799	0.604	0.776	0.747	0.747
Gautam Buddha Nagar	0.896	0.721	0.483	0.686	0.755	0.783	0.590	0.685	0.720	0.702
Ghaziabad	1.000	1.000	0.821	1.000	0.944	1.000	0.536	0.995	1.000	0.922
Ghazipur	1.000	1.000	1.000	1.000	0.899	1.000	0.833	1.000	1.000	0.970
Gonda	1.000	0.734	0.588	0.738	0.693	0.738	0.663	0.620	0.673	0.716
Gorakhpur	0.875	1.000	1.000	0.920	0.922	0.938	0.679	0.759	0.750	0.871
Hamirpur	0.795	0.723	0.593	0.800	0.830	0.796	1.000	0.665	0.708	0.768
Hardoi	0.833	1.000	1.000	1.000	0.885	1.000	1.000	1.000	1.000	0.969
Hathras	1.000	0.962	1.000	0.940	0.938	0.946	1.000	1.000	0.834	0.958
Jalaun	0.895	0.610	0.625	0.749	0.703	0.773	0.672	0.891	0.875	0.755
Jaunpur	1.000	1.000	1.000	0.918	0.861	0.950	0.844	1.000	0.932	0.945
Jhansi	0.774	0.693	0.715	0.854	0.868	0.900	0.800	0.817	0.878	0.811
Jyotiba Phule Nagar	0.929	0.740	0.725	0.675	1.000	1.000	1.000	1.000	1.000	0.897
Kannauj	0.849	0.861	0.983	1.000	1.000	0.908	1.000	0.871	0.744	0.913
Kanpur Dehat	0.731	0.777	0.556	0.696	0.640	0.750	0.652	0.642	0.639	0.676

Kanpur Nagar	0.961	0.892	1.000	0.915	0.780	0.935	0.591	0.811	0.710	0.844
Kaushambi	0.668	0.707	0.480	0.795	0.763	0.765	0.665	0.707	0.698	0.694
Kheri	0.891	0.899	0.823	0.995	0.989	0.984	1.000	0.971	1.000	0.950
Kushinagar	0.992	1.000	1.000	0.823	0.736	0.845	0.625	0.655	0.723	0.822
Lalitpur	0.742	0.676	0.314	0.797	0.862	0.834	1.000	0.739	0.801	0.752
Lucknow	1.000	0.970	0.961	1.000	0.936	1.000	0.909	1.000	1.000	0.975
Maharajganj	0.879	1.000	1.000	0.775	0.772	0.979	0.769	0.667	0.804	0.849
Mahoba	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mainpuri	0.705	0.716	0.456	0.771	0.746	0.823	0.672	0.784	0.764	0.715
Mathura	0.713	0.636	0.522	0.775	0.821	0.762	0.679	0.720	0.734	0.707
Mau	0.837	0.932	1.000	0.989	0.853	1.000	0.950	1.000	1.000	0.951
Meerut	0.737	0.666	0.669	0.793	0.745	0.883	0.598	0.747	0.763	0.733
Mirzapur	1.000	0.809	0.619	1.000	1.000	0.959	1.000	0.902	0.861	0.906
Moradabad	0.934	0.564	0.649	0.782	0.637	0.759	0.605	0.986	0.784	0.744
Muzaffarnagar	1.000	0.984	0.960	0.996	0.951	0.865	0.762	0.958	0.708	0.909
Pilbhit	0.781	0.874	0.795	0.934	0.879	0.862	0.880	0.936	1.000	0.882
Pratapgarh	1.000	1.000	1.000	1.000	1.000	1.000	0.838	1.000	1.000	0.982
Rae Bareli	0.866	1.000	1.000	0.953	1.000	1.000	1.000	1.000	1.000	0.980
Rampur	1.000	0.778	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.975
Saharanpur	0.782	0.708	0.838	0.777	0.719	0.906	0.751	0.776	0.757	0.779
Sant Kabir Nagar	0.877	0.885	0.658	0.864	0.746	0.921	1.000	0.846	0.828	0.847
Shahjahanpur	0.833	0.765	0.605	0.843	0.756	0.876	0.771	0.795	0.837	0.787
Shrawasti	0.830	0.805	0.494	0.835	0.747	0.927	0.871	0.621	0.835	0.774
Siddharthnagar	0.616	0.669	0.489	0.822	0.793	0.882	0.846	0.849	0.899	0.763
Sitapur	0.833	0.917	0.700	1.000	1.000	1.000	1.000	0.882	0.964	0.922
Sonbhadra	0.857	0.840	0.732	0.924	0.900	0.812	1.000	0.793	0.794	0.850
Sultanpur	0.907	0.905	0.757	0.848	0.773	0.855	0.837	0.847	0.872	0.845
Unnao	0.833	0.868	0.616	0.943	0.854	0.844	0.725	0.720	0.695	0.789
Varanasi	1.000	0.997	0.822	1.000	1.000	1.000	0.736	0.611	0.660	0.870
Average	0.871	0.826	0.747	0.869	0.835	0.884	0.810	0.832	0.834	0.834

A4.32 West Bengal	**TEINP at Upper Primary Level**									**Average**
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	
Bankura	0.945	1.000	0.892	0.311	1.000	1.000	0.933	0.897	0.965	0.883
Burdwan	1.000	0.927	1.000	1.000	1.000	1.000	0.980	1.000	1.000	0.990
Birbhum	0.913	0.843	0.809	0.500	1.000	1.000	1.000	0.932	0.971	0.885
Dakshin Dinajpur	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.986	0.991	0.997
Darjeeling	0.751	0.725	0.642	0.200	0.893	0.878	1.000	0.936	0.990	0.779
Howrah	0.870	1.000	1.000	0.511	1.000	1.000	1.000	0.965	1.000	0.927
Hooghly	0.868	0.888	0.908	0.471	1.000	1.000	1.000	1.000	1.000	0.904
Jalpaiguri	1.000	1.000	0.899	0.333	1.000	1.000	1.000	1.000	1.000	0.915
Cooch Bihar	0.932	0.937	0.755	0.333	1.000	1.000	0.974	1.000	1.000	0.881
Kolkata	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Malda	1.000	0.870	0.846	1.000	1.000	1.000	1.000	1.000	1.000	0.968
Murshidabad	1.000	0.882	0.913	0.500	1.000	1.000	1.000	0.910	1.000	0.912
Nadia	1.000	1.000	1.000	0.500	1.000	1.000	0.942	1.000	0.990	0.937
North Twenty Four Parganas	1.000	1.000	1.000	1.000	1.000	1.000	0.947	1.000	1.000	0.994
Paschim Midnapore	0.807	0.898	1.000	0.952	1.000	1.000	0.921	1.000	0.977	0.951
Purba Midnapore	0.991	1.000	1.000	1.000	1.000	1.000	0.935	0.906	0.955	0.976
Purulia	0.740	0.900	0.735	0.250	1.000	1.000	0.927	0.898	0.980	0.826
Siliguri	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
South Twenty Four Pargans	0.787	0.845	0.788	0.333	1.000	1.000	1.000	0.950	1.000	0.856
Uttar Dinajpur	0.734	0.928	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.962
Average	0.917	0.932	0.909	0.660	0.995	0.994	0.978	0.969	0.991	0.927

A4.33	**Mean TEINP at Primary and Upper Primary Levels over Different Years**									
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**Average**
Primary Level	0.922	0.887	0.926	0.918	0.924	0.913	0.933	0.903	0.904	0.914
Upper Primary Level	0.932	0.929	0.926	0.924	0.938	0.932	0.925	0.933	0.938	0.931

Chapter 5

The Analysis of Productivity

5.1 Introduction

Country's economic growth depends on education. Education is one of the most important inputs in human resource development. In-spite of several major indicators of socio-economic development, literacy rate or any other indicator relating to the education sector has a significant impact on others. Different studies have shown that moderately high level of indicators relating to education (for eg. school-enrolment rates) dampens the negative effect of health indicators, i.e. it lowers fertility rates, infant mortality rate (IMR) and increases the rate of life expectancy. Endogenous growth literature (Lucas (1988)) has explained the importance of human capital. Barro (1991) showed that the simple correlation between per capita GDP and growth rate is negative unless an amount of human capital (proxied by school enrolment rates) is incorporated. Augmented Solow model developed by Mankiw et al. (1992) has suggested the simple extension of the Solow model by considering human capital. It predicts that, other things being remain equal, a country with high amount of human capital should have a higher level of per capita income.

Education may be looked upon as a human capital and thereby it is an important determinant of productivity growth. The theory of human capital suggests that the human capital constitutes one of the significant explanatory factors of economic growth by enhancing the quality of labour force and thereby boosting its productive ability. In neo-classical model the education is considered as an additional productive factor (Mankiw (1995)). But the role of education is not limited as physical capital. A country with more human capital tends to grow faster compared to others (Nelson and Phelps (1966)). Education facilitates the skill of a country to adopt, incorporate and apply recent and advanced technologies from other nations and thereafter assesses the capability of a country to innovate locally. There is an example of the model which states that the increase in the initial stock of human capital tends to raise the ratio of physical investment to GDP (Romer (1990)). It is one of the most important driving forces of sustained growth in the endogenous growth theory due to spillover effects that negate diminishing returns in production (Lucas (1988), Romer (1990)). Self and Grabowski (2004) have showed that the primary education is the main casual force in economic growth in case of India.

This recognition has created awareness to focus on the elementary education not only because of social justice, but to foster economic growth, social stability and social well-being. One may expect positive relations between economic growth and growth in education. For the sustenance of growth of education sector, whether it is exhibiting productivity growth or not is a major question. In this

context the use of partial productivity of different inputs used under the production process will not be of much use. What is essential is the estimate of total factor productivity growth (TFPG). TFPG is a complete estimate of productivity that relates output to all the factor inputs used in the production process. It is an idea encompassing the effect not only of technical development but also better utilisation of capabilities, learning by doing and improved skill of labour etc. (Dension (1962), (1967), (1985)). It quantifies the measure of increment in absolute output, which is not occurred due to the expansion in complete inputs. Thus the increase in total output is the result of changes in the production function over the years, keeping the level of inputs as fixed. Under these scenarios, the measurement of TFPG of elementary education sector and the identification of the factors underlying this movement are required.

The present chapter addresses this issue considering primary and upper primary levels of education in the Indian context. For removal of socio-economic backwardness of the country and balanced development of the states, district wise state level intervention is needed. Thus district wise analysis of total factor productivity growth at the major selected state level will be helpful to identify the low performer states/districts and appropriate measures can be taken for enhancing of less productive states/districts.

There is a considerable amount of literature explaining the estimation of TFPG of education sector around the globe. The study of literature depicts that the study on TFPG of elementary education in the Indian context has not been much given importance.

The study of literature on TFPG reveals that there is a dearth of literature dealing with the analysis of TFPG of elementary education in Indian context which has already been discussed in chapter 2.

The present study addresses these issues and estimates total factor productivity growth of elementary education sector in Indian context over the period from 2005-06 to 2013-14 by using the nonparametric DEA method. The major advantage of using DEA has been discussed in chapter 3. The contributions of this study to the literature are the following: (i) district wise total factor productivity of different states of India are estimated using the Malmquist Productivity Index (MPI) introduced by Caves, Christensen and Diewert (1982), (ii) the present study intends to compare the performance of TFPG of primary and upper primary levels of education by considering variable returns to scale and (iii) the decomposition of productivity growth into technical efficiency change, technical change and scale efficiency change has been performed by adopting the method that followed by Ray and Desli (1997). This work may be an answer to the question about the movement of these respective components. After obtaining MPI score, the second

stage panel regression has been conducted to identify the determinants of the estimated productivity score.

The rest of the paper is organised in the following manner: Section 5.2 discusses the methodology for the measurement of TFPG using the nonparametric DEA technique and decomposition of TFPG into the components of technical efficiency change, technical change and scale efficiency change. Description of data is also presented in section 5.2. Section 5.3 presents the empirical findings. Section 5.4 gives the description of the factors responsible for the variation of TFPG of elementary education in India. Summary outcomes and few policy prescriptions to improve the productivity performance of elementary education sector in India are presented in the concluding part 5.5.

5.2 Methodology and Data Sources

5.2.1 Estimation of Total Factor Productivity Growth

The MPI, as proposed by Caves, Christensen and Diewert (1982) is defined with the help of distance functions which allow one to describe multi-input, multi-output production technology without involving explicit price data and behavioural assumptions (such as cost minimization or profit maximization). One may consider output or input oriented distance functions. The output oriented distance function measures the extent to which the output vector may be proportionately expanded with the input vector held fixed. On the other hand input distance function measures the extent to which the input vector may be proportionately contracted given the output vector. The assumptions are the following: both input and output are freely disposable and the production possibility set (PPS) is convex and the actually observed input-output combinations are feasible.

Productivity of a firm is estimated using the amount of output produced per unit of input. In case of one input one output framework, productivity is the ratio of the firm's output and the input quantities.

Suppose in period 0 using input x_0, a firm produces output y_0. Therefore average productivity is

$$\prod_0 = y_0/x_0$$

Similarly in period 1, y_1 amount of output is obtained from x_1 amount of input, the average productivity is given by

$$\prod_1 = y_1/x_1$$

Now the Productivity Index which represents how the productivity of the firm has changed from its base period is as follows

$$\bar{\prod} = \prod_1 / \prod_0 = y_1/x_1 \times x_0/y_0$$

Difference in the growth rates of output and input amounts defines the concept of the rate of productivity growth.Considering multiple input-output frameworks, instead of simple ratios a ratio of quantity indexes of output and input is considered. Hence index of multifactor productivity (MFP) is given by

$\bar{\prod} = \prod_1 / \prod_0$ =Qy/Qx, here where Qy and Qx represent output and input quantity indexes of the firm in period 1 with period 0 as base. Various measures of the multifactor productivity index are available in the literature.

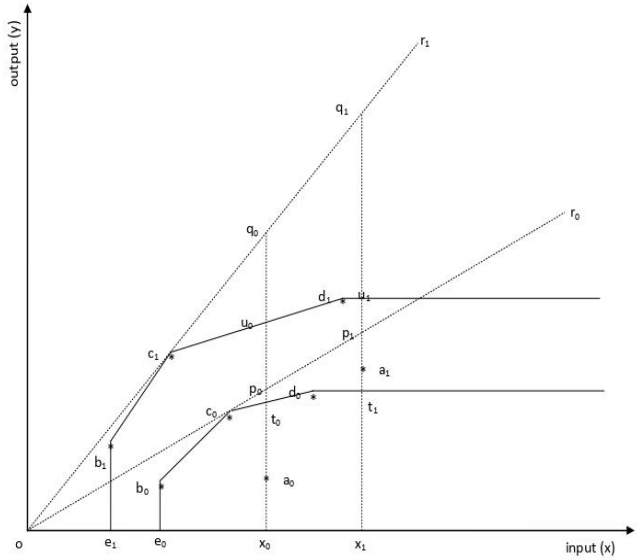
MPI can be decomposed either by parametrically or nonparametrically. In parametric analysis, specification of some functional form is required. In nonparametric analysis, exact specification of functional form is not needed. Following is the method of decomposition of MPI nonparametrically.

Suppose there is four firms viz. a, b, c and d. In Figure 5.1, at the two time points 0 and 1 the input-output levels of the firms are represented by respectively (a_0, b_0, c_0 and d_0) and (a_1, b_1, c_1 and d_1) .

Thus, the productivity index for firm ‘a’ in period 1 is

$$\prod_{a1} = \frac{a_1 x_1 / ox_1}{a_0 x_0 / ox_0}$$

Figure 5.1: Measurement and Decomposition of Productivity Index



The broken line segment e_0 b_0 c_0 d_0 is the technological specification in period 0 and the boundary of free disposal convex hull of the observed input-output bundles in period 0. In period 0, all the points within this boundary indicate feasible input-output combinations under the assumption of VRS. In contrast, all radial expansion and (non-negative) contraction of feasible input-output bundles are also feasible under CRS. Therefore, during period 0, the CRS production possibility set is the cone shaped by the horizontal axis and the beam or_0 through the point c_0.

Similarly in period 1, under VRS, production frontier is e_1 b_1 c_1 d_1 and under CRS production frontier is the ray or_1 passing through the point c_1.

The production set is defined as follows:

$S^t = \{(x, y): y$ can be produced from x$\in$ period $t\}$(where t is specified time period, t can be 0 or 1 or otherwise)

The output distance function is

$$D^t(x, y) = \min \theta : \left(x, \frac{1}{\theta} y \right) \in S^t$$

Considering VRS, in period 0, the optimum (maximum) amount of output which can be produced from input ox_0 is $t_0 x_0$. Thus the distance functions are

$D_V^0(x_0, y_0) = \frac{a_0 x_0}{t_0 x_0}$ and $D_V^o(x_1, y_1) = \frac{a_1 x_1}{t_1 x_1}$, in period 0

The productivity index for firm 'a' is

$$\prod_{a0} = \frac{a_1 x_1 / ox_1}{a_0 x_0 / ox_0} = \frac{a_1 x_1 / p_1 x_1 \,.\, p_1 x_1 / ox_1}{a_0 x_0 / p_0 x_0 \,.\, p_0 x_0 / ox_0} = \frac{D_c^0(x_1, y_1)}{D_c^0(x_0, y_0)} \qquad (5.1)$$

Analogously, $\prod_{a1} = \frac{a_1 x_1 / ox_1}{a_0 x_0 / ox_0} = \frac{D_c^1(x_1, y_1)}{D_c^1(x_0, y_0)}$

The ratio of distance functions defines the Productivity Index in case of CRS. However, it is not mandatory that production function always follows CRS. In period 0, both the point t_0 and t_1 are on the production frontier and technically efficient. The average productivity is higher at the point t_0 than that of point t_1. In period 0, the highest average productivity point along the VRS frontier is c_0, whereas under CRS average productivity remains constant. The point of highest average productivity along the VRS frontier is called the Most Productive Scale

Size (MPSS) where the VRS and CRS frontiers match (Banker et al. (1984)). Also the average productivity along the VRS at the point MPSS is equal to the constant average productivity at any point along the CRS frontier. The ratio of the average productivity at any point to that of at the MPSS gives the expression of scale efficiency (SE).

Thus, $SE^0(x_0, y_0) = \frac{AP(t_0)}{AP(c_0)} = \frac{t_0 x_0}{p_0 x_0} = \frac{D_c^0(x_0, y_0)}{D_v^0(x_0, y_0)}$

Also, $SE^0(x_1, y_1) = \frac{AP(t_1)}{AP(c_0)} = \frac{D_c^0(x_1, y_1)}{D_v^0(x_1, y_1)}$

Now the equation (5.1) can be written as

$$\prod_{a0} = \frac{D_v^0(x_1, y_1) \cdot \frac{D_c^0(x_1, y_1)}{D_v^0(x_1, y_1)}}{D_v^0(x_0, y_0) \cdot \frac{D_c^0(x_0, y_0)}{D_v^0(x_0, y_0)}} = \frac{D_v^0(x_1, y_1)}{D_v^0(x_0, y_0)} \cdot \frac{SE^0(x_1, y_1)}{SE^0(x_0, y_0)}$$

Similarly, $\prod_{a1} = \frac{D_v^1(x_1, y_1)}{D_v^1(x_0, y_0)} \cdot \frac{SE^1(x_1, y_1)}{SE^1(x_0, y_0)}$

According to Ray and Desli (1997) the decomposition of MPI is the following: The expression of the Productivity Index of a firm 'a' is

$$\prod_a = (\prod_{a0} \cdot \prod_{a1})^{\frac{1}{2}}$$

$$= \left[\frac{D_v^0(x_1, y_1)}{D_v^0(x_0, y_0)} \cdot \frac{SE^0(x_1, y_1)}{SE^0(x_0, y_0)} \times \frac{D_v^1(x_1, y_1)}{D_v^1(x_0, y_0)} \cdot \frac{SE^1(x_1, y_1)}{SE^1(x_0, y_0)} \right]^{\frac{1}{2}}$$

$$= \left[\frac{D_v^0(x_1, y_1)}{D_v^0(x_0, y_0)} \cdot \frac{D_v^1(x_1, y_1)}{D_v^1(x_0, y_0)} \right]^{\frac{1}{2}} \times \left[\frac{SE^0(x_1, y_1)}{SE^0(x_0, y_0)} \cdot \frac{SE^1(x_1, y_1)}{SE^1(x_0, y_0)} \right]^{\frac{1}{2}}$$

$$= \frac{D_v^1(x_1, y_1)}{D_v^0(x_0, y_0)} \times \left[\frac{D_v^0(x_0, y_0)}{D_v^1(x_0, y_0)} \cdot \frac{D_v^0(x_1, y_1)}{D_v^1(x_1, y_1)} \right]^{\frac{1}{2}} \times \left[\frac{SE^0(x_1, y_1)}{SE^0(x_0, y_0)} \cdot \frac{SE^1(x_1, y_1)}{SE^1(x_0, y_0)} \right]^{\frac{1}{2}}$$

= ptecheffchng. techchng. sclchng

Where ptecheffchng= $\frac{D_v^1(x_1, y_1)}{D_v^0(x_0, y_0)}$, measures pure technical efficiency change

techchng= $\left[\frac{D_v^0(x_0,y_0)}{D_v^1(x_0,y_0)}\cdot\frac{D_v^0(x_1,y_1)}{D_v^1(x_1,y_1)}\right]^{\frac{1}{2}}$,is the technical change which is the geometric mean of the shift in the production function at x_0 and x_1 and

sclchng= $\left[\frac{SE^0(x_1,y_1)}{SE^0(x_0,y_0)}.\frac{SE^1(x_1,y_1)}{SE^1(x_0,y_0)}\right]^{\frac{1}{2}}$, measures the scale efficiency change.

Before Ray and Desli (1997), decomposition of MPI has been done by Fare, Grosskopf, Lindgren and Roos (FGLR) in 1992 and Fare, Grosskopf, Norris and Zang (FGNZ) in 1994. In case of FGLR (1992), they assumed that the true production technology was characterized by CRS. But CRS is a restrictive assumption and it does not hold every time. After their attempt, FGNZ (1994) had decomposed the same assuming VRS. Ray and Desli (1997) pointed out some inconsistency in their method of analysis. As per FGNZ (1994), instead of the actual production function, the technical change factor is the geometric mean of the shift in the pseudo (CRS) production function.

5.2.2 Application of DEA Method for Measuring the MPI

Data Envelopment Analysis (DEA) is applied to decompose MPI into technical efficiency change, technical change and scale change. Consider the N firms with observed input-output bundles over two different time horizons. Assume for the jth firm, y_j^t and x_j^t denote the output and input vectors respectively, where (j =1, 2, 3 …,N) in period t. According to Varian (1984), for the time t, the underlying PPS (production possibility set) can be defined

$$S^t=\left[(x,y):\sum_{j=1}^{N}\lambda_j x_j^t\le x;\sum_{j=1}^{N}\lambda_j y_j^t\ge y;\sum\lambda_j=1;\lambda_j\ge 0\left(j=1,2,3...,N\right)\right]$$

During period t, any observed input-output bundle $\left(x_j^t,y_j^t\right)$ is feasible. The assumption of convexity allows the following: any input-output pair $(\bar{x},\bar{y})$ satisfying

$\bar{x}=\sum_{j=1}^{N}\lambda_j x_j^t,\bar{y}=\sum_{j=1}^{N}\lambda_j y_j^t,\sum_{j=1}^{N}\lambda_j=1,\lambda_j\ge 0,\left(j=1,2,3...,N\right)$ is also feasible, and by the free disposability assumption, any $x\ge\bar{x}$ corresponds $\bar{y}$.

Hence, x can also produce y if $y\le\bar{y}$.

Therefore, the output oriented distance function under VRS is obtained as

$$D_v^t\left(x_k^t,y_k^t\right)=\frac{1}{\Phi^*}\ ,\quad \text{where } \Phi^*=\max\Phi$$

Subject to $\sum_{j=1}^{N} \lambda_j y^t{}_j \geq \Phi y_k^t ; \sum_{j=1}^{N} \lambda_j x_j^t \leq x_k^t ; \sum_{j=1}^{N} \lambda_j = 1; \lambda_j \geq 0, (j = 1,2,3..., N)$

This is nothing but the standard BCC model. In case of CRS, one can solve the above mentioned problem without the constraint that the λj's have to add up to unity.

The present study considers two outputs: (i) net enrolment ratio (NER) and (ii) percentage of students passed having greater than 60% in the examination. This variable estimates the attainment of quality output. The inputs included are: (i) number of schools per lakh population, (ii) teacher-pupil ratio in the school, (iii) classroom-student ratio in the school and (iv) percentage of teachers with qualification graduate and above in the school. This variable estimates the quality of the teacher input.

Thereafter a panel regression is employed by considering the productivity score as the dependent variable to identify the significant determinants on the productivity score.

5.2.3 Data Sources

Data sources and the determinants of the productivity score used in the study are same as in the chapter 3. The productivity scores, obtained in the first stage using DEA, have been considered as the dependent variable and the indicators are taken as independent or explanatory variables. Thereafter, with these dependent and independent variables in the second stage a panel regression has been performed. Since the primary goal is to assess the influence of the individual independent variable, the panel regression analysis with the composite index signifying the broad indicators has not been attempted. It may happen that some of the individual variables may have a significant impact on productivity score and the rest are not so much influential and thereby use of composite index may unable to separate between these possibilities.

5.3 Empirical Findings

The measure of MPI is obtained with the help of computer programme DEAP (developed by Tim Coelli). The estimated score of productivity under the assumption of VRS for 461 different districts of selected 16 major states in India over the sample year 2005-06 to 2013-14 for primary and upper primary levels of education are presented in this section. The state level figures (expressed in terms of geometric mean) are obtained by using the district level estimates. The district wise estimates of MPI score for the sample year 2006-07 to 2013-14 (2005-06 is considered as base period) corresponding to the primary and upper primary levels are presented in Appendix A5 at the end of this chapter (see A5.1 to A5.16 for primary and A5.17 to A5.32 for upper primary of Appendix A5).

5.3.1 Estimated Results of MPI

The mean of state specific average (SSA) i.e. the grand mean of Malmquist Productivity Index as computed considering all the years under study for all the states for primary and upper primary levels of education separately is reported in table 5.1. The state level estimates have been derived from the district level estimates. The results indicate that MPI is slightly larger for primary level than upper primary level of education. The state wise summary of the estimated results is given in tables 5.2 and 5.3 for both the levels of education respectively.

Table 5.1: Average level of MPI (for all the States and all the Sample Years taken together) of Elementary Education in India

Level	MPI
Primary	1.21
Upper-Primary	1.15

Table 5.2: The Summary Findings of MPI at Primary Level of Education

States	Range of Mean MPI	State Specific Average (SSA) of Mean MPI	State Specific SD of Mean MPI	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	State Specific CV of Mean MPI
Andhra Pradesh	1.083 to 1.373	1.235	0.074	60.87	39.13	5.99
Assam	1.056 to 1.387	1.227	0.097	63.64	36.36	7.92
Bihar	1.053 to 1.348	1.230	0.080	64.86	35.14	6.53
Gujarat	1.066 to 1.424	1.269	0.096	56.00	44.00	7.55
Haryana	0.951 to 1.243	1.096	0.081	47.37	52.63	7.36
Himachal Pradesh	1.126 to 1.329	1.234	0.073	58.33	41.67	5.96
Karnataka	1.089 to 1.483	1.226	0.102	51.85	48.15	8.30
Kerala	1.070 to 1.309	1.210	0.075	64.29	35.71	6.21
Madhya Pradesh	1.016 to 1.363	1.204	0.091	58.33	41.67	7.56
Maharashtra	1.022 to 1.429	1.225	0.101	65.71	34.29	8.26
Orissa	1.064 to 1.416	1.222	0.089	56.67	43.33	7.31
Punjab	1.018 to 1.374	1.189	0.100	64.71	35.29	8.37
Rajasthan	1.049 to 1.340	1.218	0.091	59.38	40.63	7.51
Tamil Nadu	1.087 to 1.339	1.217	0.078	60.00	40.00	6.40
Uttar Pradesh	1.059 to 1.428	1.228	0.085	54.29	45.71	6.92
West Bengal	1.022 to 1.370	1.202	0.109	55.00	45.00	9.05
Grand Mean	0.951 to 1.483	1.21	0.089	58.83	41.169	7.326

The table 5.2 reveals that for primary level, the average (for all districts and sample years taken together) Malmquist Productivity Index varies over the range

0.951 to 1.483 considering all the states together. The state wise variation of average MPI is also presented in the table 5.2. The state specific average (SSA) is highest for GJ (1.269) and lowest for HA (1.096). The states having SSA higher than grand mean are namely AP, AS, BH, GJ, HP, KA, KE, MH, OR, RA, TN and UP. The percentage of the districts higher and lower than the SSA of mean MPI are highest for MH (65.71%) and HA (52.63%) respectively. On an average the percentage of the districts having average MPI greater than SSA is 58.83. So the majority of the districts have their MPI above the average of SSA of MPI. The value of grand mean turned out to be 1.21. The states having state specific CV lower than grand mean of CV are the following: AP, BH, HP, KE, OR, TN and UP. Thus for primary level, performance of the states such as AP, BH, HP, KE, OR, TN and UP is good with respect to TFPG as they contain higher mean and less variability.

Table 5.3: The Summary Findings of MPI at Upper Primary Level of Education

States	Range of Mean MPI	State Specific Average (SSA) of Mean MPI	State Specific SD of Mean MPI	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	State Specific CV of Mean MPI
Andhra Pradesh	1.087 to 1.880	1.318	0.148	47.83	52.17	11.25
Assam	1.062 to 1.345	1.222	0.082	63.64	36.36	6.71
Bihar	0.940 to 1.186	1.072	0.063	54.05	45.95	5.87
Gujarat	0.945 to 1.377	1.152	0.087	52.00	48.00	7.54
Haryana	0.880 to 1.238	1.049	0.104	52.63	47.37	9.88
Himachal Pradesh	1.131 to 1.442	1.303	0.115	66.67	33.33	8.86
Karnataka	0.970 to 1.491	1.138	0.103	51.85	48.15	9.09
Kerala	0.969 to 1.266	1.134	0.086	57.14	42.86	7.55
Madhya Pradesh	0.930 to 1.403	1.156	0.121	56.25	43.75	10.44
Maharashtra	0.954 to 1.336	1.115	0.098	51.43	48.57	8.77
Orissa	0.906 to 1.296	1.102	0.110	50.00	50.00	9.97
Punjab	1.006 to 1.363	1.156	0.094	52.94	47.06	8.13
Rajasthan	0.979 to 1.215	1.102	0.066	53.13	46.88	5.95
Tamil Nadu	1.050 to 1.539	1.211	0.095	56.67	43.33	7.83
Uttar Pradesh	0.992 to 1.464	1.162	0.099	45.71	54.29	8.49
West Bengal	0.919 to 1.245	1.051	0.084	50.00	50.00	7.97
Grand Mean	0.880 to 1.880	1.15	0.097	53.87	46.13	8.394

Observing the table 5.3 it can be said that the range of average MPI varies over 0.880 to 1.880 for upper primary level. The grand mean of the standard deviation of MPI corresponding to upper primary level of education is 0.097 and coefficient of variation is 8.394%. The SSA of MPI is highest for AP (1.318) and lowest for HA (1.049). For upper primary level, the states namely AP, AS, GJ, HP, MP, PN, TN and UP have higher SSA as compared to the grand mean. And the states

having state specific CV lower than grand mean of CV are the following: AS, BH, GJ, KE, PN, RA, TN and WB. The comparison of mean and CV reveals that the performance of the states such as AS, GJ, PN and TN is good with respect to TFPG at upper primary level of education as they contain higher mean and less variability. On an average the percentage of the districts having average MPI higher than SSA is 53.87 and the rest 46.13% of the districts is below the SSA of MPI. So the majority of the districts have their MPI above the level of grand mean of SSA. The percentage of the districts higher than SSA is highest for the state HP (66.67%). The grand mean consisting of the mean of SSA is 1.15.

The comparison of primary and upper primary levels of education reveals that (i) for both the levels of education the states such as AP, AS, GJ, HP, TN and UP have high SSA as compared to the grand mean of TFPG, (ii) the states namely BH, KE and TN have lower CV as compared to grand mean of CV for both levels and (iii) the percentage of districts with SSA higher than grand mean is higher for primary (58.83%) than upper primary (53.87%).

5.3.2 Estimated Results of Productivity Growth Rates (PGR)

Now the productivity index in any individual year considers the year immediately preceding as the base, so the difference between the value of the MPI and unity represents the productivity growth rate over the previous year. The annual average of productivity growth rates (PGR) of the districts is also computed and the SSA for each state is obtained using those district level estimates. The details of findings related to state level are reported in tables 5.4 and 5.5 corresponding to primary and upper primary levels of education respectively.

Table 5.4: The Summary Findings of Productivity Growth Rate (PGR) (%) at Primary Level of Education

States	State Specific Average (SSA) of PGR (%)	State Specific SD of PGR (%)	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)
Andhra Pradesh	-1.762	2.875	39.13	60.87
Assam	-1.006	4.476	50.00	50.00
Bihar	-1.255	4.980	40.54	59.46
Gujarat	18.422	25.907	32.00	68.00
Haryana	19.217	12.971	42.11	57.89
Himachal Pradesh	-0.723	5.376	33.33	66.67
Karnataka	12.066	28.688	33.33	66.67
Kerala	29.393	30.773	42.86	57.14
Madhya Pradesh	1.342	6.819	37.50	62.50
Maharashtra	10.535	34.058	22.86	77.14
Orissa	-3.407	3.281	36.67	63.33
Punjab	7.130	6.416	47.06	52.94

Rajasthan	8.184	20.475	34.38	65.63
Tamil Nadu	-3.710	4.846	46.67	53.33
Uttar Pradesh	0.681	10.619	31.43	68.57
West Bengal	5.756	21.013	30.00	70.00
Grand Mean	6.304	13.973	37.49	62.51

For primary level of education, the mean of state specific average (SSA) of PGR is 6.304%, the standard deviation 13.973%. On an average the percentage of the districts of the selected states having average PGR above the SSA is 37.49. The rest 62.51% of the districts have their average productivity growth rate below the SSA of PGR.

Table 5.5: The Summary Findings of Productivity Growth Rate (PGR) (%) at Upper Primary Level of Education

States	State Specific Average (SSA) of PGR (%)	State Specific SD of PGR (%)	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)
Andhra Pradesh	10.568	8.669	43.48	56.52
Assam	32.080	12.258	59.09	40.91
Bihar	14.803	8.419	40.54	59.46
Gujarat	17.065	18.239	28.00	72.00
Haryana	14.004	10.688	52.63	47.37
Himachal Pradesh	8.189	19.866	16.67	83.33
Karnataka	22.97	16.777	40.74	59.26
Kerala	38.83	18.368	57.14	42.86
Madhya Pradesh	29.504	30.044	37.50	62.50
Maharashtra	37.75	13.94	48.57	51.43
Orissa	17.435	16.414	40.00	60.00
Punjab	21.835	22.882	35.29	64.71
Rajasthan	23.963	17.574	34.38	65.63
Tamil Nadu	14.831	12.960	40.00	60.00
Uttar Pradesh	11.354	14.396	41.43	58.57
West Bengal	18.076	20.455	45.00	55.00
Grand Mean	20.829	16.372	41.278	58.722

Considering the summary results obtained in the case of upper primary level of education, the mean of SSA of growth rate over the sample period 2005-06 to 2013-14 is 20.829%, the standard deviation is 16.372%. Here on an average 41.278% of the districts have their average level of productivity growth rate greater than the SSA level. The average level of PGR for the rest 58.722% districts is below the SSA value.

For primary and upper primary levels of education KE exhibits the highest productivity performance in terms of growth rate over the study period.

5.3.3 Decomposition of Productivity Index

Decomposition of TFPG in different components is an important aspect in determining the main contributor to productivity growth. Now the measured MPI is decomposed into technical efficiency change (TEC), technical change (TC) and scale efficiency change (SEC). In this study the absolute value of TFPG as well as its rate has been decomposed. Basically technical change shows how the maximum producible output from input bundle used in the initial period, i.e. x_o changes between period 0 and 1. Here the input level remain unchanged, this measure captures the autonomous shift in the production function due to technical change. The TEC is the ratio of the technical efficiencies of the observed input-output pairs in the two periods. Technical efficiency change measures the change between period t and t+1 as a 'catching-up' to the frontier effect (moving towards or away from the frontier). On the other hand technical change is generally associated with the application of advanced technology in the production process or simply indicates 'shift in' production frontier. With the improvement of the technology over time, the production frontier is expected to shift outward, which means the possibility of producing higher amounts of output from given input bundle over the period. Technical regress identifies the inward shift of the production frontier which implies the same input bundle produce less and less over time. The scale efficiency estimates movement of the production units towards or away from its most productive scale size.

5.3.3.1 Estimated Results of Technical Efficiency Change

The average level of technical efficiency change is computed for different districts corresponding to primary and upper primary levels of education and the SSA for each state is obtained by using district level estimates. The state wise summary of primary and upper primary levels of education is reported in tables 5.6 and 5.7 respectively.

Table 5.6: The Summary Findings of Technical Efficiency Change (TEC) at Primary Level of Education

States	Range of TEC	State Specific Average (SSA) of TEC	State Specific SD of TEC	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	State Specific CV of TEC
Andhra Pradesh	0.981 to 1.027	1.002	0.010	34.78	65.22	0.97
Assam	0.988 to 1.027	1.001	0.011	31.82	68.18	1.14
Bihar	0.982 to 1.03	1.003	0.012	40.54	59.46	1.15
Gujarat	0.982 to 1.037	1.004	0.013	36.00	64.00	1.29
Haryana	0.983 to 1.026	0.998	0.011	47.37	52.63	1.14
Himachal Pradesh	0.976 to 1.005	0.995	0.010	58.33	41.67	0.97

Karnataka	0.893 to 1.027	0.980	0.031	62.96	37.04	3.12
Kerala	0.999 to 1.023	1.007	0.008	28.57	71.43	0.77
Madhya Pradesh	0.989 to 1.061	1.022	0.021	41.67	58.33	2.07
Maharashtra	0.987 to 1.038	1.009	0.013	42.86	57.14	1.33
Orissa	0.974 to 1.014	0.999	0.009	56.67	43.33	0.89
Punjab	0.971 to 1.021	0.995	0.013	64.71	35.29	1.34
Rajasthan	0.972 to 1.032	0.995	0.012	56.25	43.75	1.17
Tamil Nadu	0.976 to 1.018	0.997	0.010	46.67	53.33	1.05
Uttar Pradesh	0.956 to 1.032	0.991	0.015	50.00	50.00	1.54
West Bengal	0.984 to 1.036	1.009	0.014	40.00	60.00	1.39
Grand Mean	0.893 to 1.061	1.00	0.013	46.199	53.801	1.334

In case of primary education, on an average the level of average technical efficiency change varies from 0.893 to 1.061. The mean value of SSA (i.e. grand mean comprising of the average of SSA over the sample period from 2005-06 to 2013-14) corresponds to 1.00, standard deviation is 0.013 and coefficient of variation is 1.334%. Grand mean of the percentage of the districts higher than SSA is 46.199. The rest 53.801% of the districts from the selected states have their average below the SSA level. Level of technical efficiency change (taking all the districts and sample year together) is highest for MP (1.022) followed by MH (1.009), WB (1.009) and KE (1.007).

Table 5.7: The Summary Findings of Technical Efficiency Change (TEC) at Upper Primary Level of Education

States	Range of TEC	State Specific Average (SSA) of TEC	State Specific SD of TEC	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	State Specific CV of TEC
Andhra Pradesh	0.991 to 1.054	1.011	0.016	43.48	56.52	1.62
Assam	0.973 to 1.076	1.007	0.016	40.91	59.09	1.58
Bihar	0.961 to 1	0.989	0.012	56.76	43.24	1.26
Gujarat	0.978 to 1.045	1.009	0.017	36.00	64.00	1.72
Haryana	0.969 to 1.042	1.000	0.021	36.84	63.16	2.09
Himachal Pradesh	0.987 to 1.011	1.001	0.006	25.00	75.00	0.56
Karnataka	0.931 to 1	0.980	0.019	48.15	51.85	1.94
Kerala	0.997 to 1.017	1.001	0.005	7.14	92.86	0.48
Madhya Pradesh	0.973 to 1.087	1.016	0.028	33.33	66.67	2.71
Maharashtra	0.952 to 1	0.982	0.015	48.57	51.43	1.53
Orissa	0.971 to 1.053	1.019	0.020	56.67	43.33	2.01
Punjab	0.981 to 1.045	1.009	0.016	41.18	58.82	1.58

Rajasthan	0.966 to 1.037	1.002	0.014	31.25	68.75	1.39
Tamil Nadu	0.961 to 1.014	0.993	0.013	53.33	46.67	1.29
Uttar Pradesh	0.938 to 1.06	0.998	0.023	50.00	50.00	2.33
West Bengal	0.963 to 1.024	0.998	0.014	80.00	20.00	1.45
Grand Mean	0.931 to 1.087	1.00	0.015	39.03	54.42	1.47

It is clear from table 5.7 that level of technical efficiency change of the districts at upper primary level of education varies from 0.931 to 1.087. The grand mean value of SSA is 1.00, standard deviation is 0.015 and coefficient of variation is 1.47%. On an average 39.03% of the districts have their average level of technical efficiency change above the SSA. Therefore the majority of the districts (54.42%) have their efficiency change below the level. The SSA is highest for OR (1.019) and lowest for KA (0.980).

5.3.3.2 Estimated Results of Rate of Technical Efficiency Change (%)

The average rate of technical efficiency change is computed for all the districts from the selected major 16 states over the sample period from 2005-06 to 2013-14 for both primary and upper primary levels of education separately. Here also the SSA for each state is computed using district level estimates. The state wise estimated results of primary and upper primary levels of education are presented in tables 5.8 and 5.9 respectively.

Table 5.8: The Summary Findings of Rate of Technical Efficiency Change (TEC) (%) at Primary Level of Education

States	State Specific Average (SSA) of Rate of TEC (%)	State Specific SD of Rate of TEC (%)	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)
Andhra Pradesh	0.512	1.353	43.48	56.52
Assam	-0.042	1.071	59.09	40.91
Bihar	0.838	1.407	45.95	54.05
Gujarat	1.605	2.036	28.00	72.00
Haryana	1.614	2.722	42.11	57.89
Himachal Pradesh	0.125	0.561	33.33	66.67
Karnataka	3.111	4.688	40.74	59.26
Kerala	0.843	1.673	50.00	50.00
Madhya Pradesh	2.725	4.203	41.67	58.33
Maharashtra	2.763	2.452	51.43	48.57
Orissa	1.071	1.738	30.00	70.00
Punjab	2.530	2.984	35.29	64.71
Rajasthan	-0.105	1.181	56.25	43.75
Tamil Nadu	0.680	1.466	46.67	53.33

Uttar Pradesh	0.777	1.412	45.71	54.29
West Bengal	1.275	2.234	35.00	65.00
Grand Mean	1.270	2.074	42.795	57.205

The grand mean of average rate of technical efficiency change of the states corresponds to 1.270% and the standard deviation is 2.074%. The rate is highest for KA (3.111%). On an average 42.795% of the districts have their average rate of technical efficiency change above the level of SSA, whereas the rate for the rest 57.205% of the districts is below the SSA in case of primary level of education.

Table 5.9: The Summary Findings of Rate of Technical Efficiency Change (TEC) (%) at Upper Primary Level of Education

States	State Specific Average (SSA) of Rate of TEC (%)	State Specific SD of Rate of TEC (%)	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)
Andhra Pradesh	0.642	2.043	30.43	69.57
Assam	2.543	2.130	50.00	50.00
Bihar	2.094	1.945	43.24	56.76
Gujarat	0.566	2.402	48.00	52.00
Haryana	2.643	3.938	52.63	47.37
Himachal Pradesh	0.305	0.566	25.00	75.00
Karnataka	3.601	3.205	40.74	59.26
Kerala	1.324	2.060	28.57	71.43
Madhya Pradesh	9.169	7.546	41.67	58.33
Maharashtra	39.250	20.360	51.43	48.57
Orissa	0.124	4.168	23.33	76.67
Punjab	7.852	6.503	52.94	47.06
Rajasthan	1.447	1.471	46.88	53.13
Tamil Nadu	1.456	1.543	36.67	63.33
Uttar Pradesh	2.405	3.563	44.29	55.71
West Bengal	1.484	3.363	35.00	65.00
Grand Mean	4.806	4.175	40.68	59.32

In case of upper primary level of education, the grand mean of average rate of technical efficiency change is 4.806% and standard deviation is 4.175%. On an average the percentage of the districts having average rate of technical efficiency change above the SSA is 40.68 and the rest 59.32% of the districts have their average rate of efficiency change below the mean value.

5.3.3.3 Estimated Results of Technical Change

The average level of technical change is calculated for different districts over the study period. Using those district level estimates the SSA for each state is

computed. The state wise summary of the estimated results for both primary and upper primary levels of education is depicted in tables 5.10 and table 5.11 respectively.

Table 5.10: The Summary Findings of Technical Change (TC) at Primary Level of Education

States	Range of TC	State Specific Average (SSA) of TC	State Specific SD of TC	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	State Specific CV of TC
Andhra Pradesh	1.083 to 1.313	1.230	0.068	65.22	34.78	5.55
Assam	1.056 to 1.322	1.225	0.089	54.55	45.45	7.29
Bihar	1.053 to 1.308	1.223	0.075	70.27	29.73	6.17
Gujarat	1.066 to 1.401	1.259	0.090	60.00	40.00	7.15
Haryana	0.951 to 1.243	1.100	0.080	47.37	52.63	7.23
Himachal Pradesh	1.137 to 1.324	1.246	0.073	58.33	41.67	5.84
Karnataka	1.076 to 1.492	1.277	0.111	48.15	51.85	8.67
Kerala	1.072 to 1.284	1.193	0.068	64.29	35.71	5.69
Madhya Pradesh	1.004 to 1.252	1.153	0.065	58.33	41.67	5.61
Maharashtra	1.034 to 1.429	1.203	0.093	62.86	37.14	7.70
Orissa	1.064 to 1.416	1.224	0.089	63.33	36.67	7.25
Punjab	1.019 to 1.324	1.201	0.095	64.71	35.29	7.91
Rajasthan	1.064 to 1.332	1.230	0.086	62.50	37.50	6.97
Tamil Nadu	1.102 to 1.31	1.224	0.071	56.67	43.33	5.81
Uttar Pradesh	1.079 to 1.351	1.250	0.079	60.00	40.00	6.31
West Bengal	1.041 to 1.304	1.181	0.083	60.00	40.00	7.05
Grand Mean	0.951 to 1.492	1.213	0.082	59.785	40.215	6.761

On an average the level of technical change varies from 0.951 to 1.492. The mean value of SSA (i.e. grand mean) of technical change turned out to be 1.213, standard deviation is 0.082 and coefficient of variation is 6.761%. On an average 59.785% of the districts have their average level of technical change higher than the SSA score. The technical change of the rest 40.215% of the districts lies below the level. Therefore the majority of the districts have their average value of technical change above the level of SSA. The highest value of state specific average is achieved by KA (1.277) and the lowest occurs for HA (1.100) at primary level of education.

Table 5.11: The Summary Findings of Technical Change (TC) at Upper Primary Level of Education

States	Range of TC	State Specific Average (SSA) of TC	State Specific SD of TC	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)	State Specific CV of TC
Andhra Pradesh	1.087 to 1.692	1.289	0.116	60.87	39.13	8.98
Assam	1.06 to 1.316	1.205	0.073	68.18	31.82	6.02
Bihar	0.942 to 1.194	1.096	0.072	59.46	40.54	6.60
Gujarat	0.945 to 1.377	1.132	0.083	52.00	48.00	7.36
Haryana	0.88 to 1.226	1.049	0.095	52.63	47.37	9.05
Himachal Pradesh	1.131 to 1.445	1.300	0.113	50.00	50.00	8.67
Karnataka	0.976 to 1.491	1.185	0.107	55.56	44.44	9.06
Kerala	0.969 to 1.266	1.132	0.082	57.14	42.86	7.26
Madhya Pradesh	0.955 to 1.276	1.120	0.080	62.50	37.50	7.19
Maharashtra	0.975 to 1.336	1.156	0.103	51.43	48.57	8.89
Orissa	0.903 to 1.206	1.061	0.082	50.00	50.00	7.77
Punjab	0.996 to 1.248	1.135	0.071	58.82	41.18	6.25
Rajasthan	0.979 to 1.183	1.098	0.057	59.38	40.63	5.19
Tamil Nadu	1.067 to 1.515	1.228	0.089	56.67	43.33	7.28
Uttar Pradesh	1.005 to 1.329	1.167	0.077	58.57	41.43	6.57
West Bengal	0.928 to 1.245	1.055	0.077	55.00	45.00	7.34
Grand Mean	0.88 to 1.692	1.148	0.086	56.76	43.24	7.47

It is apparent that the average level of technical change varies from 0.88 to 1.692 corresponding to upper primary level of education. The level of grand mean is 1.148, standard deviation is 0.086. The coefficient of variation is equal to 7.47%. On an average 56.76% of the districts have experienced the average level of technical change above the SSA score. The rest 43.24% of the districts have their average level of technical change below the SSA. Therefore the majority of the districts have their MPI higher than the mean of SSA. The value of SSA is highest for HP (1.300) followed by AP (1.289) and lowest for HA (1.049).

5.3.3.4 Estimated Results of Rate of Technical Change (%)

The results of average rate of technical change are computed for the districts from the selected major 16 states over the study period 2005-06 to 2013-14 for both primary and upper primary levels of education. Also the SSA for each state is

computed based on district level estimates. The state wise findings are summarized in the tables 5.12 and table 5.13 for both the levels respectively.

Table 5.12: The Summary Findings of Rate of Technical Change (TC) (%) at Primary Level of Education

States	State Specific Average (SSA) of Rate of TC (%)	State Specific SD of Rate of TC (%)	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)
Andhra Pradesh	-1.403	2.059	43.48	56.52
Assam	-1.384	3.744	45.45	54.55
Bihar	-3.545	3.413	45.95	54.05
Gujarat	27.850	22.272	44.00	56.00
Haryana	9.918	5.843	57.89	42.11
Himachal Pradesh	-2.698	2.145	41.67	58.33
Karnataka	2.891	6.621	37.04	62.96
Kerala	13.498	19.379	35.71	64.29
Madhya Pradesh	-0.066	3.917	43.75	56.25
Maharashtra	5.402	33.974	11.43	88.57
Orissa	-5.429	1.836	50.00	50.00
Punjab	6.481	3.490	58.82	41.18
Rajasthan	6.521	15.594	37.50	62.50
Tamil Nadu	-5.284	2.704	46.67	53.33
Uttar Pradesh	-0.415	6.831	32.86	67.14
West Bengal	-1.494	6.473	30.00	70.00
Grand Mean	3.178	8.768	41.39	58.61

The grand mean of average rate of technical change at primary level is 3.178% and standard deviation is 8.768%. On an average 58.61% of districts have their average rate of technical change below the SSA, while the average rate of technical change for the rest 41.39% of the districts is above the SSA score.

Table 5.13: The Summary Findings of Rate of Technical Change (TC) (%) at Upper Primary Level of Education

States	State Specific Average (SSA) of Rate of TC (%)	State Specific SD of Rate of TC (%)	% of the Districts above State Specific Average (SSA)	% of the Districts below State Specific Average (SSA)
Andhra Pradesh	8.733	4.303	43.48	56.52
Assam	41.760	13.220	54.55	45.45
Bihar	9.386	3.822	51.35	48.65
Gujarat	19.035	12.513	20.00	80.00
Haryana	8.042	9.332	36.84	63.16
Himachal Pradesh	7.058	17.836	16.67	83.33

Karnataka	12.083	7.045	48.15	51.85
Kerala	27.71	15.160	35.71	64.29
Madhya Pradesh	13.596	12.688	35.42	64.58
Maharashtra	24.48	12.37	45.71	54.29
Orissa	17.189	7.799	46.67	53.33
Punjab	7.787	5.637	52.94	47.06
Rajasthan	17.826	10.704	25.00	75.00
Tamil Nadu	9.705	9.915	26.67	73.33
Uttar Pradesh	0.396	4.571	42.86	57.14
West Bengal	12.838	10.739	40.00	60.00
Grand Mean	14.851	9.854	38.88	61.12

The grand mean level of state specific average rate of technical change (SSA) turned out to be 14.851%, standard deviation is 9.854%. Among all the districts under study, grand mean value of percentage of the districts above SSA level is 38.88%, whereas the rest 61.12% of the districts have experienced average rate of technical change below the SSA level.

5.3.3.5 Estimated Results of Scale Efficiency Change and Rate of Scale Efficiency Change (%)

The estimated results of scale efficiency change corresponding to primary and upper primary levels of education are presented in table 5.14.

Table 5.14: Estimated Results of Scale Efficiency Change (SEC)

Level	Grand mean of Range of SEC	Grand Mean of SEC	Grand mean of SD of SEC	Grand mean of % of the Districts above SSA	Grand mean of % of the Districts below SSA	Grand mean of CV of SEC
Primary	0.889 to 1.058	1.00	0.016	45.71	54.29	1.35
Upper Primary	0.926 to 1.095	1.00	0.018	40.05	59.95	1.51

The above table 5.14 suggests that the pattern of empirical results for both primary and upper primary levels of education is quite similar. The level of average scale efficiency at primary level varies from 0.889 to 1.058 whereas the range is from 0.926 to 1.095 for upper primary level of education. For both the levels of education grand mean corresponds to the value 1.00, standard deviation is 0.016 and 0.018 respectively. In both the cases majority of the districts have their average level of scale efficiency below the SSA level. The coefficient of variation is 1.35% and 1.51% for primary and upper primary levels of education respectively.

Next the table 5.15 summarizes the empirical findings regarding average rate of scale efficiency change for both the levels of education.

Table 5.15: Estimated Results of Rate of Scale Efficiency Change (SEC) (%)

Level	Grand Mean of Rate of SEC (%)	Grand mean of SD of Rate of SEC (%)	Grand mean of % of the Districts above SSA	Grand mean of % of the Districts below SSA
Primary	1.262	2.116	41.93	58.07
Upper Primary	4.717	4.228	39.79	60.21

The grand mean of average rate of scale efficiency change turned out to be 1.262% and 4.717% for primary and upper primary levels of education respectively. For both the levels grand mean of percentage of districts above SSA level is low. At primary level, 41.93% of the districts have their average rate of scale efficiency above the level of SSA, while this value corresponds to 39.79% for upper primary level.

The results of decomposition of the productivity index (MPI) reveal that on an average the productivity changes are mainly occurred due to technical changes, mostly over the sample period from 2005-06 to 2013-14 for both primary and upper primary levels of education. Basically, the growth factor attributed by the scale change may not be sustained in the long run because of the assumption of diminishing returns to scale. So if the change in productivity is mainly guided by either technical change or technical efficiency change that will be more beneficial as it can be sustained in the long run.

The districts higher and lower compared to SSA of MPI for each state are listed in tables 5.16 and 5.17 for primary and upper primary levels of education respectively.

Table 5.16: State wise List of Districts categorized having Higher and Lower MPI compared to State Specific Average (SSA) at Primary Level of Education

States	SSA	Districts above State Specific Average (SSA)	Districts below State Specific Average (SSA)
Andhra Pradesh	1.235	Adilabad, Anantpur, Chittor,Cuddapah, East Godavari, Guntur, Hyderabad, Karimnagar, Khammam, Krishna, Kurnool, Mahbhubnagar, Medak, Nellore	Nalgonda, Nizamabad, Prakasam, Ranareddi, Srikakulam, Visakhapatnam,Vizianagaram,Warrangal,West Godavari
Assam	1.227	Baperta, Bongaigaon, Cachar, Darrang, Dhemaji, Dhubri, Dibrugarh, Goalpara, Goalghat, Hailakandi, Jorhat, Kamrup, Karimganj, Lakhimpur	Karbi Anlong, Kokrajhar, Marigaon, Nagaon, Nalbari, Sibsagar, Sonitpur, Tinsukia

Bihar	1.230	Araria, Aurangabad (Bihar), Banka, Begusarai, Bhagalpur, Bhojpur, Buxar, Darbhanga, Gaya, Gopalganj, Jamui, Jehanabad, Kaimur (Bhabua), Katihar, Khagaria, Kishanganj, Lakhisarai, Madhepura, Madhubani, Munger, Muzaffarpur, Nalanda, Paschim Champaran, Purnia	Nawda, Patna, Purba Champaran, Rohtas, Saharsa, Samastipur, Saran, Sheikhpura, Sheohar, Sitamarhi, Siwan, Supaul, Vaishali
Gujarat	1.269	Ahmedabad, Amreli, Banas Kantha, Bharuch, Bhavnagar, Dohad, Gandhinagar, Jamnagar, Junagadh, Kachchh, Kheda, Mahesana, Narmada, Panch Mahals	Anand, Navsari, Patan, Porbandar, Rajkot, Sabar Kantha, Surat, Surendranagar, The Dangs, Vadodara,Valsad
Haryana	1.096	Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon, Jind, Kaithal, Karnal, Panipat	Hisar, Jhajjar, Kurukshetra, Mahendragarh, Panchkula, Rewari, Rohtak, Sirsa, Sonipat, Yamunanagar
Himachal Pradesh	1.234	Bilaspur (H.P), Chamba, Hamirpur (H.P), Kangra, Kinnaur,Kullu, Mandi	Lahul & Spiti, Shimla, Sirmaur, Solan, Una
Karnataka	1.226	Bagalkot, Bangalore Rural, Balgaum, Bellary, Bidar, Bijapur, Chamrajnagar, Chitradurga, Dakshina Kannada, Davangere, Dharwad, Kolar, Koppal, Tumkur	Bangalore, Chikmagalur, Gadag, Gulbarga, Hassan, Haveri, Kodagu, Mandya, Mysore, Raichur, Shimoga, Udupi, Uttara Kannada
Kerala	1.210	Alappuzha, Ernakulam, Idukki, Kannur, Kasaragod, Kollam, Kottayam, Kozhikode, Malappuram	Palakkad, Pathanamthitta, Thiruvananthapuram, Thrissur, Wayanad
Madhya Pradesh	1.204	Balaghat, Barwani, Betul, Bhind, Bhopal, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dindori, Guna, Gwalior, Hoshangabad, Jabalpur, Jhabua, Katni, Khandwa, Mandla, Mandsaur, Morena, Narsinghpur, Neemuch, Panna, Raisen, Rajgarh, Rewa, Shajapur	Anuppur, Ashok Nagar, Burhanpur, Dhar, Harda, Indore, Khargone, Ratlam, Sagar, Satna, Sehore, Seoni, Shahdol, Sheopur, Shivpuri, Sidhi, Tikamgarh, Ujjain, Umaria, Vidisha
Maharashtra	1.225	Ahmadnagar, Akola, Amravati, Aurangabad (MH), Bhandara, Bid, Buldana, Chandrapur, Dhule, Gadchiroli, Gondiya, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Mumbai, Mumbai (Suburban), Nagpur, Nanded, Nandurbar, Nashik, Osmanabad	Parbhani, Pune, Raigarh (MH), Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Wardha, Washim, Yavatmal
Orissa	1.222	Angul, Balasore, Bargarh, Bolangir, Boudh, Cuttack, Deogarh, Dhenkanal, Gajapati, Ganjam, Jagatsinghpur, Jharsuguda, Kalahandi, Kandhamal, Kendrapara, Keonjhar, Koraput	Bhadrak, Jajpur, Khordha, Malkangiri, Mayurbhanj, Nawarangapur, Nayagarh, Nuapada, Puri, Rayagada, Sambalpur, Sonepur, Sundargarh
Punjab	1.189	Amritsar, Bathinda, Faridkot, Ferozepur, Gurdaspur, Hoshiarpur, Jalandhar,Ludhiana, Mansa, Moga, Muktsar	Fatehgarh Sahib, Kapurthala, Nawanshahr, Patiala, Ropar, Sangrur
Rajasthan	1.218	Ajmer, Alwar, Banswara, Baran, Barmer, Bharatpur, Bhilwara, Bikaner, Bundi, Chittaurgarh, Churu, Dausa, Dhaulpur, Dungarpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalor	Jhalawar, Jhunjhunun, Jodhpur, Karauli, Kota, Nagaur, Pali, Rajsamand, Sawai ,Madhopur Sikar, Sirohi, Tonk, Udaipur
Tamil Nadu	1.217	Chennai, Coimbatore, Cuddalore, Dharamapuri, Dindigul, Erode, Kancheepuram, Kanniyakumari, Karur, Madurai, Nagapattinam, Namakkal, Perambalur, Pudukkottai, Ramanathapuram, Salem, Sivaganga, Thanjavur	Krishanagari, The Nilgiris, Theni, Thiruvallur, Thiruvarur, Thoothukkudi, Tiruchirappalli, Tirunelveli, Tiruvannamalai, Vellore, Vilippuram, Virudhunagar

Uttar Pradesh	1.228	Agra, Aligarh, Allahabad, Ambedkar Nagar, Auraiya, Azamgarh, Baghpat, Bahraich, Ballia, Balarampur, Banda, Barabanki, Bareilly, Basti, Bijnor, Budaun, Bulandshahr, Chandauli, Chitrakoot, Deoria, Etah, Etawah, Faizabad, Farrukhabad, Fatehpur, Firozabad, Gautam Buddha Nagar, Ghaziabad, Ghazipur, Gonda, Hamirpur, Jalaun, Jaunpur, Jhansi, Kannauj, Kanpur Dehat, Lucknow, Mathura	Bhadohi, Gorakhpur, Hardoi, Hathras, Jyotiba Phule Nagar, Kanpur Nagar, Kaushambi, Kheri, Kushinagar, Lalitpur,Maharajganj, Mahoba, Mainpuri, Mau, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pilbhit, Pratapgarh, Rae Bareli, Rampur, Saharanpur, Sant Kabir Nagar, Shahjahanpur, Shrawasti, Siddharthnagar, Sitapur, Sonbhadra, Sultanpur, Unnao, Varanasi
West Bengal	1.202	Bankura, Burdwan, Birbhum, Dakshin Dinajpur, Darjeeling, Howrah, Hooghly, Jalpaiguri, Cooch Bihar, Malda, Murshidabad	Kolkata, Nadia, North Twenty Four Parganas, Paschim Midnapore, Purba Midnapore, Purulia, Siliguri, South Twenty Four Pargans, Uttar Dinajpur

Table 5.17: State wise List of Districts categorized having Higher and Lower MPI compared to State Specific Average (SSA) at Upper Primary Level of Education

States	SSA	Districts above State Specific Average (SSA)	Districts below State Specific Average (SSA)
Andhra Pradesh	1.318	Adilabad, Anantpur, Cuddapah, East Godavari, Hyderabad, Karimnagar, Krishna, Mahbhubnagar, Medak, Nalgonda, Rangareddi	Chittor, Guntur, Khammam, Kurnool, Nellore, Nizamabad, Prakasam, Srikakulam, Visakhapatnam,Vizianagaram,Warrangal,West Godavari
Assam	1.222	Baperta, Bongaigaon, Cachar, Darrang, Dhemaji, Dhubri, Dibrugarh, Goalpara, Hailakandi, Jorhat, Kamrup, Karimganj, Marigaon, Nagaon	Goalghat, Karbi Anlong, Kokrajhar, Lakhipur, Nalbari, Sibsagar, Sonitpur, Tinsukia
Bihar	1.072	Araria, Aurangabad (Bihar), Banka, Begusarai, Bhagalpur, Bhojpur, Buxar, Darbhanga, Gaya, Gopalganj, Jamui, Jehanabad, Katihar, Khagaria, Kishanganj, Madhepura, Madhubani, Muzaffarpur, Nawada, Paschim Champaran	Kaimur (Bhabua), Lakhisarai, Munger, Nalanda, Patna, Purba Champaran, Purnia, Rohtas, Saharsa, Samastipur, Saran, Sheikhpura, Sheohar, Sitamarhi, Siwan, Supaul, Vaishali
Gujarat	1.152	Ahmedabad, Amreli, Bharuch, Bhavnagar, Dohad, Gandhinagar, Jamnagar, Junagadh, Kheda, Mahesana, Navsari, Panch Mahals, Porbandar, Rajkot	Anand, Banas Kantha, Kachchh, Namada, Patan, Sabar Kantha, Surat, Surendranagar, The Dangs, Vadodara,Valsad
Haryana	1.049	Ambala, Bhiwani, Faridabad, Fatehabad, Hisar, Jhajjar, Jind, Kaithal, Karnal, Rohtak	Gurgaon, Kurukshetra, Mahendragarh, Panchkula, Panipat, Rewari, Sirsa, Sonipat, Yamunanagar
Himachal Pradesh	1.303	Bilaspur (H.P), Chamba, Hamirpur (H.P), Kangra, Kinnaur,Kullu, Lahul & Spiti, Mandi	Shimla, Sirmaur, Solan, Una
Karnataka	1.138	Bagalkot, Bangalore Rural, Balgaum, Bellary, Bidar, Bijapur, Chamrajnagar, Chitradurga, Dakshina Kannada, Davangere, Dharwad, Gulbarg, Kolar, Tumkur	Bangalore, Chikmagalur, Gadag, Hassan, Haveri, Kodagu, Koppal, Mandya, Mysore, Raichur, Shimoga, Udupi, Uttara Kannada
Kerala	1.134	Alappuzha, Ernakulam, Idukki, Kannur, Kollam, Kottayam, Kozhikode, Malappuram	Kasaragod, Palakkad, Pathanamthitta, Thiruvananthapuram, Thrissur, Wayanad
Madhya Pradesh	1.156	Balaghat, Barwani, Betul, Bhind, Burhanpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Dindori, Guna, Gwalior, Hoshangabad, Jabalpur, Katni, Khandwa, Khargone,Mandla, Mandsaur, Morena, Narsinghpur, Neemuch, Rajgarh, Ratlan, Sagar, Shajapur, Shivpuri	Anuppur, Ashok Nagar, Bhopal, Chhatapur, Harda, Indore, Jhabua, Panna, Raisen, Rewa , Satna, Sehore, Seoni, Shahdol, Sheopur, Sidhi, Tikamgarh, Ujjain, Umaria, Vidisha

Maharashtra	1.115	Ahmadnagar, Akola, Amravati, Aurangabad (MH), Bhandara, Bid, Buldana, Chandrapur, Dhule, Gadchiroli, Gondiya, Hingoli, Jalgaon, Jalna, Kolhapur, Mumbai, Nagpur, Nandurbar, Nashik,	Latur, Mumbai (Suburban), Nanded,Osmanabad, Parbhani, Pune, Raigarh (MH), Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Wardha, Washim, Yavatmal
Orissa	1.102	Angul, Balasore, Bargarh, Bhadrak, Bolangir, Cuttack, Deogarh, Dhenkanal, Ganjam, Jagatsinghpur, Jajpur, Jharsuguda, Kalahandi, Kendrapara, Keonjhar	Boudh, Gajapati, Kandhamal, Khordha, Koraput, Malkangiri, Mayurbhanj, Nawarangapur, Nayagarh, Nuapada, Puri, Rayagada, Sambalpur, Sonepur, Sundargarh
Punjab	1.156	Amritsar, Bathinda, Faridkot, Ferozepur, Kapurthala, Hoshiarpur, Jalandhar,Ludhiana, Mansa	Fatehgarh Sahib, Gurdaspur, Moga, Muktsar, Nawanshahr, Patiala, Ropar, Sangrur
Rajasthan	1.102	Ajmer, Alwar, Baran, Barmer, Bharatpur, Bhilwara, Dausa, Dhaulpur, Ganganagar, Hanumangarh, Jaipur, Jaisalmer, Jalor, Jhalwar, Jhunjunun, Jodhpur, Kota	Banswara, Bikaner, Bundi, Chittargarh, Churu, Dungarpur, Karauli, Nagaur, Pali, Rajsamand, Sawai ,Madhopur Sikar, Sirohi, Tonk, Udaipur
Tamil Nadu	1.211	Chennai, Coimbatore, Cuddalore, Dindigul, Erode, Kancheepuram, Kanniyakumari, Krishanagari, Madurai, Nagapattinam, Namakkal, Perambalur, Pudukkottai, Salem, Thanjavur, Theni, Thiruvallur	Dhsrampuri, Karur, Ramanathpuram, Sivaganga, The Nilgiris, Thiruvarur, Thoothukkudi, Tiruchirappalli, Tirunelveli, Tiruvannamalai, Vellore, Vilippuram, Virudhunagar
Uttar Pradesh	1.162	Agra, Aligarh, Allahabad, Ambedkar Nagar, Auraiya, Azamgarh, Baghpat, Bahraich, Ballia, Balarampur, Banda, Barabanki, Basti, Bhadohi, Bijnor, Budaun, Bulandshahr, Chitrakoot, Deoria, Etawah, Faizabad, Farrukhabad, Fatehpur, Firozabad, Ghaziabad, Gorakhpur, Hamirpur, Hardoi, Jalaun, Kanpur Dehat, Kanpur Nagar, Mahoba	Bareilly, Chandauli, Etah, Gautam Buddha Nagar, Ghazipur, Gonda, Hathras, Jaunpur, Jhansi, Jyotiba Phule Nagar, Kannauj, Kaushambi, Kheri, Kushinagar, Lalitpur, Lucknow, Maharajganj, Mainpuri, Mathura, Mau, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pilbhit, Pratapgarh, Rae Bareli, Rampur, Saharanpur, Sant Kabir Nagar, Shahjahanpur, Shrawasti, Siddharthnagar, Sitapur, Sonbhadra, Sultanpur, Unnao, Varanasi
West Bengal	1.051	Bankura, Burdwan, Birbhum, Darjeeling, Howrah, Hooghly, Jalpaiguri, Kolkata, Malda, Paschim Midnapore	Coochbihar, Dakshin Dinajpur, Murshidabad, Nadia, North Twenty Four Parganas, Purba Midnapore, Purulia, Siliguri, South Twenty Four Pargans, Uttar Dinajpur

5.4 Analysis of the Factors of Total Factor Productivity Growth

The section intends to determine the total factor productivity growth as measured by MPI in terms of poor as well as favourable infrastructural, social and policy variables of the districts for primary and upper primary levels of education. Using the district level estimates obtained in the first stage, the state wise panels are prepared for both the levels of education separately over the period 2006-07 to 2013-14 considering 2005-06 as the base period. For each of the state wise regression Hausman specification test is performed which strongly rejects the assumption of a fixed effect model in favour of the random effect model. This establishes the appropriateness of the assumption of fixed effect vs. random effect model. Different regressions are tried out and the best fitted model containing the significant determinants is reported here. The state wise estimated results for primary and upper primary levels of education are presented in tables 5.18 and 5.19 respectively. The result reveals that for both the levels significant indicators in explaining the variation of MPI vary across states.

Table 5.18: Significant Determinants Explaining MPI at Primary Level of Education

States	Variables (Coefficients & p value)	Goodnesss of Fit of Model
Andhra Pradesh	CBCP(-0.00935,0.002), SNTSP (-0.00671,0.017), GTCTP(0.001779,0.016), SFTBP(0.005091,0.010), TLMGP(0.002398,0.00)	Wald Chi^2=106.39, P>Chi^2=0.00
Assam	GTFP(0.002915,0.050), SDGP (0.005535,0.009)	Wald Chi^2=135.6, P>Chi^2=0.00
Bihar	NPBP (-0.00204,0.005), SNTSP (-0.00297,0.002), DWFP(0.005146,0.00), SDGP (0.004058,0.00)	Wald Chi^2=130.63, P>Chi^2=0.00
Gujarat	GENBP (0.015578,0.044), SFSTP (0.004043,0.050)	Wald Chi^2=109.69, P>Chi^2=0.00
Haryana	CBCP (-0.01548,0.008), SNTSP (-0.00876,0.050), GENBP (0.027638,0.00), GTCTP (0.006216,0.019), SFSTP (0.006299,0.037), SDGP (0.007097,0.028)	Wald Chi^2=67.08, P>Chi^2=0.00
Himachal Pradesh	SFSTP (0.003778,0.007)	Wald Chi^2=85.02, P>Chi^2=0.00
Karnataka	SWBP (-0.01255,0.028), CBCP (-0.0113,0.01), SFSTP (0.003984,0.050)	Wald Chi^2=51.85, P>Chi^2=0.00
Kerala	SWBP (-0.01732,0.006), GTCTP (0.014447,0.00), SFSTP (0.078733,0.00), GFSTBP (0.004366,0.035)	Wald Chi^2=149.44, P>Chi^2=0.00
Madhya Pradesh	SFSTP (0.001962,0.035), GFSTBP (0.002695,0.00), SDGP (0.00937,0.001)	Wald Chi^2=114.07, P>Chi^2=0.00
Maharashtra	CBCP (-0.0201305, 0.042), CTFP (0.011482,0.00)	Wald Chi^2=80.48, P>Chi^2=0.00
Orissa	SDGP (0.005735,0.008)	Wald Chi^2=187.71, P>Chi^2=0.00
Punjab	GTCTP (0.003616,0.012), GFTBBP (0.0168,0.009)	Wald Chi^2=72.49, P>Chi^2=0.00
Rajasthan	NBBP(-0.01153,0.001), TLMGP (0.022638,0.00)	Wald Chi^2=48.57, P>Chi^2=0.00
Tamil Nadu	SNTSP (-0.0029,0.001), SFUP (0.001744,0.003)	Wald Chi^2=96.16, P>Chi^2=0.00
Uttar Pradesh	NBBP (-0.00272,0.00), SFTBP (0.002368,0.013), TLMGP (0.001892,0.034)	Wald Chi^2=111.3, P>Chi^2=0.00
West Bengal	SWBP (-0.00614,0.032)	Wald Chi^2=25.15, P>Chi^2=0.00

Table 5.19: Significant Determinants Explaining MPI at Upper Primary Level of Education

States	Variables (Coefficients & p value)	Goodnesss of Fit of Model
Andhra Pradesh	GTCTUP(0.003299,0.001), SDGUP(0.009713,0.00)	Wald Chi^2=118.67, P>Chi^2=0.00
Assam	GENBUP(0.014795,0.00), SFTBUP(0.012419,0.028)	Wald Chi^2=92.91, P>Chi^2=0.00
Bihar	CBCUP(-0.0075,0.003),GTFUP(0.004554,0.00), GFSTBUP(0.001554,0.002)	Wald Chi^2=214.43, P>Chi^2=0.00
Gujarat	SWBUP(-0.02987,0.016), GTCTUP(0.002634,0.008),SFSTUP(0.015257,0.048), TLMGUP(0.030724,0.048)	Wald Chi^2=76.68, P>Chi^2=0.00
Haryana	SWBUP(-0.01926,0.003), SNTSUP(-0.00432,0.024), DWFUP(0.025087,0.00), CTFUP(0.003397,0.009), GENBUP(0.010739,0.025)	Wald Chi^2=48.39, P>Chi^2=0.00
Himachal Pradesh	DWFUP(0.013345,0.039)	Wald Chi^2=30.98, P>Chi^2=0.00
Karnataka	GTCTUP(0.003231,0.050)	Wald Chi^2=43.67, P>Chi^2=0.00
Kerala	CBCUP(-0.02069,0.006), DWFUP(0.005169,0.034), GTCTUP(0.023324,0.00), TLMGUP(0.078411,0.00)	Wald Chi^2=106.98, P>Chi^2=0.00
Madhya Pradesh	GTCTUP(0.002659,0.027), SFUUP(0.008769,0.011), GFSTBUP(0.001554,0.027)	Wald Chi^2=65.51, P>Chi^2=0.00
Maharasht	NPBUP(-0.00721,0.006), SFUUP(0.048814,0.00), TLMGUP(0.023951,0.00)	Wald Chi^2=322.55,

ra		$P>Chi^2=0.00$
Orissa	SWBUP(-0.03306,0.029), NPBUP(-0.00436,0.023), GENBUP(0.009741,0.028), GTCTUP(0.002065,0.004), GFSTBUP(0.001599,0.005)	Wald $Chi^2=84.63$, $P>Chi^2=0.00$
Punjab	SWBUP(-0.00601,0.047), GTCTUP(0.005227,0.016), TLMGUP(0.00689,0.006)	Wald $Chi^2=46.83$, $P>Chi^2=0.00$
Rajasthan	GTFUP(0.003674,0.00), GTCTUP(0.003519,0.00), GFSTBUP(0.00417,0.00), TLMGUP(0.019299,0.00)	Wald $Chi^2=471.19$, $P>Chi^2=0.00$
Tamil Nadu	GTFUP(0.002718,0.02)	Wald $Chi^2=149.93$, $P>Chi^2=0.00$
Uttar Pradesh	NPBUP(-0.00611,0.00), SNTSUP(-0.00457,0.002), CTFUP(0.002055,0.005), GTCTUP(0.004442,0.00)	Wald $Chi^2=117.6$, $P>Chi^2=0.00$
West Bengal	SWBUP(-0.00422,0.050), GTFUP(0.00319,0.022), SFUUP(0.003633,0.022), GFSTBUP(0.0000536,0.011), TLMGUP(0.002905,0.031)	Wald $Chi^2=107.3$, $P>Chi^2=0.00$

An insightful look into the empirical findings for primary and upper primary levels of education basically figures out the significant determinants which are present in both the cases. The regression results suggest that TFPG negatively depends on the different poor infrastructural facilities such as percentage of schools without building (SWB), percentage of schools having no pucca building (NPB), percentage of classrooms in 'bad' condition (CBC) and percentage of single-teacher schools (SNTS). Estimated MPI is positively influenced by favourable infrastructural facilities namely percentage of schools with drinking water facility (DWF), percentage of schools with common toilet facility (CTF) and percentage of schools having girls' toilet facility (GTF). Considering the social indicators the factors like percentage of girls enrolment to boys (GENB) and percentage of schools with girls' toilet to common toilet (GTCT) have significant and positive impact on productivity performance. Different policy indicators are becoming significant. For example, percentage of students getting free text books (SFTB), percentage of students getting uniforms (SFU), percentage of students getting free stationery (SFST), percentage of girls getting free stationery to boys (GFSTB), percentage of schools received SD grant (SDG) and percentage of schools received TLM grant (TLMG) are important factors responsible for variation of MPI over study period.

Apart from these factors, two additional indicators such as percentage of schools with no blackboard (NBBP) and percentage of girls getting free text books to boys (GFTBBP) have a significant role to play in explaining productivity index corresponding to primary level of education. No determinants other than above mentioned factors are found to be significant in case of upper primary level.

5.5 Conclusions

The present chapter estimates TFPG of elementary education sector of India over the period 2005-06 to 2013-14 for the 16 major selected states using nonparametric DEA technique. The analysis carried out for primary and upper primary levels of education separately. The MPI also has been decomposed into their components of technical efficiency change, technical change and scale efficiency change. Further the study finds the relationship between productivity

score and various explanatory variables like poor infrastructure, school-specific favourable, social and policy indicators. The major findings of the chapter can be summarized as follows:

The magnitude of the productivity index varies over a wide range at both primary and upper primary levels of education. The results of the analysis reveal that grand mean of MPI is slightly higher for primary level of education (1.21) compared to the upper primary level of education (1.15). Considering primary level the MPI varies from 0.951 to 1.483 while taking all the states collectively. State specific average (SSA) is maximum and minimum for GJ (1.269) and HA (1.096) respectively. On an average the percentage of the districts higher and lower than the SSA are highest for MH (65.71%) and HA (52.63%) respectively. On the other hand the Malmquist Productivity Index varies from 0.880 to 1.880 for upper primary level of education. State specific average (SSA) is maximum and minimum for AP (1.318) and HA (1.049) respectively. For both primary and upper primary levels of education the majority of districts possess MPI greater than SSA score. Performance of the states which is good with respect to TFPG having high mean and less variability are the following: (a) AP, BH, HP, KE, OR, TN and UP for primary and (b) AS, GJ, PN and TN for upper primary level.

The Comparison of primary and upper primary levels of education reveal that (i) for both the levels of education the states such as AP, AS, GJ, HP, TN and UP have high SSA as compared to the grand mean of TFPG, (ii) the states namely BH, KE and TN have lower CV as compared to grand mean of CV for both levels and (iii) the percentage of districts with SSA higher than grand mean is higher for primary (58.83%) than upper primary (53.87%).

The findings show that the grand means of the productivity growth rate (PGR) are 6.304% and 20.829%, corresponding to primary and upper primary levels of education respectively. For primary and upper primary levels of education KE exhibits the highest productivity performance in terms of growth rate over the study period.

The decomposition analysis reveals that on an average the TFPG movement is dominated by technical change for both primary and upper primary levels of education. This is true if one consider the level as well as its rate of change. The contribution of rate of technical change at both primary (grand mean 3.178%) and upper primary levels of education (14.851%) is highest, followed by the rate of technical efficiency change (1.270% and 4.806% respectively).

Another important thrust of the chapter is to figure out the major determining factors. In the determinant analysis, random effect model has been used as suggested by Hausman specification test. The state wise results suggest that poor infrastructures, school-specific favourable, social and policy indicators have

significant impact on MPI score. The main aim is to capture the effect of individual indicator which helps to identify the drawback in any of the above mentioned aspects. The policy percept is one of the most important aspects among these indicators. The Government at any level can play major role in promoting TFPG by providing free text books, uniforms, stationery, school development grant and teaching learning materials to the schools at both levels. Inclusion of strategic ways in order to improve gender discrimination from the part of government by giving more either free text books or free stationery to the girls than boys can be a significant factor to foster overall TFPG. On the other hand it can be said that there is a negative association between TFPG and the poor infrastructural variables.

From the results obtained from the regression it is observed that TFPG is negatively influenced by the different poor infrastructural facilities like percentage of schools without building, percentage of schools having no pucca building, percentage of classrooms in 'bad' condition and percentage of single-teacher schools for both primary and upper primary levels of education. On the other hand the MPI score is positively associated by favourable infrastructural facilities like percentage of schools with drinking water facility, percentage of schools with common toilet facility and percentage of schools having girls' toilet facility for both the levels of education. The major significant social indicators are the percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet. Percentage of students getting free text books, percentage of students getting uniforms, percentage of students getting free stationery, percentage of girls getting free stationery to boys, percentage of schools received SD grant and percentage of schools received TLM grant are the common important policy indicators for variation of MPI.

Additionally, percentage of schools with no blackboard and percentage of girls getting free text books to boys solely influence MPI score for primary level of education. No determinants other than previously mentioned factors are discovered to be crucial in explaining TFPG for upper primary level.

So definitely there is a need to improve infrastructural facilities, at both primary and upper primary levels. Also the importance of school specific favourable factors, social and policy indicators cannot be ignored. Therefore the study reveals that any suitable policy which can enhance total factor productivity growth at both primary and upper primary levels of education should be encouraged.

Appendix-A5

District wise Productivity Scores (MPI) at Primary Level of Education

Table A5.1 : Year wise MPI in Andhra Pradesh at Primary Level of Education

Andhra Pradesh	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Adilabad	1.667	1.547	1.045	1.577	0.926	1.234	1.384	0.963
Anantpur	1.807	1.553	1.177	1.408	0.979	1.048	1.218	1.284
Chittor	1.833	1.480	1.275	1.175	0.953	1.351	1.062	1.427
Cuddapah	1.686	1.805	1.405	1.136	1.109	1.744	0.901	1.490
East Godavari	2.511	1.394	1.255	1.164	1.180	1.020	1.129	1.208
Guntur	1.732	1.886	1.245	1.223	1.347	1.076	0.831	1.332
Hyderabad	1.703	1.308	1.361	1.132	1.189	1.085	1.283	1.146
Karimnagar	1.955	1.634	1.168	1.286	1.030	1.334	0.950	1.344
Khammam	1.639	1.509	1.130	1.330	0.885	1.210	1.292	1.147
Krishna	1.974	1.463	1.245	1.252	1.213	1.049	0.948	1.357
Kurnool	1.558	1.410	1.224	1.218	1.174	1.100	1.234	1.215
Mahbubnagar	1.795	1.507	1.221	1.214	1.168	1.025	1.367	1.286
Medak	1.676	1.297	1.338	1.080	1.264	0.978	1.281	1.174
Nalgonda	1.398	1.470	1.255	1.112	1.130	1.187	1.151	1.172
Nellore	1.720	1.462	1.125	1.140	1.116	1.102	1.100	1.289
Nizamabad	1.749	1.329	1.144	1.232	1.081	1.069	1.189	1.132
Prakasam	1.468	1.391	1.343	1.133	1.310	1.066	0.986	1.212
Rangareddi	1.403	1.262	1.206	1.098	1.071	1.785	0.714	1.058
Srikakulam	1.315	1.254	1.023	1.284	0.974	1.092	1.177	1.290
Visakhapatnam	1.411	1.137	1.082	1.172	1.098	0.949	1.227	1.131
Vizianagaram	1.413	1.194	0.860	1.149	1.002	1.074	1.047	1.318
Warangal	1.318	1.116	1.060	1.094	1.098	1.023	0.983	1.146
West Godavari	1.385	1.139	1.011	1.106	1.061	0.921	0.903	1.215

Table A5.2 : Year wise MPI in Assam at Primary Level of Education

Assam	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Baperta	1.923	1.424	1.237	1.231	1.337	1.572	0.966	1.124
Bongaigaon	1.618	1.382	1.271	1.338	1.278	1.249	1.020	1.091
Cachar	1.810	1.431	1.322	1.191	1.269	2.354	0.745	1.086
Darrang	1.621	1.535	1.315	1.193	1.265	1.957	0.817	1.059
Dhemaji	1.546	1.522	1.323	1.210	1.314	1.782	0.878	1.131
Dhubri	1.451	1.389	1.284	1.375	1.637	1.754	0.826	1.006
Dibrugarh	1.728	1.428	1.253	1.255	1.171	1.332	0.956	1.087
Goalpara	1.718	1.517	1.311	1.140	1.337	1.604	0.887	1.112
Golaghat	1.629	1.250	1.228	1.330	1.091	1.326	0.991	1.099
Hailakandi	1.909	1.550	1.327	1.359	1.322	1.848	0.803	1.312
Jorhat	1.848	1.508	1.306	1.151	1.277	1.583	0.783	1.062
Kamrup	1.370	1.412	1.319	1.452	1.169	2.528	0.620	1.018

Karbi Anglong	1.566	1.035	1.069	0.924	1.137	1.046	1.068	1.088
Karimganj	2.063	1.288	1.301	1.126	1.412	1.184	0.962	0.948
Kokrajhar	1.166	1.383	1.236	1.236	1.256	1.016	1.011	1.131
Lakhimpur	1.567	1.461	1.342	1.182	1.271	1.297	1.079	1.143
Marigaon	1.196	1.187	1.131	0.954	1.643	1.106	0.772	1.031
Nagaon	1.139	1.163	1.204	1.181	1.305	1.376	0.894	1.028
Nalbari	1.157	1.394	1.237	1.230	1.168	1.152	0.855	1.154
Sibsagar	1.440	1.070	1.251	1.199	1.004	1.022	0.959	1.045
Sonitpur	1.068	1.138	1.041	1.161	1.056	1.014	0.959	1.023
Tinsukia	1.003	1.177	1.093	1.170	1.104	0.984	1.057	0.992

Table A5.3: Year wise MPI in Bihar at Primary Level of Education

Bihar	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Araria	1.766	1.090	1.384	1.215	1.266	1.199	1.245	1.073
Aurangabad (Bihar)	1.475	1.694	1.391	1.263	1.437	1.174	1.106	1.113
Banka	1.343	1.319	1.396	1.244	1.162	1.852	0.830	1.116
Begusarai	1.971	0.938	1.408	1.449	1.232	1.111	1.338	1.102
Bhagalpur	1.714	1.356	1.373	1.361	1.154	1.331	1.145	1.154
Bhojpur	1.235	1.614	1.360	1.288	1.194	1.177	0.980	1.110
Buxar	1.997	1.106	1.393	1.183	1.320	1.146	1.050	1.092
Darbhanga	2.081	1.154	1.396	1.203	1.246	1.124	1.268	1.079
Gaya	2.203	1.570	1.315	1.190	1.313	1.309	1.058	1.108
Gopalganj	1.991	1.113	1.314	1.286	1.331	1.141	1.122	1.123
Jamui	1.935	1.264	1.317	1.266	1.151	1.137	1.071	1.119
Jehanabad	1.752	1.264	1.511	1.381	1.574	1.015	1.151	1.077
Kaimur (Bhabua)	2.075	1.401	1.378	1.226	1.242	1.316	1.051	1.205
Katihar	1.408	1.171	1.372	1.306	1.276	1.202	1.170	1.240
Khagaria	1.937	0.930	1.514	1.755	1.141	1.172	1.263	1.106
Kishanganj	1.984	0.873	1.306	1.248	1.172	1.783	0.815	1.291
Lakhisarai	1.688	1.073	1.369	1.349	1.212	1.189	1.189	1.155
Madhepura	1.742	1.357	1.400	1.188	1.478	1.414	1.064	1.025
Madhubani	2.259	1.248	1.312	1.185	1.192	1.168	1.167	1.053
Munger	1.377	1.502	1.244	1.376	1.196	1.323	1.068	1.128
Muzaffarpur	1.345	1.642	1.368	1.247	1.066	1.203	1.349	1.141
Nalanda	1.720	1.564	1.194	1.098	1.149	1.567	0.904	1.104
Nawada	1.329	1.269	1.286	1.313	1.191	1.693	0.818	1.087
Paschim Champaran	1.552	0.997	1.517	1.168	1.183	1.453	1.149	1.028
Patna	1.133	1.583	1.231	1.188	1.120	1.624	1.029	1.038
Purba Champaran	1.467	0.941	1.308	1.235	1.188	1.905	0.892	1.121
Purnia	1.573	1.049	1.214	1.340	1.231	2.021	0.822	1.098
Rohtas	1.147	1.368	1.269	0.974	1.240	2.026	0.740	1.005
Saharsa	1.444	0.935	1.043	1.316	1.197	2.218	0.619	1.099
Samastipur	1.866	0.810	1.334	1.339	1.156	2.099	0.631	1.081

Saran	0.900	1.122	1.248	1.069	1.106	1.074	1.111	1.045
Sheikhpura	1.748	0.953	1.102	1.082	1.247	1.031	1.104	0.961
Sheohar	1.535	0.909	1.191	1.160	1.189	0.982	1.096	1.090
Sitamarhi	1.058	0.981	1.245	0.994	1.084	1.003	1.060	1.022
Siwan	1.409	0.960	1.097	1.131	1.108	1.036	1.290	0.999
Supaul	1.203	0.975	1.078	1.095	1.044	1.012	1.069	1.086
Vaishali	1.038	1.089	1.130	1.122	1.043	0.987	1.154	1.020

Table A5.4: Year wise MPI in Gujarat at Primary Level of Education

Gujarat	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Ahmedabad	2.093	1.322	1.678	1.188	1.284	0.367	3.572	1.093
Amreli	3.592	1.198	1.673	1.082	1.080	0.522	3.103	1.127
Anand	1.900	2.137	0.938	1.184	1.314	0.779	1.298	1.121
Banas Kantha	1.773	2.341	0.730	1.331	1.094	0.982	1.525	1.127
Bharuch	1.695	1.889	1.055	1.163	1.046	0.834	1.731	1.147
Bhavnagar	1.900	2.081	1.770	1.088	1.175	0.504	3.284	1.137
Dohad	2.257	1.902	1.039	1.231	1.132	1.112	1.807	1.069
Gandhinagar	2.030	2.005	0.786	1.460	1.266	0.629	1.658	1.606
Jamnagar	2.011	1.668	1.520	1.106	1.236	0.615	2.245	1.167
Junagadh	2.466	2.169	0.961	1.243	1.141	0.732	2.159	1.176
Kachchh	2.357	0.970	2.163	1.246	1.189	0.639	2.454	1.055
Kheda	1.898	1.901	0.944	1.154	1.159	1.005	1.563	1.148
Mahesana	2.596	1.328	1.374	1.051	1.191	0.637	1.723	1.154
Narmada	1.625	1.974	1.012	1.550	1.243	1.208	1.054	1.205
Navsari	1.356	1.838	0.873	1.529	0.913	0.706	2.001	1.209
Panch Mahals	1.651	1.864	0.913	1.295	1.109	1.006	1.530	1.110
Patan	1.398	1.596	0.878	1.536	0.986	0.771	1.924	1.166
Porbandar	1.181	1.396	1.429	1.442	1.152	0.642	2.271	1.090
Rajkot	1.975	0.842	2.011	1.241	1.528	0.338	2.343	1.042
Sabar Kantha	1.629	1.754	0.891	1.140	1.160	0.924	1.735	1.150
Surat	1.409	1.447	1.160	1.008	1.226	0.662	1.622	1.024
Surendranagar	1.975	1.100	1.045	1.187	1.171	0.479	2.200	1.008
The Dangs	1.460	1.491	0.931	0.988	1.518	0.997	0.741	1.045
Vadodara	1.303	1.652	0.833	1.042	1.172	0.940	1.052	1.037
Valsad	1.360	1.580	0.750	1.149	0.979	1.057	0.857	1.014

Table A5.5: Year wise MPI in Haryana at Primary Level of Education

Haryana	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Ambala	1.063	0.960	1.513	2.075	0.820	1.009	1.017	1.065
Bhiwani	0.923	1.350	1.455	2.654	0.624	1.212	1.052	1.132
Faridabad	1.839	1.270	1.388	1.683	0.689	0.633	2.108	1.134
Fatehabad	1.553	1.328	1.180	1.290	1.018	0.922	1.214	1.005

Gurgaon	2.494	1.198	1.299	1.252	1.120	0.777	1.366	0.916
Hisar	1.300	0.704	1.075	2.595	0.718	0.505	1.696	1.160
Jhajjar	0.912	0.687	1.573	2.109	0.561	0.503	1.812	1.144
Jind	1.413	1.367	0.770	1.613	0.865	0.882	1.276	1.155
Kaithal	0.708	1.880	1.225	2.078	0.568	0.751	1.604	1.103
Karnal	1.102	1.396	0.825	2.625	0.666	0.749	1.696	1.109
Kurukshetra	0.742	0.866	1.544	2.212	0.603	0.965	1.212	0.964
Mahendragarh	0.575	1.373	1.230	2.120	0.583	1.153	1.062	1.012
Panchkula	0.695	1.218	1.048	2.478	0.580	1.153	1.150	0.961
Panipat	1.147	0.927	1.230	1.960	0.662	0.735	1.825	1.046
Rewari	0.780	1.149	1.184	2.512	0.561	1.092	1.122	1.029
Rohtak	0.885	1.177	1.163	1.750	0.625	0.737	1.608	1.042
Sirsa	0.992	0.920	0.951	1.942	0.570	0.890	1.087	1.051
Sonipat	0.693	0.816	1.184	1.675	0.560	0.797	1.405	0.954
Yamunanagar	1.075	0.861	1.156	1.692	0.576	0.891	1.063	0.997

Table A5.6: Year wise MPI in Himachal Pradesh at Primary Level of Education

Himachal Pradesh	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Bilaspur (H.P)	1.829	1.490	1.280	1.164	1.157	1.878	0.793	1.115
Chamba	1.668	1.770	1.310	1.080	1.318	1.444	0.968	1.102
Hamirpur (H.P)	1.990	1.507	1.341	1.229	1.201	1.764	0.839	1.106
Kangra	1.910	1.497	1.326	1.231	1.252	1.455	0.974	1.128
Kinnaur	1.836	1.531	1.315	1.045	1.217	1.640	0.668	1.145
Kullu	1.727	1.494	1.218	1.165	1.080	1.884	0.733	1.082
Lahul & Spiti	1.570	1.464	1.389	0.972	1.249	1.331	0.920	1.101
Mandi	1.629	1.443	1.274	1.173	1.167	1.343	1.056	1.136
Shimla	1.377	1.236	1.176	1.128	1.037	2.313	0.569	1.028
Sirmaur	1.468	1.206	1.085	0.936	1.140	1.319	0.947	1.008
Solan	1.428	1.194	1.204	1.037	1.138	1.307	0.973	1.043
Una	1.345	1.212	1.118	1.077	1.090	1.351	0.941	1.071

Table A5.7: Year wise MPI in Karnataka at Primary Level of Education

Karnataka	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Bagalkot	1.863	1.971	1.258	1.033	1.115	1.102	1.088	1.158
Bangalore	1.025	1.826	1.658	1.242	2.432	1.618	0.112	1.265
Bangalore Rural	1.885	2.485	1.617	1.276	1.361	0.529	1.586	1.156
Balgaum	1.065	2.981	1.451	1.238	1.530	1.561	2.341	0.732
Bellary	2.456	0.951	2.134	1.277	0.957	0.685	1.699	1.298
Bidar	2.564	0.794	2.462	1.068	0.915	0.651	1.588	1.101
Bijapur	1.718	1.662	1.313	1.212	1.017	0.951	1.033	1.202
Chamrajnagar	2.241	1.261	1.783	1.145	1.101	0.850	1.280	1.335
Chikmagalur	1.489	1.362	1.608	1.201	0.772	1.233	0.751	1.030

Chitradurga	1.647	1.292	2.007	0.993	1.013	0.902	1.203	1.111
Dakshina Kannada	1.563	1.282	1.497	1.288	1.036	0.686	2.173	1.098
Davangere	2.390	0.848	2.227	1.118	0.951	0.706	1.560	1.123
Dharwad	1.689	1.212	1.628	1.132	1.157	0.607	2.253	1.017
Gadag	1.730	0.935	1.921	1.115	0.935	0.627	2.169	1.062
Gulbarga	2.349	0.880	2.004	1.043	1.209	0.669	1.261	1.030
Hassan	1.745	1.131	1.738	1.175	0.785	1.130	1.039	1.040
Haveri	2.063	0.904	1.558	1.059	1.039	0.735	1.765	0.995
Kodagu	1.977	1.249	1.048	1.133	1.142	0.758	1.455	1.008
Kolar	1.219	2.088	1.570	1.221	1.492	1.668	3.002	0.611
Koppal	2.412	0.763	2.091	1.030	1.101	0.861	1.483	0.979
Mandya	1.586	1.388	1.063	1.225	1.059	0.837	1.268	0.971
Mysore	2.003	1.175	1.034	1.033	1.239	0.791	1.349	1.085
Raichur	1.734	0.660	1.826	0.999	0.943	0.916	1.372	0.947
Shimoga	1.559	1.022	1.541	0.915	1.193	0.873	1.072	1.064
Tumkur	1.239	1.795	1.232	1.069	1.408	1.204	1.121	1.180
Udupi	1.332	1.180	1.202	0.970	1.073	0.652	1.614	1.000
Uttara Kannada	1.213	1.214	1.360	0.938	0.745	0.932	1.486	1.022

Table A5.8: Year wise MPI in Kerala at Primary Level of Education

Kerala	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Alappuzha	1.404	1.804	1.392	1.131	1.171	0.604	1.747	1.102
Ernakulam	2.093	1.521	1.349	1.176	1.232	0.746	1.523	1.187
Idukki	2.136	1.273	1.358	1.286	1.111	0.477	1.946	1.115
Kannur	1.964	1.467	1.393	1.362	1.155	0.651	1.895	1.114
Kasaragod	1.929	1.459	1.387	1.166	1.299	0.704	1.614	1.088
Kollam	2.189	1.347	1.373	1.274	1.211	0.519	1.958	1.095
Kottayam	1.650	1.359	1.481	1.088	1.256	0.690	1.482	1.071
Kozhikode	1.699	1.382	1.353	1.226	1.056	0.503	2.497	1.104
Malappuram	1.541	1.499	1.301	0.964	1.134	0.357	3.660	1.119
Palakkad	1.465	1.469	1.220	1.092	1.251	0.398	2.605	1.093
Pathanamthitta	1.428	1.257	1.193	1.151	1.172	0.753	1.234	1.111
Thiruvananthapuram	1.181	1.248	1.094	1.062	1.100	0.375	2.204	1.092
Thrissur	1.673	1.147	1.131	1.037	1.140	0.416	2.383	1.044
Wayanad	1.333	1.236	1.107	1.060	1.091	0.424	2.261	1.046

Table A5.9: Year wise MPI in Madhya Pradesh at Primary Level of Education

Madhya Pradesh	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Anuppur	1.843	1.312	1.146	1.762	1.350	0.443	0.928	1.038
Ashoknagar	2.293	1.100	1.559	1.208	1.684	0.591	0.534	1.087
Balaghat	2.066	1.390	1.095	0.858	0.910	0.885	2.914	1.224
Barwani	2.252	1.270	1.135	0.706	1.145	0.802	2.138	1.204

Betul	2.370	1.430	1.325	1.120	1.103	0.972	1.654	1.140
Bhind	2.464	1.652	1.436	1.144	0.975	1.148	1.444	1.097
Bhopal	1.463	1.348	1.342	1.165	1.371	0.859	1.552	1.073
Burhanpur	0.886	0.983	1.309	1.390	1.045	0.790	2.014	1.117
Chhatarpur	2.073	1.416	1.297	1.078	1.229	0.833	1.807	1.080
Chhindwara	2.299	1.391	1.468	1.064	0.985	1.090	1.648	1.155
Damoh	1.905	1.650	1.347	1.036	1.006	0.990	1.319	1.112
Datia	1.519	1.593	1.296	0.999	1.065	1.057	1.330	1.081
Dewas	1.954	1.554	1.287	1.297	1.140	1.156	1.335	1.322
Dhar	1.357	1.530	1.352	1.022	1.084	0.994	1.110	1.285
Dindori	3.085	0.936	1.275	1.472	1.068	1.103	1.194	1.021
Guna	1.879	1.545	1.179	1.237	0.914	0.676	1.960	1.086
Gwalior	2.079	1.507	1.235	1.147	1.218	1.246	1.072	1.057
Harda	0.908	1.583	1.426	0.961	1.180	0.834	1.504	1.088
Hoshangabad	2.498	1.338	1.173	1.084	1.547	0.889	1.490	1.277
Indore	1.226	1.193	1.242	1.171	1.127	0.689	2.004	1.112
Jabalpur	2.124	1.256	0.998	1.196	1.325	0.766	1.738	1.187
Jhabua	2.433	1.228	1.764	0.523	1.452	0.876	1.233	1.038
Katni	1.590	1.480	1.108	0.879	1.125	0.938	1.401	1.363
Khandwa	2.234	1.183	1.473	0.931	1.506	1.345	0.687	1.102
Khargone	2.112	1.112	1.498	1.019	1.351	1.550	0.438	1.088
Mandla	1.721	1.772	0.630	1.233	1.061	0.822	2.164	1.044
Mandsaur	1.967	1.508	1.111	1.476	1.032	0.811	2.170	1.074
Morena	2.574	1.363	1.389	1.185	1.051	1.021	1.221	0.963
Narsinghpur	1.733	1.326	1.174	1.101	0.847	0.864	2.309	1.155
Neemuch	1.801	1.447	1.125	1.215	1.089	0.796	1.781	1.413
Panna	1.560	1.316	1.244	1.094	1.390	1.165	0.978	1.060
Raisen	1.573	1.325	1.224	0.963	1.268	1.035	1.497	1.162
Rajgarh	1.550	1.338	1.180	1.021	1.046	1.012	1.651	1.160
Ratlam	1.694	1.356	1.031	1.025	1.228	0.795	1.507	1.115
Rewa	2.065	1.162	1.352	0.932	1.464	0.925	1.122	1.038
Sagar	1.745	1.221	1.007	1.071	1.047	0.744	1.632	1.134
Satna	1.307	1.383	1.125	1.167	1.205	0.740	1.567	1.090
Sehore	1.683	0.813	1.235	1.042	1.209	1.051	1.063	1.100
Seoni	1.672	1.019	0.948	1.141	1.032	1.367	1.205	1.240
Shahdol	1.106	1.116	1.180	1.085	1.023	0.858	0.903	1.207
Shajapur	2.198	1.089	0.891	1.244	1.260	1.375	0.962	1.041
Sheopur	1.788	1.141	1.120	1.025	1.016	1.304	0.765	0.942
Shivpuri	1.527	1.166	1.159	1.059	0.975	1.328	0.766	1.056
Sidhi	1.447	0.949	1.117	0.995	1.025	1.464	0.747	0.934
Tikamgarh	1.624	1.047	0.915	0.793	1.090	1.366	0.668	0.980
Ujjain	1.286	1.009	0.912	1.040	1.053	1.049	1.140	1.014
Umaria	1.102	1.181	0.875	0.914	1.145	1.049	0.874	1.040
Vidisha	1.609	1.053	1.048	0.890	1.039	1.003	0.822	1.002

Table A5.10: Year wise MPI in Maharashtra at Primary Level of Education

Maharashtra	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Ahmadnagar	2.135	1.467	1.377	0.990	0.860	2.502	0.990	1.164
Akola	2.459	1.374	1.289	1.169	1.079	0.812	1.719	1.151
Amravati	1.700	1.760	1.412	1.152	1.074	0.736	1.773	1.191
Aurangabad (MH)	2.211	1.716	1.132	1.100	0.966	1.043	1.384	1.162
Bhandara	2.854	1.475	1.089	1.135	0.909	0.866	1.816	1.138
Bid	2.060	1.595	1.205	1.047	0.923	1.571	1.184	1.209
Buldana	2.272	1.352	1.064	1.247	1.163	0.841	1.682	1.184
Chandrapur	3.011	1.422	1.054	1.061	0.918	1.408	1.106	1.107
Dhule	2.641	1.887	1.086	0.994	1.016	0.802	2.452	1.092
Gadchiroli	3.023	1.384	1.041	1.053	0.913	0.856	1.638	1.185
Gondiya	2.691	1.604	1.083	1.061	0.912	1.850	0.931	1.224
Hingoli	7.846	0.394	1.264	1.107	1.258	0.903	1.419	1.214
Jalgaon	2.073	1.556	1.307	1.240	0.986	0.859	1.444	1.138
Jalna	1.544	1.553	1.284	1.150	1.089	0.966	1.463	1.199
Kolhapur	1.393	1.780	1.375	1.211	1.077	0.640	1.543	1.184
Latur	1.721	1.834	1.321	1.195	1.148	0.808	1.403	1.157
Mumbai	1.191	1.817	1.140	1.181	1.802	8.171	0.124	1.229
Mumbai (Suburban)	0.379	0.927	0.777	1.133	1.162	0.950	3.720	13.691
Nagpur	1.791	1.580	1.308	1.143	1.218	0.568	1.810	1.124
Nanded	1.476	1.547	1.419	1.032	1.067	1.230	1.227	1.155
Nandurbar	2.214	1.565	1.271	0.778	1.123	0.694	2.289	1.155
Nashik	2.079	1.264	1.310	0.909	0.997	1.035	1.862	1.080
Osmanabad	1.641	1.677	1.204	1.189	1.101	0.817	1.428	1.162
Parbhani	5.901	0.302	1.217	1.181	1.125	0.838	1.370	1.100
Pune	1.342	1.298	1.232	1.196	0.872	0.684	1.969	1.045
Raigarh (MH)	1.276	1.233	1.327	1.008	0.866	1.440	0.958	1.081
Ratnagiri	1.583	1.024	1.247	1.053	0.850	1.794	0.664	1.185
Sangli	1.214	1.114	1.100	1.157	0.901	1.089	1.117	1.121
Satara	1.344	1.119	1.112	1.080	0.892	0.969	1.283	1.122
Sindhudurg	1.009	1.101	1.113	1.060	0.763	1.019	0.997	1.165
Solapur	1.353	1.199	1.168	0.960	1.003	0.733	1.630	1.140
Thane	1.395	1.081	1.040	1.054	1.080	0.815	1.507	1.006
Wardha	1.522	1.056	1.048	0.971	1.109	0.919	0.963	1.038
Washim	1.566	0.962	1.018	1.015	1.076	0.834	1.254	1.037
Yavatmal	1.422	1.086	0.939	0.977	1.012	0.779	1.345	1.033

Table A5.11: Year wise MPI in Orissa at Primary Level of Education

Orissa	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Angul	1.770	1.481	1.377	1.286	1.045	1.187	1.415	1.117
Balasore	2.004	1.208	1.257	1.423	0.905	1.170	1.493	1.090
Bargarh	2.896	1.513	1.103	1.378	1.915	0.817	1.129	1.383
Bhadrak	1.909	1.530	1.083	1.139	0.924	1.248	1.096	1.075
Bolangir	2.169	1.463	1.314	1.116	0.748	1.990	1.157	1.082
Boudh	4.896	1.141	0.797	1.123	1.705	0.729	1.690	1.058
Cuttack	2.570	1.126	1.416	1.236	1.244	0.989	1.166	1.123
Deogarh	2.021	1.424	1.170	1.133	1.113	1.152	1.329	1.072
Dhenkanal	2.204	1.599	1.332	1.155	1.075	1.021	1.597	1.099
Gajapati	2.496	0.887	2.037	0.890	0.991	1.368	1.127	1.094
Ganjam	1.869	1.469	1.260	1.233	1.149	0.880	1.416	1.072
Jagatsinghpur	2.253	1.283	1.369	1.220	1.344	0.951	1.046	1.070
Jajpur	1.691	1.254	1.140	1.167	0.961	1.251	1.337	1.039
Jharsuguda	1.852	1.362	1.500	1.136	1.237	1.133	0.955	1.079
Kalahandi	1.945	1.434	1.153	1.373	1.066	1.325	0.800	1.074
Kandhamal	1.251	1.536	1.488	1.302	1.038	1.452	0.937	1.162
Kendrapara	1.428	1.515	1.145	1.237	1.128	1.081	1.257	1.064
Keonjhar	1.482	1.362	1.329	1.107	1.156	1.243	1.248	1.018
Khordha	1.776	1.159	1.107	1.097	1.219	0.933	1.225	1.078
Koraput	1.612	1.578	1.187	1.062	1.133	1.247	1.267	1.105
Malkangiri	1.529	1.312	1.196	1.039	1.025	1.362	1.076	1.153
Mayurbhanj	1.452	1.409	1.258	1.122	1.157	1.050	1.064	1.112
Nawarangapur	1.696	0.981	1.105	1.168	1.152	0.959	1.081	1.003
Nayagarh	1.683	1.022	1.094	1.128	1.057	0.916	1.455	1.156
Nuapada	1.607	1.266	1.035	1.119	0.986	1.135	1.077	1.005
Puri	1.319	1.140	1.058	1.037	1.057	1.010	1.120	1.047
Rayagada	1.433	0.895	0.971	0.927	1.104	1.287	1.159	1.100
Sambalpur	1.711	0.917	1.022	1.087	1.067	1.237	0.795	1.018
Sonepur	1.551	0.930	1.107	0.938	1.042	1.073	0.992	0.990
Sundargarh	1.380	1.047	1.048	0.981	1.061	0.963	1.102	0.995

Table A5.12: Year wise MPI in Punjab at Primary Level of Education

Punjab	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Amritsar	2.575	1.302	1.083	1.063	1.459	0.609	1.704	0.989
Bathinda	1.963	2.143	1.097	1.240	1.441	0.633	2.201	1.109
Faridkot	1.507	1.552	1.306	1.336	0.982	0.820	1.942	1.022
Fatehgarh Sahib	1.517	1.031	1.130	1.349	1.269	0.941	1.362	0.947
Ferozepur	1.463	1.617	1.387	0.814	1.379	0.896	2.574	1.108
Gurdaspur	0.777	1.318	1.334	1.136	1.174	0.985	2.158	1.086
Hoshiarpur	1.583	1.326	1.268	1.486	1.086	0.946	1.501	1.099
Jalandhar	1.739	1.297	1.465	0.793	2.020	0.869	1.114	0.959

Kapurthala	1.943	0.691	1.333	0.763	1.741	0.940	1.150	1.075
Ludhiana	1.627	1.293	1.315	1.193	1.367	0.712	2.087	1.022
Mansa	1.372	1.142	1.103	1.362	1.266	0.770	1.822	1.036
Moga	1.616	1.220	1.147	0.887	1.096	0.856	1.947	1.133
Muktsar	1.748	1.219	1.140	0.949	1.228	0.733	1.930	1.171
Nawanshahr	1.144	1.138	0.944	0.786	1.668	1.074	0.989	0.971
Patiala	1.373	0.967	0.936	1.069	1.802	0.797	1.260	0.957
Ropar	1.585	1.008	1.039	0.954	1.398	0.803	0.675	0.962
Sangrur	1.381	0.949	1.137	0.905	1.410	0.647	0.984	0.959

Table A5.13: Year wise MPI in Rajasthan at Primary Level of Education

Rajasthan	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Ajmer	2.081	1.464	1.396	1.052	1.206	1.097	1.165	1.065
Alwar	2.174	1.421	1.362	1.032	1.309	4.296	0.352	1.128
Banswara	2.331	1.615	1.300	0.924	1.384	3.096	0.360	1.060
Baran	2.244	1.200	1.284	1.125	1.063	1.493	0.878	1.078
Barmer	2.757	1.076	1.240	1.310	1.103	1.469	1.117	1.054
Bharatpur	2.000	1.490	1.460	1.146	1.282	1.666	0.885	1.108
Bhilwara	1.455	2.064	1.382	1.096	1.365	3.344	0.431	1.090
Bikaner	2.205	1.499	1.168	1.114	1.182	1.415	1.310	1.072
Bundi	1.856	1.554	1.317	1.037	1.268	2.253	0.570	1.072
Chittaurgarh	2.104	1.442	1.448	1.135	1.263	2.447	0.573	1.089
Churu	1.786	1.549	1.438	1.249	1.230	2.262	0.640	1.041
Dausa	1.951	1.486	1.367	1.040	1.199	2.526	0.647	1.020
Dhaulpur	1.872	1.265	1.333	1.126	1.626	1.026	0.934	0.957
Dungarpur	1.832	1.856	1.275	0.824	1.370	2.392	0.525	1.047
Ganganagar	1.433	1.883	1.110	1.390	1.114	1.158	1.023	0.913
Hanumangarh	2.541	1.449	1.411	1.236	1.129	1.337	1.086	0.933
Jaipur	1.477	1.411	1.226	1.269	0.979	1.103	1.419	1.019
Jaisalmer	1.888	1.456	1.458	0.620	1.300	2.454	0.675	1.008
Jalor	1.625	1.406	1.283	1.272	1.146	2.588	0.516	1.063
Jhalawar	1.881	1.331	1.242	1.035	1.197	4.992	0.219	0.891
Jhunjhunun	1.458	1.324	0.917	1.539	1.011	1.096	1.181	1.074
Jodhpur	1.617	1.449	1.078	1.215	1.083	2.609	0.545	0.993
Karauli	1.389	1.054	1.376	1.089	0.969	4.062	0.310	1.142
Kota	1.259	1.254	1.203	1.162	1.128	1.171	1.042	1.074
Nagaur	1.430	1.094	1.156	1.257	0.968	1.228	1.110	0.804
Pali	1.465	1.207	1.196	1.072	1.080	1.207	0.910	0.844
Rajsamand	1.351	1.485	1.225	0.974	1.187	1.711	0.590	1.060
Sawai Madhopur	1.230	1.068	1.074	0.953	1.022	1.197	0.897	1.133
Sikar	1.295	1.113	1.038	1.197	0.991	1.117	1.060	1.052
Sirohi	1.352	1.108	1.123	1.007	1.093	1.113	1.038	0.964
Tonk	1.226	1.014	1.087	1.116	0.917	1.275	0.797	1.037

Udaipur	1.302	1.109	1.109	0.953	1.056	1.200	0.927	0.975

Table A5.14: Year wise MPI in Tamil Nadu at Primary Level of Education

Tamil Nadu	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Chennai	1.905	1.498	1.299	1.113	1.219	1.053	1.315	1.078
Coimbatore	2.104	1.541	1.252	1.456	1.130	1.189	1.161	1.117
Cuddalore	1.954	1.622	1.309	1.278	1.137	1.191	1.195	1.164
Dharamapuri	1.894	1.484	1.291	1.244	1.212	1.037	0.959	1.103
Dindigul	1.843	1.480	1.166	1.210	1.157	1.116	1.095	0.983
Erode	1.888	1.620	1.202	1.170	1.239	1.215	0.901	1.089
Kancheepuram	1.913	1.417	1.192	1.413	1.068	1.174	1.251	1.236
Kanniyakumari	2.119	1.364	1.392	1.193	1.215	1.138	1.146	1.070
Karur	1.983	1.513	1.086	1.196	1.156	1.143	0.953	1.313
Krishanagari	1.020	0.846	1.598	1.322	1.113	1.734	0.607	1.202
Madurai	1.752	1.505	1.280	1.527	1.069	1.389	1.051	1.079
Nagapattinam	1.962	1.445	1.373	1.231	1.274	1.255	0.942	1.260
Namakkal	1.828	1.481	1.331	1.161	1.223	1.214	0.983	1.150
Perambalur	1.665	1.458	1.351	1.347	1.124	1.145	1.178	0.939
Pudukkottai	1.405	1.535	1.304	1.137	1.164	1.238	0.942	1.342
Ramanathapuram	1.854	1.451	1.122	1.386	1.202	1.202	1.026	0.940
Salem	1.333	1.312	1.340	1.209	1.122	1.314	1.001	1.177
Sivaganga	1.368	1.491	1.210	1.564	1.124	1.203	0.978	1.087
Thanjavur	1.554	1.336	1.224	1.297	1.189	1.105	1.110	1.177
The Nilgiris	1.743	1.214	1.194	1.247	1.036	1.079	0.924	1.265
Theni	1.603	1.274	1.149	1.174	1.078	1.077	1.119	0.906
Thiruvallur	1.356	1.190	1.116	1.102	1.065	1.154	1.241	1.027
Thiruvarur	1.432	1.202	1.105	1.199	1.102	1.077	0.940	1.185
Thoothukkudi	1.438	1.307	1.186	1.302	1.169	1.223	1.066	0.984
Tiruchirappalli	1.383	1.172	1.154	1.068	1.059	1.383	0.791	1.005
Tirunelveli	1.359	1.193	1.170	1.015	1.112	1.155	0.958	0.945
Tiruvannamalai	1.317	1.157	1.101	1.081	1.060	1.117	0.914	1.108
Vellore	1.312	1.116	1.090	1.218	1.021	1.076	1.664	0.717
Vilippuram	1.269	1.167	1.120	1.148	1.060	0.992	1.121	1.071
Virudhunagar	1.301	1.109	1.077	1.116	1.016	1.018	1.079	0.999

Table A5.15 : Year wise MPI in Uttar Pradesh at Primary Level of Education

Uttar Pradesh	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Agra	2.041	1.336	1.452	1.417	1.149	1.503	0.704	1.006
Aligarh	1.680	1.952	1.434	1.210	1.377	1.496	0.789	1.018
Allahabad	1.911	1.466	1.311	1.211	1.088	1.022	1.374	1.086
Ambedkar Nagar	1.619	1.392	1.309	1.191	1.295	1.166	1.219	0.965
Auraiya	2.390	1.125	1.532	1.239	1.146	1.225	1.424	1.022

Azamgarh	1.599	1.471	1.383	1.277	0.987	0.911	1.572	1.007
Baghpat	2.030	1.403	1.374	1.329	1.232	1.189	0.891	1.276
Bahraich	1.607	1.369	1.304	1.234	1.164	0.977	1.852	0.961
Ballia	1.892	1.552	1.319	1.201	1.115	0.913	1.803	1.075
Balarampur	1.824	1.526	1.333	1.159	1.314	1.238	1.056	1.167
Banda	1.976	1.412	1.390	1.108	1.140	1.003	1.496	1.039
Barabanki	1.732	1.424	1.402	1.198	1.230	1.432	1.518	1.158
Bareilly	2.047	1.227	1.308	1.226	1.192	0.894	1.596	1.087
Basti	2.055	1.378	1.168	1.231	1.110	1.038	1.592	1.023
Bhadohi	1.032	1.506	1.304	1.125	1.165	1.184	0.831	0.983
Bijnor	1.738	1.432	1.288	1.404	1.158	0.982	1.269	0.881
Budaun	1.921	1.281	1.309	1.221	1.062	1.041	1.787	1.044
Bulandshahr	2.115	1.015	1.357	1.501	0.984	1.414	1.482	1.147
Chandauli	1.985	1.549	1.312	1.145	1.304	0.850	1.303	1.089
Chitrakoot	2.011	1.742	1.170	0.985	1.305	5.284	0.270	1.062
Deoria	1.524	1.583	1.369	1.210	1.199	2.645	0.609	1.012
Etah	1.948	1.426	1.427	1.888	0.905	2.220	0.450	0.991
Etawah	2.251	1.428	1.384	1.233	1.208	1.881	0.889	1.012
Faizabad	1.916	1.606	1.053	1.133	1.086	1.250	1.237	1.038
Farrukhabad	2.161	1.403	1.456	2.236	1.049	1.974	1.350	0.629
Fatehpur	1.739	1.345	1.432	1.004	1.083	1.354	1.246	1.024
Firozabad	1.693	1.475	1.293	1.255	1.146	1.012	1.585	1.074
Gautam Buddha Nagar	1.998	1.337	1.488	1.085	1.269	0.990	1.354	1.140
Ghaziabad	1.722	1.360	1.294	1.279	1.209	0.998	1.382	1.499
Ghazipur	1.999	1.321	1.249	1.244	1.122	2.931	0.491	0.946
Gonda	1.751	1.456	1.329	1.136	1.218	1.097	1.481	0.979
Gorakhpur	1.836	1.312	1.270	1.053	0.920	2.518	0.650	1.016
Hamirpur	1.831	1.464	1.365	1.105	1.147	2.000	0.728	1.035
Hardoi	1.785	1.209	0.741	1.488	0.852	1.336	1.022	1.090
Hathras	2.016	1.182	1.582	1.356	1.184	1.005	1.116	0.739
Jalaun	1.875	1.448	1.514	1.044	1.224	1.362	0.874	1.030
Jaunpur	1.539	1.464	1.331	1.310	1.083	1.763	0.742	0.959
Jhansi	1.796	1.565	1.254	1.551	1.158	1.085	1.279	1.228
Jyotiba Phule Nagar	1.413	1.385	1.095	1.311	1.100	1.281	0.753	1.258
Kannauj	1.452	1.643	1.373	1.246	1.200	1.018	1.282	0.930
Kanpur Dehat	1.689	1.599	1.657	1.376	1.319	1.495	0.937	1.167
Kanpur Nagar	1.698	1.497	1.129	1.293	1.121	0.950	1.088	1.156
Kaushambi	1.544	1.310	1.213	1.037	1.047	0.863	1.734	1.034
Kheri	1.744	1.421	1.198	1.072	1.206	0.939	1.157	0.892
Kushinagar	1.309	1.281	1.220	1.020	1.232	1.068	1.150	1.151
Lalitpur	1.747	1.344	1.096	0.939	1.118	1.551	0.755	1.025
Lucknow	1.592	1.277	1.261	1.213	1.146	1.491	0.921	1.130
Maharajganj	1.578	1.268	1.285	1.106	1.119	1.074	1.097	1.116
Mahoba	1.803	1.336	1.824	0.853	1.099	0.973	1.135	0.991

Mainpuri	1.356	1.145	1.281	0.911	0.990	1.041	1.197	0.964
Mathura	1.643	1.372	1.275	1.160	1.247	1.142	1.286	1.088
Mau	2.321	0.817	1.283	0.917	1.031	1.581	0.867	1.196
Meerut	1.256	1.308	1.317	1.190	1.099	1.657	0.732	1.048
Mirzapur	1.596	1.276	1.312	1.148	1.134	2.157	0.622	1.073
Moradabad	1.208	1.073	1.231	1.169	1.045	1.099	1.327	1.024
Muzaffarnagar	1.224	1.134	1.275	1.179	1.050	1.387	1.710	0.932
Pilbhit	1.438	1.199	1.084	1.075	1.002	1.751	0.730	1.352
Pratapgarh	1.473	1.360	1.040	1.065	1.084	1.689	0.618	0.988
Rae Bareli	1.325	1.170	1.320	1.013	1.292	1.612	1.012	0.841
Rampur	1.334	0.950	1.165	1.103	1.140	1.408	0.893	0.956
Saharanpur	1.276	1.365	1.229	0.821	1.118	2.112	0.485	1.159
Sant Kabir Nagar	1.202	0.987	1.172	1.054	1.184	1.588	0.762	1.181
Shahjahanpur	1.298	1.032	1.145	1.119	0.863	1.374	0.933	1.079
Shrawasti	1.389	1.195	1.098	0.949	1.203	1.577	0.632	1.210
Siddharthnagar	1.264	1.180	1.135	0.952	1.004	1.890	0.756	1.046
Sitapur	1.283	1.157	1.051	1.010	1.037	1.557	0.654	1.052
Sonbhadra	1.149	1.063	1.167	1.016	1.084	2.253	0.522	1.065
Sultanpur	1.180	1.213	1.108	1.132	1.033	1.089	1.425	1.021
Unnao	1.395	1.089	0.951	1.076	0.864	1.250	0.976	0.960
Varanasi	1.372	1.144	1.153	1.080	1.076	1.056	0.956	1.035

Table A5.16 : Year wise MPI in West Bengal at Primary Level of Education

West Bengal	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Bankura	1.955	1.892	1.311	1.358	1.079	1.259	1.159	1.087
Burdwan	2.012	2.114	1.194	0.980	0.973	1.304	1.341	0.899
Birbhum	1.902	1.780	1.391	1.178	1.081	1.848	1.040	0.793
Dakshin Dinajpur	1.990	1.371	1.610	0.976	1.130	1.435	0.865	1.158
Darjeeling	1.940	1.196	1.340	0.967	1.190	1.079	1.259	1.034
Howrah	1.861	1.783	1.469	1.126	1.002	1.166	4.025	0.477
Hooghly	1.510	1.501	1.296	1.405	0.989	1.084	1.117	1.149
Jalpaiguri	1.579	2.164	1.410	0.845	1.188	1.417	0.900	1.137
Cooch Bihar	1.722	1.818	1.411	1.110	1.325	1.181	1.015	1.298
Kolkata	1.455	1.150	1.158	0.950	1.149	0.705	1.617	1.103
Malda	1.700	1.552	1.253	0.928	1.359	1.203	1.038	1.125
Murshidabad	1.575	1.520	1.417	1.105	1.224	1.317	1.041	1.146
Nadia	1.024	1.571	1.155	1.489	1.199	1.165	0.907	1.064
North Twenty Four Parganas	0.913	2.037	1.159	0.986	1.169	1.271	0.895	1.088
Paschim Midnapore	1.338	1.397	1.035	1.104	1.126	2.225	0.478	1.096
Purba Midnapore	0.648	1.269	1.045	2.034	0.494	2.828	0.456	1.075
Purulia	1.106	1.442	1.227	1.288	0.897	1.735	0.675	0.923
Siliguri	1.056	1.224	1.115	0.757	1.002	1.263	0.937	1.066
South Twenty Four Pargans	1.244	1.109	1.045	0.895	1.042	1.039	1.178	1.057

Uttar Dinajpur	1.280	1.126	1.098	1.006	0.861	1.143	0.998	1.056

District wise Productivity Scores (MPI) at Upper Primary level of Education

Table A5.17: Year wise MPI in Andhra Pradesh at Upper Primary Level of Education

Andhra Pradesh	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Adilabad	2.105	1.811	1.452	1.339	1.458	1.295	2.160	1.368
Anantpur	2.096	1.447	1.231	0.988	1.100	0.778	2.028	1.643
Chittor	1.358	1.531	1.352	1.081	1.200	0.714	1.763	1.631
Cuddapah	1.507	2.951	0.907	1.081	1.686	1.239	0.824	1.803
East Godavari	2.096	1.381	1.628	1.037	1.460	0.815	1.713	1.404
Guntur	1.829	1.445	1.479	1.207	1.598	0.713	0.927	1.582
Hyderabad	1.939	1.719	1.466	1.162	1.797	0.568	1.644	1.208
Karimnagar	1.900	2.103	1.256	0.901	1.362	0.792	3.191	1.371
Khammam	2.090	1.566	1.188	1.003	1.303	0.848	1.322	1.380
Krishna	1.638	2.016	1.196	0.980	1.251	0.596	2.180	1.512
Kurnool	1.641	1.479	1.036	1.219	1.017	0.715	2.128	1.782
Mahbubnagar	1.921	1.727	1.420	1.089	1.272	1.087	1.301	1.530
Medak	2.333	1.162	2.054	0.944	1.350	0.931	1.193	1.289
Nalgonda	1.835	2.102	0.998	1.006	2.140	0.636	1.384	1.327
Nellore	1.516	1.201	1.359	0.987	1.265	0.800	1.427	1.575
Nizamabad	1.459	2.793	0.828	1.059	1.183	0.946	1.498	1.255
Prakasam	1.469	1.347	1.236	1.161	1.404	0.690	1.352	1.559
Rangareddi	1.439	1.476	1.337	1.027	2.088	0.749	2.195	1.209
Srikakulam	1.433	1.255	1.415	1.027	1.178	1.002	1.116	1.352
Visakhapatnam	1.716	1.261	1.203	0.978	1.473	0.712	1.452	1.429
Vizianagaram	1.334	1.259	1.325	0.860	1.305	0.748	0.933	1.400
Warangal	1.513	2.010	0.820	0.973	1.672	0.782	1.800	1.329
West Godavari	1.308	0.977	1.320	0.935	1.337	0.642	1.171	1.230

Table A5.18: Year wise MPI in Assam at Upper Primary Level of Education

Assam	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Baperta	1.696	0.540	1.770	1.475	1.257	1.023	1.245	1.061
Bongaigaon	1.504	0.595	1.464	1.350	1.332	0.758	1.583	1.052
Cachar	2.259	0.346	1.423	1.323	1.658	1.386	1.105	1.109
Darrang	1.828	0.422	1.763	1.402	1.509	0.876	1.517	1.002
Dhemaji	1.299	0.592	2.983	1.279	1.555	1.202	0.856	1.112
Dhubri	0.980	0.635	2.796	1.473	1.642	0.887	1.274	1.065
Dibrugarh	2.046	0.360	1.645	1.170	1.455	0.860	1.113	1.154
Goalpara	1.694	0.726	1.154	1.381	1.611	1.176	1.207	1.079
Golaghat	2.035	0.554	2.551	1.099	1.361	0.954	1.055	1.042
Hailakandi	1.518	0.522	2.438	1.420	1.232	1.513	0.899	1.086
Jorhat	1.903	0.427	1.908	1.354	1.217	1.145	0.948	1.063

Kamrup	1.501	0.478	2.176	1.324	1.385	1.513	1.282	1.071
Karbi Anglong	2.192	0.397	1.281	0.690	1.530	0.803	1.114	1.005
Karimganj	1.954	0.373	1.731	1.639	1.582	0.927	0.945	1.186
Kokrajhar	1.235	0.665	1.656	0.940	1.595	0.727	1.146	1.058
Lakhimpur	1.191	0.594	1.947	1.426	1.169	1.422	0.921	1.158
Marigaon	1.274	0.465	2.013	1.225	1.557	1.055	1.369	1.319
Nagaon	1.554	0.366	1.798	1.399	1.479	1.068	1.588	1.057
Nalbari	1.361	0.512	2.127	1.129	1.278	1.246	0.775	1.107
Sibsagar	0.821	0.348	2.128	1.153	0.938	1.134	1.212	0.922
Sonitpur	1.245	0.293	1.410	0.957	1.454	0.738	1.233	1.004
Tinsukia	1.376	0.323	1.600	1.090	1.558	0.660	1.091	1.055

Table A5.19: Year wise MPI in Bihar at Upper Primary Level of Education

Bihar	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Araria	1.228	1.271	1.262	1.052	1.987	0.708	1.277	1.052
Aurangabad (Bihar)	0.860	1.269	1.344	1.030	1.831	0.740	1.602	1.080
Banka	1.240	1.227	0.977	1.169	1.818	0.749	1.007	1.146
Begusarai	1.123	1.213	1.435	0.797	1.699	0.460	1.648	1.042
Bhagalpur	1.622	0.899	0.917	1.050	1.546	0.761	1.311	1.059
Bhojpur	1.297	1.076	1.449	1.096	1.824	0.533	1.029	0.946
Buxar	1.223	0.839	1.522	1.130	1.684	0.730	1.156	1.140
Darbhanga	1.503	1.122	1.144	1.033	1.758	0.564	1.261	1.152
Gaya	1.103	0.931	1.807	0.993	1.652	0.826	1.078	1.104
Gopalganj	1.033	1.348	1.405	0.949	1.413	0.736	1.053	1.199
Jamui	1.135	0.962	1.298	1.018	1.664	0.841	1.107	1.127
Jehanabad	0.789	1.336	1.057	1.034	2.860	0.472	1.081	1.099
Kaimur (Bhabua)	1.287	0.697	1.221	1.160	1.766	0.551	1.007	1.165
Katihar	1.171	0.874	1.324	1.048	2.366	0.566	1.402	1.068
Khagaria	0.837	1.390	1.488	0.779	1.675	0.866	1.074	0.969
Kishanganj	1.180	0.809	0.936	1.400	2.969	0.411	1.332	1.109
Lakhisarai	1.220	0.824	1.485	0.728	1.797	1.008	0.778	1.112
Madhepura	0.733	1.274	1.408	0.966	1.576	0.765	1.208	1.099
Madhubani	0.764	0.921	1.571	1.502	1.876	0.530	1.390	1.156
Munger	0.776	1.030	1.269	1.106	1.696	0.908	0.841	1.046
Muzaffarpur	0.773	1.215	1.179	1.116	1.604	0.701	1.526	1.136
Nalanda	0.857	1.176	1.074	1.040	1.790	0.758	1.011	1.113
Nawada	1.109	1.030	1.019	1.189	2.085	0.535	1.148	1.061
Paschim Champaran	0.965	1.066	1.219	1.060	1.539	0.715	1.435	0.939
Patna	0.800	1.177	1.065	1.102	1.727	0.730	1.150	1.084
Purba Champaran	0.619	1.422	1.279	1.091	1.298	0.824	1.173	0.946
Purnia	1.094	0.903	0.961	0.957	1.894	0.724	1.066	1.087
Rohtas	0.700	1.190	1.070	0.967	1.642	0.778	0.992	1.254
Saharsa	0.796	0.948	0.960	0.981	1.483	1.009	0.844	1.037

Samastipur	0.927	0.844	0.954	0.876	1.738	0.635	1.438	1.098
Saran	0.880	0.865	1.021	0.904	1.678	0.724	0.955	1.109
Sheikhpura	0.700	1.044	1.033	0.945	1.620	1.478	0.893	1.005
Sheohar	0.995	0.647	1.009	0.952	1.398	1.234	1.044	0.999
Sitamarhi	0.918	0.769	0.930	0.932	1.610	0.701	1.155	1.000
Siwan	0.827	0.842	0.975	0.886	1.537	0.697	0.934	1.006
Supaul	0.814	0.813	0.846	1.051	1.841	0.626	1.015	1.016
Vaishali	0.807	0.896	0.906	0.848	1.579	0.703	0.979	1.024

Table A5.20: Year wise MPI in Gujarat at Upper Primary Level of Education

Gujarat	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Ahmedabad	0.849	1.377	1.356	1.143	1.883	0.679	5.542	1.009
Amreli	1.143	1.139	1.602	1.084	1.672	0.820	1.018	1.167
Anand	0.883	1.372	1.328	1.095	1.563	0.927	0.883	1.251
Banas Kantha	0.738	1.296	1.355	1.154	1.881	0.746	1.381	1.049
Bharuch	1.124	1.437	1.298	1.103	1.802	0.738	1.250	1.209
Bhavnagar	1.744	1.368	1.098	1.123	1.956	0.741	1.287	1.164
Dohad	1.624	1.537	1.077	1.300	2.034	0.765	1.252	1.128
Gandhinagar	1.162	1.324	1.519	1.096	1.320	1.302	0.698	1.594
Jamnagar	0.615	1.493	1.112	1.392	1.342	0.915	1.189	1.071
Junagadh	0.752	1.378	1.411	1.193	1.539	0.874	1.255	1.140
Kachchh	0.708	1.304	1.197	1.273	1.597	0.845	1.086	1.109
Kheda	1.040	1.386	1.452	1.133	1.540	0.941	0.994	1.219
Mahesana	1.146	1.355	1.286	0.985	2.001	0.888	0.902	1.083
Narmada	0.550	1.569	1.468	0.922	1.320	1.129	1.175	1.227
Navsari	1.089	1.469	1.383	1.182	1.535	0.955	0.780	1.216
Panch Mahals	0.990	1.265	1.430	1.459	1.478	0.945	1.116	1.167
Patan	0.860	1.332	1.692	0.756	1.571	1.035	1.176	1.063
Porbandar	1.253	1.889	0.779	1.150	1.873	1.276	0.660	1.194
Rajkot	0.997	1.306	1.143	1.227	1.643	0.846	1.102	1.161
Sabar Kantha	0.429	1.190	1.226	1.090	1.757	0.796	1.252	1.172
Surat	0.747	1.244	1.452	1.000	1.678	0.795	0.912	1.019
Surendranagar	0.807	1.411	0.945	1.002	1.641	0.829	1.254	1.135
The Dangs	0.975	1.174	1.180	1.162	2.528	0.671	1.062	1.004
Vadodara	0.565	1.346	1.009	1.142	1.647	0.684	1.264	1.069
Valsad	0.511	1.227	1.069	1.185	1.671	0.722	0.655	1.015

Table A5.21: Year wise MPI in Haryana at Upper Primary Level of Education

Haryana	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Ambala	1.277	0.820	1.706	0.656	1.770	1.145	0.808	1.001
Bhiwani	0.908	0.867	1.709	0.822	1.508	1.362	0.938	1.134
Faridabad	1.233	1.053	1.722	1.522	0.797	1.491	1.217	1.128

Fatehabad	1.482	0.937	1.253	0.840	2.438	1.128	0.665	1.203
Gurgaon	0.996	0.664	1.304	1.030	1.067	0.981	0.887	1.069
Hisar	1.521	0.821	1.119	1.479	1.143	0.993	1.417	1.106
Jhajjar	1.515	0.736	2.603	0.636	1.007	1.896	0.773	1.050
Jind	1.556	0.973	1.103	1.153	1.559	1.032	1.075	1.001
Kaithal	1.550	0.570	1.701	0.686	1.246	1.027	1.196	1.066
Karnal	2.343	0.761	0.959	1.515	0.997	0.806	1.300	1.065
Kurukshetra	1.359	0.699	1.245	0.939	1.099	0.804	1.264	0.908
Mahendragarh	0.693	0.964	1.299	0.887	1.223	1.684	0.750	1.086
Panchkula	0.548	0.821	1.289	0.749	1.165	2.104	0.517	0.965
Panipat	1.652	0.521	1.032	1.138	1.756	0.892	0.764	1.050
Rewari	0.408	1.248	1.182	1.359	0.933	1.138	0.980	1.010
Rohtak	1.248	1.171	2.945	0.687	1.102	1.244	0.494	0.898
Sirsa	0.709	0.850	1.136	0.792	1.244	1.013	0.935	0.979
Sonipat	0.787	0.632	1.194	0.877	0.917	0.764	1.123	0.898
Yamunanagar	1.357	0.352	0.906	0.966	0.998	0.843	0.942	1.080

Table A5.22: Year wise MPI in Himachal Pradesh at Upper Primary Level of Education

Himachal Pradesh	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Bilaspur (H.P)	1.815	1.545	1.250	1.133	1.370	2.172	1.328	1.145
Chamba	1.582	1.906	1.133	0.881	1.600	1.670	1.003	1.091
Hamirpur (H.P)	1.633	1.465	1.258	1.262	1.293	2.617	1.267	1.141
Kangra	1.756	1.403	1.278	1.225	1.523	1.131	1.174	1.099
Kinnaur	1.767	1.977	0.910	1.086	1.321	6.464	0.497	1.277
Kullu	1.490	1.367	1.154	1.185	1.503	2.569	0.953	1.049
Lahul & Spiti	1.670	1.363	1.165	1.157	1.225	4.685	0.816	1.085
Mandi	1.467	1.348	1.216	1.224	1.314	1.658	1.257	1.032
Shimla	1.375	1.217	1.082	1.180	1.187	1.741	1.125	1.066
Sirmaur	1.170	1.323	0.945	0.926	1.411	1.653	0.826	1.025
Solan	1.263	1.182	0.926	1.084	1.483	1.985	0.817	1.040
Una	1.227	1.160	1.052	0.990	1.471	1.456	0.858	1.036

Table A5.23: Year wise MPI in Karnataka at Upper Primary Level of Education

Karnataka	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Bagalkot	0.658	1.811	0.943	1.064	1.588	0.848	3.841	1.119
Bangalore	0.790	1.898	1.360	1.518	1.174	1.317	0.334	1.412
Bangalore Rural	0.589	2.303	1.594	1.214	1.832	0.689	0.957	1.103
Balgaum	0.640	3.249	1.233	1.243	1.763	3.385	1.337	0.961
Bellary	1.114	1.861	1.041	1.141	1.187	0.850	1.546	1.039
Bidar	1.267	0.970	1.769	1.013	1.249	0.919	1.019	1.115
Bijapur	0.634	1.832	1.060	1.206	1.633	1.302	0.820	1.129
Chamrajnagar	0.983	1.228	2.000	1.280	1.328	1.003	1.130	1.108

Chikmagalur	0.948	1.262	1.612	1.098	0.989	2.197	0.563	0.951
Chitradurga	0.780	2.535	0.748	1.025	1.337	1.518	0.947	1.051
Dakshina Kannada	0.997	1.206	1.830	1.209	1.146	1.272	1.027	1.112
Davangere	1.115	1.954	0.852	1.056	1.271	0.848	1.376	1.071
Dharwad	0.853	1.292	1.657	1.181	1.631	0.826	0.999	1.045
Gadag	0.772	1.136	1.686	0.944	1.614	0.786	1.236	1.156
Gulbarga	1.240	1.452	1.040	1.146	1.585	0.715	2.585	1.133
Hassan	0.923	1.062	1.512	1.032	1.398	0.985	1.017	1.023
Haveri	0.673	1.091	1.674	1.080	1.714	1.043	0.720	1.039
Kodagu	0.999	1.198	0.909	0.960	1.402	0.857	1.014	1.040
Kolar	0.485	2.366	1.226	1.100	1.451	1.311	1.139	1.656
Koppal	0.553	1.192	1.493	1.054	1.843	0.813	1.036	0.986
Mandya	0.717	1.490	0.831	1.194	1.653	1.072	1.282	0.947
Mysore	0.714	1.451	0.806	1.040	1.761	0.773	1.318	1.008
Raichur	0.941	0.999	1.064	0.997	1.894	0.643	1.201	1.010
Shimoga	0.631	1.419	0.858	0.857	1.844	0.866	1.369	0.978
Tumkur	0.624	1.762	0.908	1.071	1.511	1.285	1.033	1.565
Udupi	0.718	1.221	1.006	0.978	1.631	0.799	1.070	1.007
Uttara Kannada	0.564	1.072	1.306	0.915	1.688	0.538	1.186	1.007

Table A5.24: Year wise MPI in Kerala at Upper Primary Level of Education

Kerala	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Alappuzha	1.172	1.221	1.461	1.223	1.643	0.494	1.239	1.143
Ernakulam	1.195	1.136	1.575	1.164	1.527	0.522	2.432	1.136
Idukki	1.199	1.327	1.473	1.146	1.658	0.596	1.186	1.106
Kannur	1.025	1.315	1.362	0.917	1.417	0.621	2.477	1.074
Kasaragod	0.897	1.789	1.052	0.998	0.992	1.029	1.221	1.077
Kollam	1.062	1.390	1.662	1.185	1.678	0.376	1.622	1.121
Kottayam	0.998	1.429	1.268	1.142	1.778	0.477	1.872	1.079
Kozhikode	0.780	1.476	1.128	1.112	1.330	0.335	1.400	1.109
Malappuram	0.877	1.405	1.189	0.919	1.145	0.261	1.573	1.165
Palakkad	0.994	1.264	1.321	0.983	1.176	0.263	1.573	1.044
Pathanamthitta	0.788	1.202	1.188	1.178	1.306	0.440	1.200	1.092
Thiruvananthapuram	0.828	1.105	1.341	1.076	1.341	0.294	1.610	1.095
Thrissur	0.773	1.002	1.300	1.023	1.130	0.263	1.452	1.075
Wayanad	0.794	1.181	1.051	1.003	1.386	0.324	1.673	1.047

Table A5.25: Year wise MPI in Madhya Pradesh at Upper Primary Level of Education

Madhya Pradesh	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Anuppur	0.883	1.320	1.454	1.097	1.605	0.415	1.400	1.080
Ashoknagar	1.313	1.135	1.395	1.055	1.742	0.551	1.339	1.027
Balaghat	1.145	1.901	0.996	0.839	1.505	0.558	3.045	1.153

Barwani	2.098	1.223	1.232	0.985	2.096	0.421	2.775	1.122
Betul	2.339	1.435	1.118	1.165	1.399	0.612	2.102	1.035
Bhind	2.692	1.426	1.442	1.169	1.443	0.952	1.559	1.081
Bhopal	1.142	1.174	1.638	0.623	1.734	0.668	1.830	1.047
Burhanpur	1.047	1.540	1.534	0.883	2.167	0.528	2.120	1.205
Chhatarpur	0.491	1.195	1.214	1.295	1.806	0.654	2.636	1.102
Chhindwara	1.789	1.561	1.244	1.195	1.518	0.539	1.798	1.116
Damoh	3.241	1.379	1.217	1.090	1.436	0.590	1.770	1.146
Datia	1.485	1.441	1.259	1.069	1.407	0.686	1.705	1.194
Dewas	2.215	1.135	1.279	1.361	1.404	0.892	1.878	1.300
Dhar	0.798	1.422	1.135	0.817	1.790	0.559	2.866	1.115
Dindori	2.764	1.105	1.253	0.821	1.701	0.596	1.374	1.078
Guna	1.775	1.402	1.012	1.086	1.464	0.806	1.370	1.149
Gwalior	1.282	1.105	1.711	1.278	1.509	0.940	1.468	0.921
Harda	0.575	1.291	1.082	1.032	1.519	0.947	1.334	1.347
Hoshangabad	1.299	1.687	1.137	1.223	1.582	0.898	1.663	1.109
Indore	0.302	1.462	1.509	0.778	1.268	0.816	2.760	1.235
Jabalpur	0.940	1.357	1.612	1.081	1.369	0.696	1.617	1.291
Jhabua	0.996	1.009	2.153	0.921	1.583	1.445	0.544	1.036
Katni	1.523	1.300	1.701	0.951	1.794	0.568	2.076	1.014
Khandwa	2.411	1.235	1.361	0.902	1.558	0.671	1.582	1.075
Khargone	1.436	1.384	0.897	1.140	1.494	0.804	1.728	1.071
Mandla	1.476	1.601	1.030	1.216	1.829	0.495	1.868	0.989
Mandsaur	1.289	1.519	1.101	1.107	1.341	0.788	2.018	1.068
Morena	1.604	1.203	1.198	1.017	2.037	0.623	1.592	0.905
Narsinghpur	1.448	1.510	1.062	1.146	1.361	0.556	2.389	1.143
Neemuch	1.725	1.441	0.698	1.209	1.461	0.725	1.980	1.227
Panna	0.269	0.959	1.127	1.154	1.621	1.055	1.453	1.032
Raisen	0.163	1.357	1.209	1.022	1.385	0.871	1.700	1.321
Rajgarh	0.964	1.289	1.400	1.271	1.283	0.856	1.663	1.094
Ratlam	1.172	1.092	1.108	0.913	1.460	0.739	1.921	1.192
Rewa	0.352	1.081	1.356	0.690	1.801	0.707	1.678	0.962
Sagar	1.169	1.394	1.217	1.020	1.512	0.570	1.876	1.153
Satna	0.186	1.364	0.840	1.083	1.705	0.796	1.660	1.077
Sehore	0.168	1.250	1.061	1.071	1.413	2.251	0.665	1.121
Seoni	1.058	1.019	0.984	1.179	1.289	1.306	1.133	1.081
Shahdol	0.442	1.185	1.173	0.967	1.453	0.655	1.296	1.004
Shajapur	0.998	1.596	0.823	1.242	1.394	1.048	1.297	1.172
Sheopur	1.004	1.047	1.089	0.800	1.591	3.890	0.447	1.047
Shivpuri	1.061	1.275	1.160	1.026	1.773	1.749	1.027	0.990
Sidhi	0.537	0.916	1.323	0.936	1.359	1.762	0.489	0.971
Tikamgarh	1.096	1.141	1.003	0.821	1.682	1.251	0.939	0.994
Ujjain	1.131	0.992	0.725	0.991	1.091	1.122	1.570	0.986
Umaria	0.190	1.329	1.337	1.026	1.538	3.036	0.476	1.013

Vidisha	1.022	1.142	0.938	0.602	1.972	1.332	0.888	1.034

Table A5.26: Year wise MPI in Maharashtra at Primary Level of Education

Maharashtra	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Ahmadnagar	1.447	1.365	1.146	1.308	1.375	0.436	1.629	1.068
Akola	1.204	1.144	1.262	1.376	0.919	0.552	3.310	1.061
Amravati	0.918	1.529	1.348	1.040	1.089	0.550	3.398	1.176
Aurangabad (MH)	0.940	1.392	1.082	1.112	0.928	0.400	2.313	1.051
Bhandara	1.344	1.292	1.062	1.196	0.986	0.375	1.821	1.122
Bid	1.013	1.345	1.194	1.207	1.025	0.581	2.039	1.189
Buldana	1.072	1.354	1.020	1.376	1.011	0.450	1.632	1.179
Chandrapur	1.583	1.253	0.990	1.128	0.833	0.547	2.594	1.092
Dhule	1.565	1.394	0.981	1.607	1.866	0.288	1.473	1.062
Gadchiroli	1.484	1.223	0.980	0.895	0.811	0.599	3.424	1.149
Gondiya	1.269	1.256	0.993	1.024	0.810	0.655	3.174	1.148
Hingoli	1.050	1.267	1.156	1.055	1.031	0.476	2.067	1.143
Jalgaon	1.298	1.374	1.148	1.286	1.376	0.355	1.526	1.139
Jalna	0.854	1.499	1.380	0.941	1.186	0.517	2.725	1.092
Kolhapur	0.791	1.411	1.339	1.202	1.190	0.379	1.628	1.156
Latur	0.825	1.430	1.026	1.034	1.029	0.378	1.830	1.033
Mumbai	0.923	1.812	0.745	1.417	1.990	0.709	3.121	1.092
Mumbai (Suburban)	3.888	0.208	0.585	1.130	1.326	2.100	0.271	1.052
Nagpur	1.099	1.349	1.128	1.232	0.925	0.312	1.022	0.840
Nanded	0.874	1.290	1.087	0.964	1.035	0.464	2.590	1.070
Nandurbar	1.131	1.009	0.964	1.342	1.809	0.285	0.569	1.083
Nashik	1.140	1.068	1.165	1.038	1.345	0.270	1.173	1.055
Osmanabad	0.718	1.114	1.080	1.135	1.276	0.531	1.729	1.132
Parbhani	0.935	1.155	0.885	1.083	1.056	0.508	2.723	1.059
Pune	0.940	1.111	1.004	1.283	1.286	0.304	1.394	1.081
Raigarh (MH)	0.972	1.216	1.051	1.047	1.058	0.414	2.362	1.023
Ratnagiri	1.027	0.924	1.002	0.871	0.723	0.637	1.676	1.079
Sangli	0.893	1.032	1.019	1.173	1.221	0.485	2.191	1.104
Satara	0.795	1.200	0.952	1.169	1.152	0.519	1.600	1.111
Sindhudurg	0.735	0.867	1.155	1.056	0.897	0.667	1.614	1.047
Solapur	0.859	1.135	0.891	1.109	1.500	0.388	1.035	1.057
Thane	0.750	1.092	0.959	1.049	1.352	0.333	1.266	1.016
Wardha	0.915	1.046	0.963	1.074	1.380	0.663	1.536	0.891
Washim	0.913	0.997	0.832	1.144	1.516	0.479	2.022	1.046
Yavatmal	0.784	1.155	0.901	0.950	1.299	0.452	1.787	1.002

Table A5.27: Year wise MPI in Orissa at Upper Primary Level of Education

Orissa	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Angul	1.033	1.318	1.206	1.145	1.438	0.821	2.374	1.125
Balasore	1.069	1.570	1.205	1.493	1.279	0.955	1.334	1.068
Bargarh	1.513	1.304	1.085	1.148	1.916	1.202	0.971	1.289
Bhadrak	1.119	1.793	0.932	1.401	1.207	0.959	0.944	1.159
Bolangir	1.692	0.788	2.369	0.771	1.125	2.189	0.912	1.074
Boudh	1.338	0.822	1.112	0.569	3.257	1.039	0.805	1.056
Cuttack	1.280	1.001	1.243	1.342	1.384	0.905	1.322	1.095
Deogarh	0.974	1.322	0.967	1.193	1.463	1.409	1.008	1.128
Dhenkanal	1.490	1.094	1.421	1.183	1.278	0.889	1.404	1.047
Gajapati	0.273	0.968	1.304	1.054	1.767	0.949	0.749	1.477
Ganjam	1.020	1.357	1.246	1.146	1.854	0.563	1.569	0.945
Jagatsinghpur	1.318	1.325	1.171	1.422	1.443	0.836	1.083	0.965
Jajpur	1.127	1.236	1.098	1.464	1.610	0.676	1.287	1.209
Jharsuguda	1.307	1.622	1.148	1.039	1.405	1.775	1.060	1.194
Kalahandi	1.438	0.772	1.403	1.218	1.954	0.921	1.203	1.132
Kandhamal	0.538	1.260	1.257	1.184	1.887	1.418	0.373	1.716
Kendrapara	0.867	1.698	0.970	1.296	1.334	0.924	1.032	1.096
Keonjhar	1.036	1.340	1.094	1.354	1.829	0.705	1.207	1.021
Khordha	0.792	1.113	1.078	1.160	1.720	0.641	1.066	1.079
Koraput	0.519	0.834	1.275	1.271	1.659	0.679	1.403	1.027
Malkangiri	0.338	0.688	1.610	1.089	1.613	0.965	1.240	0.941
Mayurbhanj	0.625	1.426	0.981	1.396	1.597	0.712	1.384	1.017
Nawarangapur	0.460	0.681	1.744	1.054	1.773	0.607	1.328	0.954
Nayagarh	0.756	1.003	0.902	1.217	1.576	0.764	0.976	1.038
Nuapada	0.744	0.926	0.963	0.888	1.712	1.446	0.889	1.057
Puri	0.887	1.037	1.104	1.024	1.486	0.619	1.012	1.099
Rayagada	0.424	0.626	1.091	1.167	1.345	0.767	1.235	1.023
Sambalpur	0.820	0.754	1.077	1.190	1.570	1.252	0.780	0.994
Sonepur	0.918	0.672	1.677	1.000	1.411	1.291	0.853	0.984
Sundargarh	0.528	0.736	1.827	0.861	1.369	0.660	1.187	0.969

Table A5.28: Year wise MPI in Punjab at Upper Primary Level of Education

Punjab	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Amritsar	2.188	1.175	1.124	1.105	1.749	0.595	1.591	0.866
Bathinda	1.268	4.824	0.815	1.166	1.421	0.882	2.146	1.085
Faridkot	1.029	2.303	1.015	1.287	1.504	1.294	1.366	0.901
Fatehgarh Sahib	1.075	1.536	1.224	0.876	0.911	1.031	1.669	1.017
Ferozepur	1.593	1.763	0.975	0.959	1.922	1.508	1.690	0.922
Gurdaspur	1.316	3.075	0.670	0.876	1.105	0.751	5.463	0.931
Hoshiarpur	1.254	2.869	0.882	0.982	1.461	1.237	1.128	0.929
Jalandhar	1.920	1.534	1.252	0.940	2.334	0.791	0.767	0.799

Kapurthala	2.872	0.960	1.667	0.576	2.072	1.363	0.570	1.009
Ludhiana	0.922	1.469	1.003	1.184	1.766	0.597	2.132	0.933
Mansa	1.215	1.892	0.726	1.243	1.264	2.078	0.921	0.889
Moga	0.625	2.246	0.861	0.944	1.872	0.724	1.460	1.033
Muktsar	0.981	1.501	0.898	1.078	1.106	0.905	1.790	0.991
Nawanshahr	0.725	2.498	0.970	0.686	1.991	1.245	0.771	0.888
Patiala	1.353	0.941	1.126	0.731	1.906	0.688	1.615	0.667
Ropar	1.494	0.934	1.092	0.814	1.529	0.936	0.610	0.966
Sangrur	1.366	0.979	1.030	0.917	2.006	0.719	0.587	0.987

Table A5.29: Year wise MPI in Rajasthan at Primary Level of Education

Rajasthan	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Ajmer	0.609	1.489	1.302	1.064	1.461	0.763	1.978	0.947
Alwar	0.619	1.433	1.290	1.131	1.638	1.194	1.354	1.167
Banswara	0.358	1.401	1.370	0.891	1.942	0.736	1.235	1.097
Baran	0.941	1.481	1.236	1.276	1.562	1.101	1.170	1.070
Barmer	0.809	1.326	1.172	1.288	2.153	0.698	1.172	1.076
Bharatpur	0.795	1.638	1.320	1.162	1.704	0.748	1.207	1.152
Bhilwara	0.678	1.453	1.184	1.342	1.516	0.956	1.112	1.076
Bikaner	0.561	1.455	1.208	0.947	1.753	0.752	1.577	1.094
Bundi	0.552	1.384	1.242	1.190	1.559	0.960	1.004	1.061
Chittaurgarh	0.309	1.506	1.555	1.178	1.546	0.995	1.035	1.070
Churu	0.375	1.578	1.223	1.174	1.581	0.851	1.265	1.140
Dausa	0.730	1.432	1.337	1.329	1.734	0.937	1.265	1.251
Dhaulpur	0.728	1.428	1.614	1.168	2.112	0.815	1.217	1.048
Dungarpur	0.224	1.520	1.839	0.800	2.039	1.034	1.161	1.061
Ganganagar	0.802	1.705	1.219	1.158	1.456	0.863	1.167	0.931
Hanumangarh	0.835	1.664	1.336	1.138	1.139	0.897	1.623	1.119
Jaipur	0.701	1.393	1.232	1.266	1.455	0.618	1.782	1.094
Jaisalmer	1.039	1.398	1.188	1.121	1.603	0.930	1.114	1.089
Jalor	0.767	1.240	1.229	1.258	1.634	0.682	1.419	1.077
Jhalawar	0.646	1.277	1.115	1.224	1.401	1.207	1.091	1.066
Jhunjhunun	0.465	1.336	1.205	1.264	1.441	0.896	1.464	1.279
Jodhpur	0.836	1.328	1.190	1.215	1.445	0.907	1.282	1.055
Karauli	0.676	1.177	1.080	1.184	1.694	0.891	1.160	1.055
Kota	0.618	1.381	1.158	1.327	1.556	0.760	1.561	1.092
Nagaur	0.503	1.256	1.254	1.266	1.520	0.679	1.540	1.062
Pali	0.620	1.198	1.213	1.188	1.193	1.030	1.258	1.123
Rajsamand	0.567	1.205	1.273	1.198	1.371	0.693	1.251	1.004
Sawai Madhopur	0.531	1.244	1.149	1.031	1.523	0.764	1.470	1.098
Sikar	0.393	1.224	1.248	0.974	1.195	0.731	1.539	1.074
Sirohi	0.822	1.152	1.047	1.032	1.575	1.582	0.665	1.023
Tonk	0.459	1.197	1.068	1.115	1.225	0.916	1.182	0.976

Udaipur	0.714	1.209	1.082	0.981	1.611	0.694	1.016	1.019

Table A5.30: Year wise MPI in Tamil Nadu at Upper Primary Level of Education

Tamil Nadu	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Chennai	1.395	5.554	0.751	2.215	1.766	0.784	1.630	1.088
Coimbatore	1.426	4.005	0.493	1.990	1.131	0.872	1.395	1.088
Cuddalore	1.373	2.581	0.916	1.203	1.267	0.970	1.261	1.152
Dharamapuri	1.241	1.905	1.277	1.327	1.329	1.070	0.637	1.142
Dindigul	1.530	2.200	1.046	1.300	1.289	0.894	1.125	1.225
Erode	0.961	2.393	1.103	1.396	1.157	1.336	0.736	1.152
Kancheepuram	1.160	2.659	0.914	1.560	1.236	0.988	1.103	1.183
Kanniyakumari	1.301	1.628	1.209	1.899	1.541	1.084	0.908	1.237
Karur	0.947	1.365	1.008	1.442	1.320	1.075	0.831	1.291
Krishanagari	0.951	1.887	1.119	1.528	1.343	1.487	0.838	1.196
Madurai	1.131	2.515	0.878	1.800	1.280	0.952	1.074	1.269
Nagapattinam	1.118	1.583	1.064	1.395	1.317	1.397	0.910	1.184
Namakkal	0.640	1.817	1.429	1.901	1.219	1.217	1.045	1.273
Perambalur	0.903	1.633	1.321	1.577	1.369	1.136	1.022	1.093
Pudukkottai	1.075	1.595	1.287	1.585	1.341	1.334	0.970	1.131
Ramanathapuram	0.795	1.405	1.033	1.637	1.303	1.035	1.132	1.194
Salem	1.271	2.067	0.989	1.723	1.268	0.782	1.410	1.113
Sivaganga	0.924	1.146	1.309	1.346	1.173	2.591	0.579	1.110
Thanjavur	1.058	1.645	1.238	1.584	1.575	0.818	1.049	1.141
The Nilgiris	0.918	1.144	1.338	1.709	1.312	1.336	0.947	1.043
Theni	1.018	1.140	1.403	1.396	1.201	1.353	1.265	1.030
Thiruvallur	0.817	1.748	1.124	1.868	1.474	0.833	1.342	1.041
Thiruvarur	0.570	1.279	1.095	1.628	1.237	0.970	1.094	1.171
Thoothukkudi	0.645	1.212	1.540	1.305	1.253	1.332	0.995	1.054
Tiruchirappalli	0.742	1.403	1.188	1.424	1.411	1.851	0.657	1.150
Tirunelveli	0.592	1.609	1.539	1.138	1.617	0.661	1.258	0.934
Tiruvannamalai	0.709	1.302	1.156	1.266	1.252	1.004	1.154	1.033
Vellore	0.810	1.391	1.128	1.526	1.474	0.727	1.746	0.711
Vilippuram	0.725	1.206	1.113	1.228	1.204	0.935	0.994	1.105
Virudhunagar	0.717	1.270	1.168	1.433	1.335	1.315	0.891	1.002

Table A5.31: Year wise MPI in Uttar Pradesh at Upper Primary Level of Education

Uttar Pradesh	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Agra	1.271	1.396	1.339	1.385	1.341	0.846	1.679	1.075
Aligarh	1.625	1.874	1.401	0.992	1.618	0.978	0.735	1.041
Allahabad	1.437	1.391	2.184	0.794	1.421	0.548	1.984	1.189
Ambedkar Nagar	1.277	1.336	1.627	0.918	1.614	1.153	0.611	1.173
Auraiya	2.449	1.214	1.603	1.373	1.444	1.555	0.871	1.310

Azamgarh	1.213	1.226	1.657	0.924	1.400	0.618	1.525	1.132
Baghpat	2.055	1.497	0.996	1.257	1.604	1.152	1.026	1.181
Bahraich	1.446	1.244	1.327	1.117	1.825	0.677	1.798	1.032
Ballia	1.700	1.585	1.402	1.096	1.382	0.706	0.884	1.150
Balarampur	1.321	1.774	1.389	1.264	1.584	0.849	0.985	1.094
Banda	1.783	1.678	1.308	1.493	1.435	1.124	0.813	1.039
Barabanki	1.326	1.553	1.671	1.131	1.272	1.026	1.351	1.214
Bareilly	1.827	1.218	1.467	0.848	1.379	0.411	1.857	1.056
Basti	2.096	1.197	1.525	1.053	1.885	0.969	0.721	1.140
Bhadohi	1.853	1.216	2.018	0.841	1.559	0.838	0.912	1.174
Bijnor	1.525	1.274	1.438	1.021	1.824	0.585	1.912	0.804
Budaun	1.662	1.401	1.249	1.120	1.459	0.731	1.289	0.991
Bulandshahr	0.981	1.445	1.633	1.070	1.285	0.523	1.646	1.223
Chandauli	1.589	1.602	1.131	1.107	1.827	0.634	0.821	1.009
Chitrakoot	6.881	1.477	0.461	1.420	1.569	3.124	0.439	1.400
Deoria	1.482	1.569	1.278	0.877	1.266	0.798	1.364	1.082
Etah	0.935	1.368	1.976	2.128	1.044	1.511	0.303	1.077
Etawah	2.717	1.559	0.964	1.389	1.362	1.177	1.362	1.000
Faizabad	1.557	1.530	1.742	0.873	1.292	0.549	1.403	1.148
Farrukhabad	2.661	1.291	1.219	3.037	1.086	1.412	2.553	0.422
Fatehpur	1.875	1.226	1.922	0.683	1.245	0.572	1.705	1.037
Firozabad	1.550	1.802	1.392	0.829	1.557	0.474	1.392	1.107
Gautam Buddha Nagar	2.631	1.071	0.859	0.959	1.394	0.511	1.655	1.027
Ghaziabad	1.347	1.238	1.468	0.927	1.228	0.468	2.886	1.178
Ghazipur	1.483	1.224	1.229	0.947	1.666	0.589	0.997	1.157
Gonda	1.235	1.436	1.047	1.034	1.550	0.499	1.572	1.030
Gorakhpur	2.043	1.283	1.673	0.870	1.079	1.351	0.759	1.072
Hamirpur	4.548	1.070	0.624	1.102	1.681	0.762	0.955	1.161
Hardoi	1.428	1.312	1.044	1.088	1.251	0.915	1.334	1.031
Hathras	1.382	1.288	0.889	1.274	1.983	0.559	1.112	1.045
Jalaun	2.924	1.585	0.629	1.092	1.276	0.796	1.149	1.102
Jaunpur	1.356	1.193	1.410	0.906	1.492	0.682	0.937	1.097
Jhansi	1.294	1.461	1.625	1.252	1.322	0.721	0.919	0.913
Jyotiba Phule Nagar	1.098	1.560	1.188	0.684	1.907	0.492	1.692	1.159
Kannauj	1.263	1.113	1.332	1.325	1.483	0.789	0.978	1.084
Kanpur Dehat	2.784	1.110	0.707	1.309	1.152	1.168	1.367	1.106
Kanpur Nagar	1.468	1.421	2.369	0.764	1.286	0.815	0.912	1.338
Kaushambi	1.874	1.266	0.625	1.144	1.507	0.666	1.580	1.016
Kheri	1.667	1.240	1.315	1.067	1.516	0.714	1.037	0.924
Kushinagar	1.258	1.108	1.434	1.031	1.778	1.240	0.622	0.987
Lalitpur	1.754	0.992	0.937	0.778	1.206	0.890	0.937	0.927
Lucknow	0.886	1.587	1.408	0.956	1.470	0.766	1.159	1.197
Maharajganj	1.204	1.329	1.134	1.095	2.318	0.820	0.912	0.921
Mahoba	2.527	1.462	0.687	1.000	1.367	0.972	0.972	1.135

Mainpuri	0.587	2.164	1.041	0.707	1.455	0.575	1.522	1.005
Mathura	1.247	1.648	1.390	0.956	1.180	0.631	1.452	0.975
Mau	2.122	1.106	0.866	0.812	1.708	0.486	1.485	1.185
Meerut	0.795	1.348	1.931	0.879	1.309	0.825	1.194	1.006
Mirzapur	1.688	1.233	1.275	0.856	1.766	0.906	0.878	0.942
Moradabad	0.718	1.444	1.600	0.831	1.188	0.650	2.927	1.004
Muzaffarnagar	0.868	1.165	1.417	1.044	1.220	0.852	1.145	0.934
Pilbhit	2.184	0.979	0.752	0.999	1.770	0.596	1.033	1.254
Pratapgarh	1.910	1.185	1.240	0.936	1.753	0.439	1.293	1.262
Rae Bareli	1.542	1.040	1.309	0.906	1.391	0.545	1.583	0.795
Rampur	1.266	1.104	1.016	1.006	1.936	0.563	1.237	0.877
Saharanpur	1.134	1.099	1.796	0.856	1.257	1.372	0.674	1.105
Sant Kabir Nagar	1.079	0.788	1.604	0.728	2.050	0.777	0.877	0.933
Shahjahanpur	1.159	0.854	1.111	0.853	1.667	0.588	1.008	1.117
Shrawasti	1.580	1.068	1.072	1.056	1.567	0.857	0.904	1.068
Siddharthnagar	1.143	1.052	1.171	0.903	1.450	0.810	1.051	0.996
Sitapur	1.270	1.091	0.826	1.233	1.658	0.455	1.124	1.042
Sonbhadra	1.407	1.045	1.089	0.694	1.285	1.522	0.592	0.856
Sultanpur	1.163	1.002	1.154	0.784	1.078	0.645	1.846	0.964
Unnao	1.125	1.246	1.132	0.857	1.088	0.630	1.470	0.978
Varanasi	1.139	1.019	1.409	0.779	1.161	0.633	1.048	0.960

Table A5.32: Year wise MPI in West Bengal at Upper Primary Level of Education

West Bengal	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Bankura	2.169	1.473	1.255	1.094	1.200	0.439	1.272	1.024
Burdwan	2.088	1.892	1.288	0.471	1.200	0.607	1.593	1.101
Birbhum	2.291	1.480	1.200	0.517	1.200	0.672	0.887	1.061
Dakshin Dinajpur	3.105	2.566	0.730	0.291	1.200	0.716	0.796	1.182
Darjeeling	2.033	1.453	1.179	0.907	1.203	1.134	1.224	1.098
Howrah	1.473	2.734	1.115	0.590	1.140	0.411	2.068	1.060
Hooghly	1.849	1.296	1.206	0.914	1.200	0.561	1.159	1.058
Jalpaiguri	2.186	1.344	1.291	0.583	1.228	0.623	1.382	1.125
Cooch Bihar	1.156	2.003	0.794	0.830	1.200	0.671	0.898	0.944
Kolkata	1.883	1.257	1.247	0.659	1.111	0.667	1.476	1.137
Malda	1.626	1.393	1.171	0.411	1.260	0.769	1.300	1.128
Murshidabad	1.238	1.507	1.018	0.615	1.259	0.747	1.100	1.210
Nadia	2.068	1.125	1.249	0.432	1.204	0.695	1.157	1.036
North Twenty Four Parganas	1.085	1.472	1.426	0.333	1.154	0.366	2.162	1.114
Paschim Midnapore	1.422	1.232	1.391	0.866	1.200	0.433	1.422	1.063
Purba Midnapore	0.518	0.995	1.133	1.798	0.754	0.533	1.169	1.044
Purulia	1.803	1.237	0.883	0.641	1.112	0.734	1.057	0.900
Siliguri	1.532	1.124	1.368	0.296	1.031	0.502	1.382	1.104
South Twenty Four Pargans	1.059	1.212	1.173	0.556	1.075	0.558	1.470	1.075
Uttar Dinajpur	1.352	1.313	0.950	0.533	1.050	0.728	1.226	1.023

Chapter 6

The Interstate Comparison of Efficiency and Productivity

6.1 Introduction

The last three chapters are devoted to assess the performance of the elementary education sector using nonparametric approach. District wise detailed analysis regarding output and input oriented technical efficiency and productivity of elementary education has been carried out in chapter 3, 4 and 5 respectively in Indian context. In this context, one important question arises that what is the relative position of selected 16 major states in terms of these three performance indicators. The present chapter focuses on the comparison of different states based on the measurement obtained by applying the three different concepts.

Therefore the objectives of the present chapter are the followings- (i) to categorize the major selected states on the basis of their performance in terms of three indicators namely output oriented technical efficiency, input oriented technical efficiency and total factor productivity growth for both primary and upper primary levels of education separately and (ii) to explain the common factors behind the variation in technical efficiency and productivity measures.

The present chapter has been arranged in the following way: Section 6.2 discusses the methodology. Estimated results of primary and upper primary levels are presented in section 6.3 and section 6.4 deals with some concluding remarks.

6.2 Methodology

6.2.1 Comparison of Technical Efficiency and Productivity Scores

Using data envelopment technique district wise measurement of output and input oriented technical efficiency and total factor productivity growth (Malmquist Productivity Index) for selected 16 major states are obtained from three previous chapters over the sample period from 2005-06 to 2013-14. After obtaining the district wise measures in terms of efficiency and productivity score for nine consecutive years the mean value is calculated for each of the districts. From this mean value of the districts state specific average (SSA) is obtained. Ultimately a grand mean consisting of the mean of state specific average of all the states is computed for both primary and upper primary levels of education.

The state specific average value of any indicator over the sample period is compared to the grand mean of that indicator. Therefore the 16 major states are categorized into two groups, namely states with higher than the grand mean and the states with lower than grand mean based on their performance measured by three indicators. The interstate comparison of the three chosen performance

indicators namely TEOUT, TEINP and TFPG are presented in the subsection 6.3.1, for both primary and upper primary levels of education.

6.2.2 Comparison of the Determinants of Technical Efficiency and TFPG Scores

The common factors responsible for variation of three indicators can be identified through comparison of determinants found to be significant in explaining the measures of technical efficiency and TFPG of the primary and upper primary levels of education in the previous chapters. The common factors responsible in variation of the three chosen performance indicators namely TEOUT, TEINP and TFPG are explained in the subsection 6.3.2, for both primary and upper primary levels of education.

6.3 Empirical Findings

6.3.1 Results of Technical Efficiency and TFPG Scores of the Major Selected States

The computed average technical efficiency of output and input oriented measures and the total factor productivity growth scores of 16 major selected states over the study period from 2005-06 to 2013-14 for both primary and upper primary levels of education are summarized in tables 6.1 and 6.2 respectively.

Table 6.1: State wise Average Technical Efficiency and Average Productivity Score at Primary Level of Education

States	State Specific Average (SSA) of TEOUT	State Specific Average (SSA) of TEINP	State Specific Average (SSA) of MPI
Andhra Pradesh	0.965	0.953	1.235
Assam	0.982	0.921	1.227
Bihar	0.971	0.893	1.230
Gujarat	0.960	0.901	1.269
Haryana	0.916	0.911	1.096
Himachal Pradesh	0.977	0.974	1.234
Karnataka	0.963	0.908	1.226
Kerala	0.980	0.953	1.210
Madhya Pradesh	0.962	0.892	1.204
Maharashtra	0.952	0.782	1.225
Orissa	0.948	0.936	1.222
Punjab	0.901	0.931	1.189
Rajasthan	0.945	0.937	1.218
Tamil Nadu	0.973	0.910	1.217
Uttar Pradesh	0.948	0.874	1.228

West Bengal	0.955	0.953	1.202
Grand Mean	0.956	0.914	1.21

Table 6.2: State wise Average Technical Efficiency and Average Productivity Score at Upper Primary Level of Education

States	State Specific Average (SSA) of TEOUT	State Specific Average (SSA) of TEINP	State Specific Average (SSA) of MPI
Andhra Pradesh	0.924	0.944	1.318
Assam	0.962	0.954	1.222
Bihar	0.886	0.941	1.072
Gujarat	0.959	0.933	1.152
Haryana	0.913	0.928	1.049
Himachal Pradesh	0.981	0.977	1.303
Karnataka	0.944	0.953	1.138
Kerala	0.973	0.978	1.134
Madhya Pradesh	0.837	0.884	1.156
Maharashtra	0.934	0.912	1.115
Orissa	0.910	0.930	1.102
Punjab	0.946	0.971	1.156
Rajasthan	0.919	0.959	1.102
Tamil Nadu	0.940	0.868	1.211
Uttar Pradesh	0.784	0.834	1.162
West Bengal	0.876	0.927	1.051
Grand Mean	0.918	0.931	1.15

An interstate comparison based on three performance indicators is carried out and the performance of each state over the study period depicts the relative position of the states in India. After computing the district wise scores of TEOUT, TEINP and TFPG for all the 16 states over the sample period mean values for each of the states (SSA) are calculated. The grand mean value is obtained consisting of the mean of state specific average. After that the comparison of different states is performed on the basis of grand mean of technical efficiency and productivity score. The result indicates the classification of all the states in two groups- the first group comprising of the states having SSA higher than the grand mean (Above Average; AA) and the states belonging to the second group with SSA lower than the grand mean (Below Average; BA).

For primary level of education, the performance of the states with respect to the chosen indicators is presented in table 6.3, while the summary information of these two groups regarding mean, standard deviation and the coefficient of

variation is given in table 6.4. The interstate comparison based on the three chosen indicators namely TEOUT, TEINP and TFPG is presented in table 6.7.

Table 6.3: Performance of States on the basis of Technical Efficiency and TFPG Score at Primary Level of Education

States having State Specific Average (SSA) higher than Grand Mean			States having State Specific Average (SSA) lower than Grand Mean		
Technical Efficiency		TFPG	Technical Efficiency		TFPG
Output Oriented	Input Oriented		Output Oriented	Input Oriented	
Andhra Pradesh	Andhra Pradesh	Andhra Pradesh	Haryana	Bihar	Haryana
Assam	Assam	Assam	Maharashtra	Gujarat	Madhya Pradesh
Bihar	Himachal Pradesh	Bihar	Orissa	Haryana	Punjab
Gujarat	Kerala	Gujarat	Punjab	Karnataka	West Bengal
Himachal Pradesh	Orissa	Himachal Pradesh	Rajasthan	Madhya Pradesh	
Karnataka	Punjab	Karnataka	Uttar Pradesh	Maharashtra	
Kerala	Rajasthan	Kerala	West Bengal	Tamil Nadu	
Madhya Pradesh	West Bengal	Maharashtra		Uttar Pradesh	
Tamil Nadu		Orissa			
		Rajasthan			
		Tamil Nadu			
		Uttar Pradesh			

Based on the estimated value of the performance indicators of these two groups of the states, the standard deviation (SD) and coefficient of variation (CV) of these performance indicators are obtained for each of these groups for both primary and upper primary levels of education. The summary measures for primary education are represented in table 6.4.

Table 6.4: Comparison of Groups on the basis of Performance of Technical Efficiency and TFPG Score at Primary Level of Education

	Technical Efficiency						TFPG		
	Output Oriented			Input Oriented					
	Mean	SD	CV	Mean	SD	CV	Mean	SD	CV
States having SSA higher than Grand Mean	0.970	0.008	0.825	0.945	0.017	1.766	1.228	0.015	1.221
States having SSA lower than Grand Mean	0.937	0.021	2.241	0.884	0.043	4.860	1.172	0.052	4.437

It is evident that for primary level of education, the states with state specific average (SSA) higher than grand mean are (i) AP, AS, BH, GJ, HP, KA, KE, MP

and TN in case of output oriented technical efficiency, (ii) AP, AS, HP, KE, OR, PN, RA and WB for input oriented technical efficiency and (iii) AP, AS, BH, GJ, HP, KA, KE, MH, OR, RA, TN and UP corresponding to TFPG score. The state KE has been classified into higher than grand mean group although SSA score is equal to the grand mean value for the indicator TFPG. The results suggest that performance of the states such as AP, AS, HP and KE are good as they belong to the group having higher value of state specific average compared to grand mean for all the chosen indicators namely TEOUT, TEINP and TFPG for primary level of education.

For primary level of education, the information on standard deviation (SD) and the coefficient of variation (CV) of the two groups of states as presented in table 6.4 suggests that the coefficient of variation of the first group of the states (states having higher SSA with respect to grand mean) for the three performance indicators namely TEOUT, TEINP and TFPG is ***lower*** as compared to the coefficient of variation of the second group of states (states having lower SSA with respect to grand mean). ***Thus, for the primary level of education the performance of the first group of states with respect to all the three chosen performance indicators namely TEOUT, TEINP and TFPG is better both in terms of the mean value of the indicators and its variability.***

Regarding interstate comparison of the performance indicators for ***primary level of education,*** as presented in table 6.7, it can be said that the states such as AP, AS, HP and KE are the good performers as they have AA output and input oriented technical efficiency as well as productivity score. Here to get clearer picture we shall use the information provided by the coefficient of variation of each of the indicator TEOUT, TEINP and TFPG for each of the states in chapter 3, 4 and 5 respectively. These information suggests that among these above four states AP, AS, HP and KE having higher mean value for all the three performance indicators, the performance of the state AS cannot be taken as good as it possesses high CV compared to the grand mean of state specific CV in case of TEINP and TFPG. Coming to the performance of the other states, following observations can be made (i) the states like BH, GJ, KA and TN exhibit AA output oriented technical efficiency and TFPG but BA input oriented efficiency. Among these states, KA also has high CV as compared to the grand mean of CV for the indicator TEINP and TFPG. GJ has higher CV for TEINP and TFPG. (ii) HA is the state which has BA TEOUT, TEINP and TFPG simultaneously. HA also has higher CV for TEOUT and TFPG. (iii) The state KE is said to be a good performer in terms of both technical efficiency and productivity score and also contains less variability as suggested by CV figure for all the three performance indicators. (iv) The state PN and WB have BA TEOUT and TFPG but AA TEINP. The CV for PN is high for the three indicators and the state WB contains high CV for TEOUT and TFPG. (v) MH and UP have BA TEOUT and TEINP but AA TFPG. MH contains high CV for TEINP and TFPG, whereas CV for UP

is high for TEOUT and TEINP. (vi) For MP it is observed that there is AA TEOUT, BA TEINP and TFPG. Also the MP contains high CV for three indicators. (vii) In case of OR and RA though the states exhibit BA TEOUT but they have AA TEINP and TFPG. The state OR contains high CV only for the indicator TEOUT. RA contains high CV for TEOUT and TFPG. (viii) Performance of the state HA is poor in the sense that it possesses below average mean for all the chosen indicators namely TEOUT, TEINP and TFPG and also HA contains high CV for TEOUT and TFPG as compared to the grand mean of CV.

For ***upper primary level,*** the performance of the states with respect to the chosen indicators is presented in table 6.5, while the summary information of these two groups regarding mean, standard deviation and the coefficient of variation is given in table 6.6. The interstate comparison based on the three chosen indicators namely TEOUT, TEINP and TFPG is presented in table 6.7.

Table 6.5: Performance of States on the basis of Technical Efficiency and TFPG Score at Upper Primary Level of Education

States having State Specific Average (SSA) higher than Grand Mean			**States having State Specific Average (SSA) lower than Grand Mean**		
Technical Efficiency		**TFPG**	**Technical Efficiency**		**TFPG**
Output Oriented	**Input Oriented**		**Output Oriented**	**Input Oriented**	
Andhra Pradesh	Andhra Pradesh	Andhra Pradesh	Bihar	Haryana	Bihar
Assam	Assam	Assam	Haryana	Madhya Pradesh	Haryana
Gujarat	Bihar	Gujarat	Madhya Pradesh	Maharashtra	Karnataka
Himachal Pradesh	Gujarat	Himachal Pradesh	Orissa	Orissa	Kerala
Karnataka	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Tamil Nadu	Maharashtra
Kerala	Karnataka	Punjab	West Bengal	Uttar Pradesh	Orissa
Maharashtra	Kerala	Tamil Nadu		West Bengal	Rajasthan
Punjab	Punjab	Uttar Pradesh			West Bengal
Rajasthan	Rajasthan				
Tamil Nadu					

Table 6.6: Comparison of Groups on the basis of Performance of Technical Efficiency and TFPG Score at Upper Primary Level of Education

	Technical Efficiency						**TFPG**		
	Output Oriented			**Input Oriented**					
	Mean	**SD**	**CV**	**Mean**	**SD**	**CV**	**Mean**	**SD**	**CV**
States having SSA higher than Grand Mean	0.948	0.020	2.146	0.957	0.016	1.672	1.210	0.067	5.564

States having SSA lower than Grand Mean	0.868	0.049	5.691	0.898	0.037	4.120	1.095	0.035	3.180

It is apparent from the results that for ***upper primary level***, the states having state specific average higher than the grand mean over the period under study are (i) AP, AS, GJ, HP, KA, KE, MH, PN, RA and TN for output oriented technical efficiency, (ii) AP, AS, BH, GJ, HP, KA, KE, PN and RA for input oriented technical efficiency and (iii) AP, AS, GJ, HP, MP, PN, TN and UP corresponding to total factor productivity growth.

For ***upper primary level of education,*** the information on standard deviation and the coefficient of variation of the two groups of states as presented in table 6.6 suggests that the coefficient of variation of the first group of states (states having higher SSA with respect to grand mean) for the two performance indicators namely TEOUT and TEINP is ***lower*** as compared to the coefficient of variation of the second group of states (states having lower SSA with respect to grand mean). But for the performance indicator TFPG, the coefficient of variation of the first group of the states is higher than the coefficient of variation of the second group. ***Thus, for the upper primary level of education, the performance of the first group of states is better both in terms of mean value of the indicators and its variability for the two chosen performance indicators namely TEOUT and TEINP, but only in terms of mean for the other indicator TFPG.***

Table 6.7: Interstate Comparison based on Three Indicators at Primary and Upper Primary Levels of Education

States	Primary Level	Upper Primary Level
Andhra Pradesh	AA TEOUT, AA TEINP, AA TFPG	AA TEOUT, AA TEINP, AA TFPG
Assam	AA TEOUT, AA TEINP, AA TFPG	AA TEOUT, AA TEINP, AA TFPG
Bihar	AA TEOUT, BA TEINP, AA TFPG	BA TEOUT, AA TEINP, BA TFPG
Gujarat	AA TEOUT, BA TEINP, AA TFPG	AA TEOUT, AA TEINP, AA TFPG
Haryana	BA TEOUT, BA TEINP, BA TFPG	BA TEOUT, BA TEINP, BA TFPG
Himachal Pradesh	AA TEOUT, AA TEINP, AA TFPG	AA TEOUT, AA TEINP, AA TFPG
Karnataka	AA TEOUT, BA TEINP, AA TFPG	AA TEOUT, AA TEINP, BA TFPG
Kerala	AA TEOUT, AA TEINP, AA TFPG	AA TEOUT, AA TEINP, BA TFPG
Madhya Pradesh	AA TEOUT, BA TEINP, BA TFPG	BA TEOUT, BA TEINP, AA TFPG
Maharashtra	BA TEOUT, BA TEINP, AA TFPG	AA TEOUT, BA TEINP, BA TFPG
Orissa	BA TEOUT, AA TEINP, AA TFPG	BA TEOUT, BA TEINP, BA TFPG
Punjab	BA TEOUT, AA TEINP, BA TFPG	AA TEOUT, AA TEINP, AA TFPG
Rajasthan	BA TEOUT, AA TEINP, AA TFPG	AA TEOUT,AA TEINP, BA TFPG
Tamil Nadu	AA TEOUT, BA TEINP, AA TFPG	AA TEOUT, BA TEINP, AA TFPG
Uttar Pradesh	BA TEOUT, BA TEINP, AA TFPG	BA TEOUT, BA TEINP, AA TFPG
West Bengal	BA TEOUT, AA TEINP, BA TFPG	BA TEOUT, BA TEINP, BA TFPG

For ***upper primary level of education,*** the entire situation regarding interstate comparison is somewhat different compared to the primary level. The states like AP, AS, GJ, HP and PN are the good performer states– they have AA output oriented, input oriented as well as AA TFPG. Here to get clearer picture we shall use the information provided by the coefficient of variation of each of the indicator TEOUT, TEINP and TFPG for each of the states in chapter 3, 4 and 5 respectively as in the upper primary level. The information suggests that among these states, the performance of the state AP cannot be taken as good as it possesses high CV as compared to grand mean of CV in case of TEOUT and TFPG. Similarly, GJ also have high CV with respect to TEINP. HP has high value of CV as compared to grand mean of state specific CV for the indicator TFPG. The state PN possesses high CV as compared to grand mean of CV in case of TEINP. The information on the other states suggests the following: the performance of the three states, namely HA, OR and WB are not good as they have experienced BA TEOUT, TEINP and TFPG simultaneously. The states HA and OR contain high CV for the indicators TEOUT and TFPG, whereas the state WB has high CV for TEOUT and TEINP. The performance of the other states is of mixed type. For example (a) the states like KA, KE and RA it is observed that there is AA TEOUT and TEINP but BA TFPG. The state KA contains high CV for TFPG, whereas for RA, CV is high for TEOUT and TEINP. The state KE exhibits marginally below (MB) TFPG and the CV for KE is low for all the three performance indicators. The 5 remaining states have performed differently. (b) For the state BH there is BA TEOUT and TFPG but AA TEINP and the CV for BH is low for TEOUT, TEINP and TFPG. (c) For MP and UP it is found that there is BA TEOUT and TEINP but AA TFPG and CV for MP is high for all the three performance indicators. The state UP has experienced high CV with respect to TEINP and TFPG. (d) The state MH has AA TEOUT, BA TEINP and BA TFPG and the CV for MH is high for the performance indicators namely TEINP and TFPG. (e) For TN it is observed that there is AA TEOUT and TFPG but BA TEINP and the CV for TN is low for all the three performance indicators.

Since we are considering relative performance, it is clearly evident from the estimated results that AA TEOUT does not imply AA TEINP or AA TFPG. For example AA TEOUT and TFPG but BA TEINP occurs for KA (primary) and TN (upper primary). Also AA TEOUT but BA TEINP and TFPG occur for MP (primary) and MH (upper primary). ***Similarly BA TEOUT can be associated with AA TEINP and TFPG*** which happens in the state OR corresponding to primary level. Also BA TEOUT along with AA TEINP and BA TFPG hold for the state WB (primary) and BH (upper primary).

The information provided by the interstate comparison of the performance indicators for primary and upper primary levels suggests that the states AP, AS and HP are good performers, having SSA higher than the grand mean for all the chosen performance indicators namely TEOUT, TEINP and TFPG for both the

levels of education implying that their performance is good with respect to the mean value of each of the indicators.

6.3.2 Results of Determinants of Technical Efficiency and TFPG of the Major Selected States

From the empirical analysis, it is clearly evident that there are some common significant determinants in explaining the three different performance indicators, namely output oriented technical efficiency (TEOUT), input oriented technical efficiency (TEINP) and total factor productivity growth (TFPG) for primary and upper primary levels of education.

For example, it is evident that the three indicators namely TEOUT, TEINP and TFPG of primary as well as upper primary levels of education are (i) negatively influenced by the factors from poor infrastructure like percentage of schools without building, percentage of classrooms in 'bad' condition and percentage of single-teacher schools, (ii) positively influenced by the factors from favourable infrastructure like percentage of schools having common toilet facility and percentage of schools having girls' toilet facility, (iii) positively influenced by the policy variable like percentage of schools received TLM grant. Additional variable commonly influencing TEOUT, TEINP and TFPG for primary level are (i) percentage of schools with no blackboard from poor infrastructure, (ii) percentage of schools with drinking water facility from favourable infrastructure and (iii) percentage of students getting free text books, (iv) percentage of girls getting free text books to boys, (v) percentage of students getting free stationery, (vi) percentage of girls getting free stationery to boys from policy variables. Similarly, for upper primary level, TEOUT, TEINP and TFPG are simultaneously influenced (a) negatively by the variable from poor infrastructure like percentage of schools having no pucca building and (b) positively by the policy variables like (i) percentage of students getting school uniforms and (b) percentage of schools received school development (SD) grant.

Apart from these variables, social indicators like percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet will positively affect output oriented technical efficiency of both primary and upper primary levels of education. Similarly, the TFPG of primary as well as upper primary level of education will also be positively affected by the social indicators like percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet.

6.4 Conclusions

The present chapter basically deals with the relative position of each state in respect of three different indicators. The major 16 selected states are classified according to their measured scores obtained from applying output oriented, input oriented technical efficiency and total factor productivity growth concept. The results of the analysis suggest that there is a wide variation of output and input oriented technical efficiency and TFPG for the major states. Subsequently the interstate comparison has been performed considering these parts of the study.

From the district wise scores of TE and TFPG over the nine consecutive years for 16 major selected states SSA is obtained. After that grand mean comprising the SSA has been computed. Then grouping of the states according to their respective SSA is done. There are specifically two groups- the first group comprising of the states having SSA higher than the grand mean (Above Average; AA) and the states belonging to the second group with SSA lower than the grand mean (Below Average; BA). Comparing the SSA values for all three indicators with respect to the grand mean level, it uncovers that the outcomes are somewhat different for primary and upper primary levels of education in some of the states.

In case of ***primary level,*** the states having state specific average (SSA) higher than grand mean are (i) AP, AS, BH, GJ, HP, KA, KE, MP and TN for TEOUT and all these states contain low CV as compared to grand mean of CV except the state MP, (ii) AP, AS, HP, KE, OR, PN, RA and WB for TEINP and all these states contain low CV as compared to grand mean of CV except the states namely AS and PN and (iii) AP, AS, BH, GJ, HP, KA, KE, MH, OR, RA, TN and UP for TFPG and among these the states such as AP, BH, HP, KE, OR, TN and UP contain low CV as compared to grand mean of CV.

For ***upper primary level,*** the states having state specific average (SSA) higher than grand mean are (i) AP, AS, GJ, HP, KA, KE, MH, PN, RA and TN for TEOUT and all these states contain low CV as compared to grand mean of CV except the states such as AP and RA, (ii) AP, AS, BH, GJ, HP, KA, KE, PN and RA in case of TEINP and all these states contain low CV as compared to grand mean of CV except the states namely GJ, PN and RA and (iii) AP, AS, GJ, HP, MP, PN, TN and UP for TFPG and all these states contain low CV as compared to grand mean of CV except AP, HP, MP and UP.

The empirical findings reveal that the good performer states having AA output and input oriented technical efficiency as well as productivity score are (i) AP, AS, HP and KE for primary level of education and (ii) AP, AS, GJ, HP and PN in case of upper primary level. Thus the states like AP, AS and HP are good performers in the case of both primary and upper primary levels of education. However, for primary level performance of AS cannot be taken as good as it has high CV with respect to grand mean of CV for TEINP and TFPG. For upper

primary level except for AS, performance of the other states is not good with respect to the CV of different performance indicators.

It is also evident that in case of primary level, for all the three performance indicators such as TEOUT, TEINP and TFPG the states belonging to the first group having higher state specific average (SSA) than grand mean also contain less variability as depicted by lower coefficient of variation (CV) compared to the other group. For upper primary level in case of the two indicators, namely TEOUT and TEINP the states belonging to the group having higher state specific average than grand mean also contain less variability as depicted by lower coefficient of variation as compared to the other group, but for the indicator TFPG, coefficient of variation of the first group is higher than the second group. It is also clearly evident from the result that AA TEOUT does not imply AA TEINP or AA TFPG and vice versa.

Considering three different performance indicators the study also figures out the common factors responsible for variation of output oriented technical efficiency (TEOUT), input oriented technical efficiency (TEINP) and total factor productivity growth (TFPG).

For example, it is evident that the three indicators namely TEOUT, TEINP and TFPG of primary as well as upper primary levels of education are (i) negatively influenced by the factors from poor infrastructure like percentage of schools without building, percentage of classrooms in 'bad' condition and percentage of single-teacher schools, (ii) positively influenced by the factors from favourable infrastructure like percentage of schools having common toilet facility and percentage of schools having girls' toilet facility, (iii) positively influenced by the policy variable like percentage of schools received TLM grant. Additional variable commonly influencing TEOUT, TEINP and TFPG for primary level are (i) percentage of schools with no blackboard from poor infrastructure, (ii) percentage of schools with drinking water facility from favourable infrastructure and (iii) percentage of students getting free text books, (iv) percentage of girls getting free text books to boys, (v) percentage of students getting free stationery, (vi) percentage of girls getting free stationery to boys from policy variables. Similarly, for upper primary level, TEOUT, TEINP and TFPG are simultaneously influenced (a) negatively by the variable from poor infrastructure like percentage of schools having no pucca building and (b) positively by the policy variables like (i) percentage of students getting school uniforms and (b) percentage of schools received school development (SD) grant.

Apart from these variables, social indicators like percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet will positively affect output oriented technical efficiency of both primary and upper primary levels of education.

Similarly, the TFPG of primary as well as upper primary level of education will also be positively affected by the social indicators like percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet.

Therefore, appropriate policies triggering these aspects will likely to foster technical efficiency and productivity of primary and upper primary levels of education simultaneously.

Chapter 7

Summary and Conclusions

7.1 Introduction

Elementary Education sector plays crucial role in determining the well-being of the entire society and the progress of the whole country. Therefore, it needs special attention. Given the vast development of elementary education in India it will be interesting to focus on the district level performance in terms of technical efficiency and total factor productivity growth. The basic question for the elementary education sector is whether the sector is producing maximum output given the use of inputs or, alternatively, whether it is using optimum amount of inputs to produce the given level of output. At the same time what is the extent of total factor productivity growth, measuring the extent of output growth not accounted by the growth of inputs is an important question. The reason behind the attention for district level study of major selected states is that, one needs to identify the states/districts which are bad performers so that appropriate policies can be framed to improve the bad performing states/districts and hence to reduce the disparities among districts as well as states. Thus, it is utmost important to have a clear idea regarding backward regions and their relative position with respect to good performing regions. The study gives a detailed analysis of the performance of the sector and to prescribe appropriate policies to enhance the level of performance.

The perusal of the literature reveals that there are the gaps in the existing literature relating to the measurement and finding out significant determinants of technical efficiency and productivity of elementary education at the district level for India. ***The present study tries to overcome these limitations and further contributes to the literature in the following sense***. ***First of all***, the study evaluates measurement and determinants of technical efficiency and productivity performance separately for primary and upper primary levels of education for nine consecutive years from 2005-06 to 2013-14 for 461 districts (as per DISE) of 16 major selected states in India namely, Andhra Pradesh (AP), Assam (AS), Bihar (BI), Gujarat (GJ), Haryana (HA), Himachal Pradesh (HP), Karnataka (KA), Kerala (KE), Madhya Pradesh (MP), Maharashtra (MH), Orissa (OR), Punjab (PN), Rajasthan (RA), Tamil Nadu (TN), Uttar Pradesh (UP) and West Bengal (WB). The relevant data used in the analysis is collected from different issues of District Reports Cards (DISE). The earlier studies in Indian context did not consider such district level over time analyses. This serves the objective for comparison of the primary and upper primary levels of education, studies for which are not well captured in the literature. Technical efficiency can be visualised in two alternative ways: whether the sector is generating maximum output given the input usage (the basis of the concept of output oriented technical

efficiency), or given the output level the sector is using minimum amount of inputs as determined by the technology constraint (the basis of the concept of input oriented technical efficiency). This present study considers the output oriented technical efficiency (TEOUT) measuring to what extent the sector is below the maximum possible output and to what extent output can be expanded, given the levels of input usages. The input oriented technical efficiency (TEINP) depicting the extra usage of inputs to produce a given level of output i.e. the extent to which the input usage can be contracted, given the output level produced is also measured. Regarding productivity, one can use either partial productivity or total factor productivity growth (TFPG) which shows the growth in output which is not accounted by the growth in inputs and basically encompasses the concept of technical efficiency change, technical change and scale efficiency change. The present study uses the concept of total factor productivity growth (TFPG). There is a dearth of such type of study at the district level and separately for primary and upper primary levels of education over consecutive time frame. In tune with the literature, measurement of technical efficiency and total factor productivity growth requires assumption of production function, which necessitates identification of inputs and outputs. Relevantly, it will be useful to highlight the following difference between this educational production function and the standard production function used in micro theory: (a) the output produced in case of education is not the tangible output. Thus one needs to represent the output using some suitable measures. For example, present study considers two outputs for the measurement of efficiency score: (i) net enrolment ratio (NER) and (ii) percentage of students passed having greater than 60% in the examination. The second output measures the attainment of quality. There can be other measures of output as well. Similarly, following input variables are considered : (i) number of schools per lakh population, (ii) teacher-pupil ratio in the school, (iii) classroom-student ratio in the school and (iv) percentage of teachers with qualification graduate and above in the school, measuring the quality of the teacher input. (b) both the output and the inputs in the production process do not have prices. Thus, one needs to obtain their shadow prices for further analysis. Therefore, the ***second*** point of the contribution of the present thesis to the literature is that in the estimation procedure for efficiency and productivity it considers both quantities as well as quality aspects of the outputs and inputs and there is scarcity of such approaches in the existing studies. ***Thirdly,*** the present analysis also measures whether there is more usage of different inputs over the optimum or not at district level, for both primary and upper primary levels of education and tried to identify the input for which there is maximum extra usage; studies for which are lacking in the literature. ***Fourthly,*** decomposition of TFPG into its respective components for primary and upper primary levels separately is also an interesting aspect of the thesis. TFPG can be decomposed into technical efficiency change (TEC), technical change (TC) and scale efficiency change (SEC). If the movement of TFPG is attributed by the scale

change, it may not be sustained in the long run because of assumption of diminishing returns to scale. On the other hand, if the change in TFPG is mainly guided by either technical change or technical efficiency change, it will be more beneficial for sustained growth. There is lack of such studies at the district level separately for primary and upper primary levels of education. ***Finally,*** while explaining the significant factors of technical efficiency and total factor productivity growth some poor and favourable infrastructural, social and policy indicators are taken into account. Instead of using composite index, the study captures the individual effect of the different explanatory variables. This is because for identification of appropriate policies, the individual effect of the variable that matters. The study also prescribes appropriate policies to enhance the level of performance of output oriented technical efficiency, input oriented technical efficiency and total factor productivity growth for both primary and upper primary levels of education and also identifies the common factors that can enhance the level of these three performance indicators jointly. The present analysis helps us to find out the answer of the above research questions.

The details of the chapters are given below.

Chapter 1 gives the background and motivation of the present study. **Chapter 2** deals with the survey of literature. The survey of literature has two parts. One part of the survey defines the methodological aspect of the problem. Here methodology of technical efficiency and total factor productivity growth (TFPG) has been described. Another portion of the survey basically deals with the empirical aspect. Different empirical literatures relating to measurement of output and input oriented technical efficiency and productivity performance of education sector in Indian context as well as international context have been discussed. The last section of the chapter 2 presents the contributions of the present study and connection of the thesis with the existing literature. **Chapter 3** estimates output oriented technical efficiency score at district level for primary and upper primary levels of education separately using nonparametric DEA for the 16 major selected states and find out their determinants. The identification of the significant determinants explaining output oriented efficiency score has been done with the help of panel regression. Next in **Chapter 4** a study relating to measurement of input oriented technical efficiency of primary and upper primary levels of education has been conducted. This chapter also estimates the input slack and radial movements of the inputs employed in the production process. The analysis helps to get a picture, whether there is more usage of different inputs over the optimum or not and also helps to identify the input for which there is maximum amount of nonoptimal use. Also the study reveals the factors responsible for variation of input oriented technical efficiency scores. **Chapter 5** measures the extent of TFPG for primary and upper primary levels of education applying nonparametric DEA approach and finds out the determinants of TFPG. The movement of TFPG is decomposed into technical efficiency change, technical

change and scale efficiency change to find out the role of each component in explaining the TFPG movement. Also the factors influencing the TFPG of primary and upper primary levels of education have been explained. **Chapter 6** is focused on comparison of different states based on the measurement obtained by applying the three different concepts namely output oriented technical efficiency (TEOUT), input oriented technical efficiency (TEINP) and total factor productivity growth (TFPG).

7.2 The Major Findings

The major findings of the whole study can be summarized as follows:

To proceed further analysis, after obtaining the district wise measures in terms of the three performance indicators TEOUT, TEINP and TFPG for nine consecutive years, mean value of each of these three performance indicators is calculated for each of the districts. From these estimated district level mean values, state specific average (SSA) and state specific CV are obtained for each of these three performance indicators. Ultimately a grand mean consisting of the mean of state specific average (SSA) and the coefficient of variation of each of these performance indicators is computed for both primary and upper primary levels of education. The obtained figures are used to carry out interstate comparison of the three indicators namely TEOUT, TEINP and TFPG and also to make the comparison between primary and upper primary levels of education.

7.2.1 The Output Oriented Technical Efficiency (TEOUT)

The empirical results reveal that not all the districts are perfectly technically efficient either at the primary or upper primary levels of education in the sense to produce the maximum level of output given the input used in the production process. Out of the 461 districts (as per DISE) only 15.62% (primary) and 7.22% (upper primary) are fully technically efficient throughout the study period implying that they are on the frontier.

In case of ***primary level,*** the grand mean consisting of the mean of state specific average (SSA) is 0.956 and on an average percentage of the districts higher than SSA is 61.66. The estimated value of mean TEOUT for different years under the sample period suggests a marginal increase. The following states have higher than grand mean- AP, AS, BH, GJ, HP, KA, KE, MP and TN. The highest SSA TEOUT occurs for the state AS (0.982) followed by KE (0.980) and lowest for PN (0.901). The grand mean value of the state specific coefficient of variation (CV) of the measure TEOUT is 4.79%. The states which have CV below the grand mean of CV are the following: AP (3.31%), AS (2.66%), BH (2.63%), GJ (4.69%), HP (3.80%), KA (4.06%), KE (1.69%), MH (4.41%) and TN (2.73%). ***Thus, except MP, all the states having higher state specific average TEOUT as compared to the grand mean, also possess lower value of state specific CV as***

compared to the grand mean of CV, implying that their performance is good both in terms of level and variability of output oriented technical efficiency. All over performance assessed by the coefficient of variation (CV) reveals that the state KE (1.69%) and PN (11.99%) are in the first and last position respectively. Performance of PN is poor because not only it possesses lowest state specific average TEOUT, but also highest level of state specific CV.

Considering the ***upper primary level of education,*** the grand mean consisting of the state specific average for all the states is 0.918 and on an average percentage of the districts higher than state specific average is 55.75. The estimated value of mean TEOUT for different years under the sample period suggests that there is an increase in technical efficiency score. The states having higher than the grand mean score are- AP, AS, GJ, HP, KA, KE, MH, PN, RA and TN. The states HP (0.981) and KE (0.973) have high SSA compared to other states, whereas UP (0.784) has the lowest level of SSA. The grand mean value of the state specific coefficient of variation (CV) of the TEOUT measure is 5.24%. The state specific CV is lowest for BH (0.64%) and is highest for WB (13.36%). The states which have CV below the grand mean of CV are the following: AS (4.16%), BH (0.64%), GJ (3.62%), HP (2.94%), KA (3.76%), KE (2.99%), MH (4.50%), PN (4.15%), TN (4.41%) and UP (4.29%). ***Thus, except AP and RA, all the states having higher state specific average TEOUT as compared to the grand mean of TEOUT, also possess lower value of state specific CV as compared to the grand mean of CV, implying that their performance is good both in terms of level and variability of output oriented technical efficiency measure.***

Comparison of the results of primary and upper primary levels of education with respect to output oriented technical efficiency measure reveals that (i) grand mean of TEOUT is higher for the primary as compared to upper primary, (ii) the percentage of the districts which is perfectly efficient is less for upper primary (7.22%) as compared to primary (15.62%) and (iii) the performance of some of the states namely AS, GJ, HP, KA, KE and TN is good in case of both primary and upper primary levels of education as these states belong to the group having higher state specific average (SSA) of TEOUT than grand mean of TEOUT and lower state specific value of CV as compared to the grand mean CV of TEOUT.

After looking into the significant determinants of output oriented technical efficiency of primary and upper primary levels of education, it is evident that the ***following common factors have significant impact in explaining the variation of output oriented technical efficiency score for both the levels of education.*** For example, output oriented technical efficiency score of both the levels of education are ***(a) negatively and significantly influenced by the variables from the poor infrastructure like*** percentage of schools without building, percentage of classrooms in 'bad' condition, percentage of single teacher schools, percentage of single classroom schools and percentage of schools with no blackboard, (b)

positively and significantly influenced by (i) the variables from the favourable infrastructure like percentage of schools with common toilet facility and percentage of schools with girls' toilet facility, ***(ii) the social indicators like*** percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet, ***(iii) the policy variables,*** namely percentage of girls getting free text books to boys, percentage of girls getting free stationery to boys and percentage of schools received teaching learning material (TLM) grant.

Further, apart from the factors as mentioned above, it is possible to identify some factors which solely affect the output oriented technical efficiency of primary and upper primary levels of education respectively. For example, additionally, the factors from the favourable infrastructure like percentage of schools with drinking water facility and the factors from policy variable like percentage of students getting free text books and percentage of students getting free stationery only affect the TEOUT of primary level of education positively. Similarly, percentage of schools having no pucca building, percentage of students getting free uniforms and percentage of schools received school development (SD) grant only affect the output oriented efficiency score of upper primary level of education significantly.

Thus, the relationship between the output oriented technical efficiency and different explanatory variables reveals that efficiency score for both the primary and upper primary levels of education is positively related to favourable infrastructure, social and policy indicators and negatively related to the poor infrastructural variables of the school at district level. The positive relationship indicates that improvement in the favourable, social and policy variables will lead to the higher level of efficiency.

7.2.2 The Input Oriented Technical Efficiency (TEINP)

In case of primary level of education grand mean of SSA corresponds to 0.914. The estimated value of mean TEINP for different years under the sample period suggests a marginal decrease. The average value of the percentage of the districts higher than SSA is 53.43. On an average relatively small percentage (12.56%) of the districts is perfectly technically efficient throughout the period. The states having SSA higher than grand mean are the following- AP, AS, HP, KE, OR, PN, RA and WB. The SSA is highest for HP (0.974) followed by AP (0.953), KE (0.953) and WB (0.953) and lowest for MH (0.782). The states having lower state specific coefficient of variation (CV) for the indicator TEINP as compared to the grand mean of CV are the following: AP (4.77%), HA (7.09%), HP (5.30%), KE (6.22%), OR (5.21%), RA (5.75%), TN (6.22%) and WB (5.44%). ***Thus, regarding TEINP for primary level of education, the performance of the states namely AP, HP, KE, OR, RA and WB is good as these states have higher state specific average TEINP as compared to the grand mean and also possess lower***

value of state specific CV as compared to grand mean of CV, implying higher mean level and lower variability of TEINP.

Considering the upper primary level of education it can be observed that grand mean level of SSA turned out to be 0.931 implying that not all the districts as well as respective states are fully technically efficient. The estimated value of mean TEINP reveals that there is marginal increment of efficiency score over the study period. In case of SSA of TEINP the following states have higher than the grand mean –AP, AS, BH, GJ, HP, KA, KE, PN and RA. Grand mean of percentage of the districts higher than SSA is 55.795. The average value of the percentage of the districts having TEINP equal to 1 is 8.87. Thus the majority of the districts have their SSA of TEINP greater than the grand mean level. The SSA for input oriented efficiency related to upper primary level of education is highest for the state KE (0.978) and lowest for UP (0.834). The grand mean of CV obtained from the state specific CV of TEINP for the upper primary level of education is 5.802%. The state specific CV is highest for PN (11.13%) and is lowest for KE (3.00%). The states for which the state specific CV is below the grand mean of CV are the following: AP, AS, BH, HA, HP, KA, KE, OR and TN. ***The comparison of the state specific average of TEINP and state specific CV of TEINP reveals that the performance of the states namely AP, AS, BH, HP, KA and KE is good as they possess higher mean and lower variability as compared to the grand value of mean and CV of TEINP.***

District wise as well as respective state wise distribution of the percentage of the ratios of radial and slack movements to that of average of actual movements of the four inputs from 2005-06 to 2013-14 is obtained for both primary and upper primary levels of education. According to the findings, the presence of input slack and radial movements basically implies that all the districts are not fully technically efficient in the sense that inputs or resources are not used optimally.

For ***primary level of education,*** radial movement follows similar pattern for all the inputs. It was found that considering all the four inputs the lowest SSA value of ***radial movement*** occurs for HP and highest value occurs for MH. For the input ***number of schools per lakh population*** lowest SSA of ***slack movement*** occurs for KE (1.15%) and highest value is observed for TN (10.70%). In case of the input ***teacher-pupil ratio*** lowest SSA of slack movement is attained at GJ (1.60%) and KE (2.22%) and highest value occurs for the state MH (8.89%). Considering ***classroom-student ratio*** least and highest value occurs in the state OR (1.88%) and MH (8.92%) respectively. For the input ***percentage of teachers with qualification graduate and above,*** SSA of slack movement is lowest for HP (0.07%) and is highest in the state HA (3.25%). In case of ***primary level of education*** comparing the grand mean of ***combined radial and slack movements*** of different inputs used in the production process it is evident that the grand mean is highest for ***classroom-student ratio (13.42%)*** followed by ***teacher-pupil ratio***

(12.79%), number of schools per lakh population (12.27%) and lowest for ***percentage of teachers with qualification graduate and above (9.62%),*** showing that degree of nonoptimal use is highest for the input classroom-student ratio. Coming into the ***combined radial and slack movements,*** it can be observed that for the four different inputs the pattern is same corresponding to primary level of education. The state specific average of combined movement is lowest for HP and highest for MH.

On the other hand, corresponding to ***upper primary level of education,*** the grand mean level of ***combined radial and slack movements*** is largest for the input like ***number of schools per lakh population (13.31%)*** followed by ***classroom-student ratio (12.24%), teacher-pupil ratio (10.74%)*** and lowest for the input, namely ***percentage of the teachers with qualification graduate and above (8.56%).*** As in the case of primary level, in upper primary level also radial movement follows similar pattern for all the inputs. It was found that in case of ***radial movement*** the lower value of SSA for all four inputs used occurs for KE and PN whereas the highest level is obtained from the state UP. While discussing about the ***slack movement,*** SSA is least for HP (2.74%) and highest for TN (13.98%) for the input like ***number of schools per lakh population.*** In case of ***teacher-pupil ratio*** lower value is occurred for the state KA (0.40%) and KE (0.79%) but highest value is observed for UP (10.67%). For the input ***classroom-student ratio*** least and highest level of SSA are observed in the state UP (4.18%) and TN (17.75%) respectively. In case of the remaining input ***percentage of teachers with qualification graduate and above*** the SSA is lowest in the state, namely HP (0.00) and highest level of SSA occurs for MH (4.75%).

Considering upper primary level, SSA of ***combined radial and slack movements*** for the inputs ***number of schools per lakh population*** and ***teacher-pupil ratio*** is lowest for the state HP (5.07%) and KE (2.97%) respectively. The highest value is observed for TN (27.13%) and UP (24.39%) respectively. Similarly, in the case of ***classroom-student ratio*** (6.72%) and ***percentage of teachers with qualification graduate and above*** (2.33%) the SSA of combined movement is lowest for the state HP. For these two inputs highest SSA of combined movement occurs for the state MP (20.21%) and UP (16.71%) respectively.

Therefore the analysis regarding the input utilization suggests that among the four inputs employed in the production process the inputs like classroom-student ratio and number of schools per lakh population, have high level of inefficiency in usage at the primary and upper primary levels of education respectively whereas the level of inefficiency is least for the percentage of teachers with qualification graduate and above at both the levels of education. The results support the fact that the same level of usage of these inputs can produce more of output in each of the level of education or alternatively, same level of output can be produced by the smaller amount of inputs.

The comparison of TEINP at primary and upper primary levels of education reveals that (i) the states such as AP, AS, HP, KE, PN and RA have higher SSA as compared to grand mean for both primary as well as upper primary and (ii) the states AP, HA, HP, KE, OR and TN have lower CV of TEINP as compared to grand mean of CV for both primary and upper primary levels of education. Thus performance of the states AP, HP and KE are good for both primary as well as upper primary, as they have SSA of TEINP higher than grand mean TEINP and less CV of TEINP as compared to grand mean of CV or, less variability, (iii) percentage of districts with SSA higher than grand mean is greater for upper primary (55.795%) as compared to primary level (53.43%), (iv) the percentage of districts lying on the frontier is less for upper primary (8.87%) as compared to primary level (12.56%) and (v) the combined radial and slack movements of different inputs namely teacher-pupil ratio, classroom-student ratio and the percentage of teachers with qualification graduate and above is less for upper primary level, except for the input number of schools per lakh population.

A closer look at the results reveal that there are ***some common factors which significantly influence input oriented efficiency score for both the primary and upper primary levels.*** TEINP is ***(a) negatively and significantly*** influenced by the existence of ***poor infrastructure*** like (i) percentage of schools without building, (ii) percentage of schools with no pucca building, (iii) percentage of classrooms in 'bad' condition, (iv) percentage of single teacher schools, (v) percentage of single classroom schools and (vi) percentage of schools with no blackboard and **(b) *positively*** influenced by ***different favourable infrastructure*** namely, (i) percentage of schools with drinking water facility, (ii) percentage of schools with common toilet facility and (iii) percentage of schools having girls' toilet facility and (c) also by different ***policy variables*** like (i) percentage of students getting free text books, (ii) percentage of students getting free uniforms, (iii) percentage of students getting free stationery and (v) percentage of schools received teaching learning material (TLM) grant.

Apart from the above mentioned determinants the factors which are additionally responsible for variation in input oriented technical efficiency score at primary level of education are percentage of girls getting free text books to boys and percentage of girls getting free stationery to boys. Similarly in case of upper primary level, percentage of schools received school development (SD) grant is a significant variable in enhancing the level of TEINP.

Considering the estimated relationship, it is observed that input oriented technical efficiency is negatively related to the poor infrastructural facilities whereas positively related to the favourable and policy indicators at both primary and upper primary levels of education.

7.2.3 The Total Factor Productivity Growth (TFPG)

First of all, the district wise analysis of TFPG reveals that there is wide variation of the magnitude of MPI, for both primary and upper primary levels of education. The grand mean of productivity index for all the districts and all the years under study taken together turned out to be 1.21 and 1.15 for primary and upper primary levels of education respectively.

In case of ***primary level,*** the states having SSA higher than grand mean are the following– AP, AS, BH, GJ, HP, KA, KE, MH, OR, RA, TN and UP. The highest state specific average TFPG occurs for the state GJ (1.269) and the lowest value occurs for HA (1.096). The grand mean of CV obtained from the state specific CV of TFPG for primary level of education turned out to be 7.326%. The highest value of state specific coefficient of variation (CV) occurs for the state WB (9.05%), while its lowest value is assigned to HP (5.96%). The states having CV lower than the grand mean are the following: AP (5.99%), BH (6.53%), HP (5.96%), KE (6.21%), OR (7.31%), TN (6.40%) and UP (6.92%). ***Thus for primary level of education, performance of the states AP, BH, HP, KE, OR, TN and UP is good with respect to TFPG as these states belong to the group of states having (i) higher state specific average value as compared to the grand mean of TFPG and (ii) lower value of state specific CV as compared to the grand mean of CV.***

Considering ***upper primary level*** of education the states AP, AS, GJ, HP, MP, PN, TN and UP have higher SSA value as compared to the grand mean. The highest value of state specific average of TFPG occurs for the state AP (1.138), while it is lowest for HA (1.049). The grand mean of CV of all the state specific CV of TFPG turned out to be 8.394%. The highest value of state specific CV turned out to be 11.25% for the state AP, while it is lowest for the state BH (5.87%). The states having CV lower than grand mean CV are the following: AS (6.71%), BH (5.87%), GJ (7.54%), KE (7.55%), PN (8.13%), RA (5.95%), TN (7.83%) and WB (7.97%). Thus the performance of the states AS, GJ, PN and TN is good as they have higher state specific average TFPG value as compared to the grand mean and also lower state specific CV of TFPG.

The comparison of primary and upper primary levels of education reveals that (i) for both the levels of education the states such as AP, AS, GJ, HP, TN and UP have high SSA as compared to the grand mean of TFPG, (ii) the states namely BH, KE and TN have lower CV as compared to grand mean of CV for both levels and (iii) the percentage of districts with SSA higher than grand mean is higher for primary (58.83%) than upper primary (53.87%).

Coming to the ***productivity growth rate***, for ***primary level of education*** KE exhibits highest productivity growth rate (PGR). The grand mean of PGR for all

the states turned out to be 6.304%. The states higher than grand mean of PGR are the following: GJ, HA, KA, KE, MH, PN and RA.

For ***upper primary level,*** the grand mean of PGR for all the states taken together is 20.829%. The highest PGR is achieved by the state KE over the study period. The states having PGR greater than the grand mean are the following: AS, KA, KE, MP, MH, PN and RA.

Coming into the ***decomposition analysis*** the empirical result suggests that all the three components of MPI namely technical efficiency change (TEC), technical change (TC) and scale efficiency change (SEC) have importance in determining the trend of MPI at district as well as respective state level for both primary and upper primary levels of education. In both the cases the contribution of technical change (grand mean value of primary state specific average (SSA) is 1.213 and upper primary state specific average is 1.418) are higher followed by technical efficiency change and scale efficiency change. The results of decomposition of the productivity index reveal that on average the productivity changes are mainly occurred due to technical change, mostly over the sample period from 2005-06 to 2013-14 for both primary and upper primary levels of education. The result is true for absolute level as well as the rate of change. Relevantly, it may be mentioned that if the growth factor is attributed by the scale change, it may not be sustained in the long run because of assumption of diminishing returns to scale. But if the change in productivity is mainly contributed by either technical change or technical efficiency change that will be more beneficial as it can be sustained in the long run.

The regression results suggest the significant common determinants for both primary and upper primary levels of education respectively. For example, TFPG of both the levels of education is (1) ***negatively and significantly related*** to the different ***poor infrastructural facilities*** such as (a) percentage of schools without building, (b) percentage of schools having no pucca building, (c) percentage of classrooms in 'bad' condition and (d) percentage of single-teacher schools, (2) is ***positively and significantly related*** to (i) ***favourable infrastructural facilities*** namely (a) percentage of schools with drinking water facility (b) percentage of schools with common toilet facility and (c) percentage of schools having girls' toilet facility and the (ii) ***social indicators*** like (a) percentage of girls enrolment to boys and (b) percentage of schools with girls' toilet to common toilet and (iii) ***different policy indicators*** namely (a) percentage of students getting free text books, (b) percentage of students getting uniforms, (c) percentage of students getting free stationery, (d) percentage of girls getting free stationery to boys, (e) percentage of schools received school development (SD) grant and (f) percentage of schools received teaching learning material (TLM) grant are important factors responsible for variation in MPI over study period.

Apart from these factors, productivity index corresponding to primary level of education is (i) negatively and significantly affected by the factor from poor infrastructure such as percentage of schools with no blackboard and (ii) positively influenced by the policy variable like percentage of girls getting free text books to boys.

Thus, the estimated relation captures that TFPG is positively related to the different favourable infrastructure, social and policy indicators whereas productivity index is negatively influenced by poor infrastructural facilities.

7.2.4 The Interstate Comparison of Efficiency and Productivity

In chapter 6 an interstate comparison is made on the basis of output and input oriented technical efficiency and TFPG scores taken together for each of the 16 major selected states for primary and upper primary levels of education. From the empirical findings wide variation of output and input oriented TE and TFPG at district as well as respective state level is evident.

In case of primary level of education the states such as AP, AS, HP and KE are the good performers as they have above average (AA) output and input oriented technical efficiency as well as productivity score. However the performance of the state AS cannot be taken as good as it possesses high CV as compared to the grand CV in case of TEINP and TFPG. The states like BH, GJ, KA and TN exhibit AA output oriented technical efficiency and TFPG but below average (BA) input oriented efficiency. GJ and KA also have high CV as compared to the grand mean of CV for the indicator TEINP and TFPG. HA is a bad performer state as it has BA TEOUT, TEINP and TFPG simultaneously. The state KE is said to be a good performer in terms of both technical efficiency and productivity score and also contains less variability as suggested by CV figure. The states such as PN and WB have BA TEOUT and TFPG but AA TEINP. The CV for PN is high for the three indicators, whereas WB contains high CV for TEOUT and TFPG. MH and UP have BA TEOUT and TEINP but AA TFPG. MH contains high CV for TEINP and TFPG, whereas CV for UP is high for TEOUT and TEINP. For MP it can be found that there is AA TEOUT, BA TEINP and TFPG. Also MP contains high CV for TEOUT, TEINP and TFPG. In case of OR and RA though the states exhibit BA TEOUT but they have AA TEINP and TFPG. The state OR contains high CV only for TEOUT. RA contains high CV for TEOUT and TFPG.

In case of the upper primary level of education somewhat different picture can be observed compared to the primary level. The states like AP, AS, GJ, HP and PN have behaved similarly – they have AA output oriented, input oriented and TFPG. However, among these states, the performance of the state AP cannot be taken as good as it possesses high CV as compared to grand mean of CV in case of TEOUT and TFPG. Similarly, GJ also have high CV with respect to TEINP. HP

has high value of CV as compared to grand mean of state specific CV for the indicator TFPG. The state PN possesses high CV as compared to grand mean of CV in case of TEINP. Three states, namely HA, OR and WB have experienced BA TEOUT, TEINP and TFPG simultaneously. The states HA and OR contain high CV for TEOUT and TFPG, whereas the state WB has high CV for TEOUT and TEINP. For the states like KA, KE and RA it is found that there is AA TEOUT and TEINP but BA TFPG. The state KA contains high CV for TFPG, whereas for RA, CV is high for TEOUT and TEINP. The state KE exhibits marginally below TFPG and the CV for KE is low for all the three performance indicators. The 5 remaining states have performed differently. For the state BH there is BA TEOUT and TFPG but AA TEINP and the CV for BH is low for TEOUT, TEINP and TFPG. For MP and UP it is observed that there is BA TEOUT and TEINP but AA TFPG and the CV for MP is high for all the three performance indicators. The state UP has experienced high CV with respect to TEINP and TFPG. The state MH has AA TEOUT, BA TEINP and BA TEINP and the CV for MH is high for the performance indicators namely TEINP and TFPG. For TN it is observed that there is AA TEOUT and TFPG but BA TEINP and the CV for TN is low for all the three performance indicators.

For better clarification, we have classified the states into two groups having higher and lower value of state specific average as compared to the grand mean of the three performance indicators. For the three performance indicators namely TEOUT, TEINP and TFPG we have computed the group mean of state specific average and also the group CV, both for primary as well as upper primary levels of education. For primary level of education, it is found that the coefficient of variation of the first group of states (states having higher state specific average (SSA) with respect to grand mean) for the three performance indicators namely TEOUT, TEINP and TFPG is ***lower*** as compared to the coefficient of variation of the second group of states (states having lower SSA with respect to grand mean). ***Thus for the primary level of education the performance of first group of the states with respect to all the three chosen performance indicators namely TEOUT, TEINP and TFPG is on average better in terms of both mean value of the indicators and its variability.***

For upper primary level of education, it is found that the coefficient of variation of the first group of states (states having higher state specific average (SSA) with respect to grand mean) for the two performance indicators namely TEOUT and TEINP is ***lower*** as compared to the coefficient of variation of the second group of states (states having lower SSA with respect to grand mean). But for the performance indicator TFPG the value of the coefficient of variation of the first group of the states is higher than the coefficient of variation of the second group. ***Thus, for the upper primary level, the performance of first group of the states is better in terms of both mean value of the indicators and its variability only for the two chosen performance indicators namely TEOUT and TEINP. For the***

other performance indicator TFPG, the performance of first group of the states is better only in terms of mean value of the indicator.

Since we are considering relative performance, the empirical result reveals that, AA TEOUT does not imply AA TEINP or AA TFPG. For example AA TEOUT and TFPG but BA TEINP occurs for KA (primary) and TN (upper primary). Also AA TEOUT but BA TEINP and TFPG occur for MP (primary) and MH (upper primary). Similarly BA TEOUT can be associated with AA TEINP and TFPG which happens in the state OR corresponding to primary level. Also BA TEOUT along with AA TEINP and BA TFPG hold for the state WB (primary) and BH (upper primary).

From the empirical analysis, it is clearly evident that there are some common significant determinants in explaining the three different indicators, namely output oriented technical efficiency, input oriented technical efficiency and total factor productivity growth for primary and upper primary levels of education.

For example, it is evident that the three indicators namely TEOUT, TEINP and TFPG of primary as well as upper primary levels of education are ***(i) negatively influenced by the factors from poor infrastructure*** like percentage of schools without building, percentage of classrooms in 'bad' condition and percentage of single-teacher schools, ***(ii) positively influenced by the factors from favourable infrastructure*** like percentage of schools having common toilet facility and percentage of schools having girls' toilet facility, ***(iii) positively influenced by the policy variable*** like percentage of schools received TLM grant. Additional variable commonly influencing TEOUT, TEINP and TFPG for primary level are (i) percentage of schools with no blackboard from poor infrastructure, (ii) percentage of schools with drinking water facility from favourable infrastructure, and (iii) percentage of students getting free text books, (iv) percentage of girls getting free text books to boys, (v) percentage of students getting free stationery, (vi) percentage of girls getting free stationery to boys from policy variables. Similarly, for upper primary level, TEOUT, TEINP and TFPG are simultaneously influenced (a) negatively by the variable from poor infrastructure like percentage of schools having no pucca building and (b) positively by the policy variables like (i) percentage of students getting school uniforms and (b) percentage of schools received school development (SD) grant.

Apart from these variables, ***social indicators*** like percentage of SC enrolment, percentage of ST enrolment, percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet will positively affect output oriented technical efficiency of both primary and upper primary levels of education. Similarly, the TFPG of primary as well as upper primary level of education will also be positively affected by the social indicators like percentage of girls enrolment to boys and percentage of schools with girls' toilet to common toilet.

Further, the present analysis could isolate the individual effect of the variables under each of these broader categories which could stimulate TEOUT, TEINP and TFPG of both primary and upper primary levels of education as well as the common factors influencing the level of these three indicators of both primary as well as upper primary and hence will be useful for selecting appropriate policies to increase the performance of these indicators for two levels of education.

7.3 Policy Suggestions

Considering all three performance indicators following are the policy suggestions emerged from the whole analysis –

The present study highlights the role of the broad indicators like poor infrastructure, favourable infrastructure, social indicators and policy variables in explaining the performance of the indicators. Further, it isolates the individual component of each of the indicators which can accentuate output oriented technical efficiency, input oriented technical efficiency and total factor productivity growth of primary and upper primary levels of education and also the common factors influencing the three performance indicators jointly. The government policies for constructing school building, improving condition of the class room, increasing the number of the teachers in the school, providing black board to the schools, providing both girls' toilet and common toilet, providing free text books and stationery to the students and specially the girl students will likely to enhance output oriented technical efficiency, input oriented technical efficiency and total factor productivity growth for both primary and upper primary levels of education. Additionally, construction of pucca building of the school, providing school uniforms, school development (SD) grant will simultaneously influence TEOUT, TEINP and TFPG of upper primary level of education. Similarly, provision of drinking water facilities to the school and teaching learning material grant will promote TEOUT, TEINP and TFPG for primary level simultaneously. Further, the government policies of social inclusion i.e. increasing enrolment of SC, ST and girls and provision of girls' toilet will promote output oriented technical efficiency of both primary as well as upper primary levels of education. An increase in girls' enrolment and provision of girls' toilet will promote TFPG of primary and upper primary levels of education as well.

At the end it may be noted that the performance of teaching services will rest on the regularity of the teachers. A student's performance will rely upon some circumstances which will be identified by the socio economic condition of the household. Another issue is that, nowadays student takes private tuition that can affect efficiency and productivity of education system. Similarly, efficiency and productivity can be affected by the provision of mid-day meal. In order to get these effects, one needs to have primary data and also information on such

indicators like income of the household, educational qualification of parents etc. These may be viewed as future direction of research work.

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