Explaining progress towards universal primary education in India:

A case study of Punjab and Bihar

By

Sebastiaan van den Roovaart

Submitted to the Department of Public Administration
of Erasmus University Rotterdam
in partial fulfilment of the requirements for the degree of
Master of Science

International Public Management and Policy,
Faculty of Social Sciences
Student number: 377609
Email: s.roovaart@gmail.com
Issue date: July 25th, 2015
Word count: 29.970
1st reader: Anna Jüngen
2nd reader: Markus Haverland

Abstract

In 2015 there are still large regional differences in terms of progress towards achieving universal primary education (UPE). In this research, political commitment, budget size and policy cost-effectiveness are considered as key factors to explain these differences. Placing these factors at their centre, three theories are formulated which each contain five propositions about expected UPE progress levels. Against the background of India's large out of school population and interregional differences, the states of Punjab and Bihar are selected as a most-likely and least-likely case based on per capita income and urbanization rates. Next, using a congruence analysis approach the predicted and actual progress levels are compared to test the explanatory power of each theory. As a result, the main theory on budget size is considered the best predictor, as it contains the most propositions with accurate predictions and has a decent mean prediction score. The theory on policy cost-effectiveness performed best considering its overall weighted average, though variance among predictions was high. The political commitment theory consistently underestimated the level of UPE progress, and requires further adjustment. Additionally, giving proper weight to the private costs of education as an indicator for UPE progress was found to be essential for the validity of each of the three theories.

Keywords: UPE, political commitment, cost-effectiveness, public education expenditure, private cost, primary education

Acknowledgements

List of Contents

List of Tables

Chapter 1 - Introduction

Widespread basic education is considered of prime importance for the economic and social development of a country (EFA Global Monitoring Report 2003, foreword). Education is a crucial public policy area that has a substantial and long term effect on a country's population, and therefore on the future of the country itself (Mehrotra, 1998b; Tilak, 2006a). This importance is recognized in the global UNESCO scheme of 'Education for All' (EFA), which is closely linked to the UN's Millennium Development Goal (MDG) no. 2 aiming to achieve Universal Primary Education (UPE).

Unfortunately, many countries in the world struggle to be able to provide such basic education to their citizens. Data shows that countries vary widely in their level of progress towards UPE (EFA Global Monitoring Report 2013). Namely, since the year 2000 about 102 million children of primary school age were out of school worldwide. In 2011 that number had come down to 57 million. However, while some countries managed to make progress, others made little progress or even regressed. Furthermore, there are large differences in the amount of progress made between countries. For example, while Vietnam reduced its out-of-school population by 91% between 2006 and 2011, in the same period Colombia's out-of-school population increased by 112% (Ibid, p.54).

A prime example of a country which has been struggling to meet the goal of UPE is India, the country hosting the largest population of the world's poor. Relatedly, in the year 2000 India had a primary school-aged population (aged 6-10) of 112 million of which an estimated 17 million were out of school. As of yet there is no research that can adequately explain these differences and it is often not clearly understood which actions governments should take in order to realize UPE.

This is a problem because it hinders progress, as well as making it more difficult to recognize and spread best practice (inter)nationally. Therefore, the main research question of this research is "How to explain any interstate differences regarding the level of progress towards universal primary education in India?"

1.1 Theoretical and social relevance

Currently, a comprehensive theoretical framework that can accurately assess a country or state's progress towards UPE is lacking. As a basis for such a framework, three factors relating to public primary education policy are identified from the extant literature: **1. political commitment, 2. budget size,** and **3. policy cost-effectiveness**. These factors each represent a key aspect of a successful approach to realizing UPE.

For one, unlike similar studies on UPE this study will take into account the possibility of lacking government commitment. By applying a theory on the influence of political commitment on HIV prevention to the domain of UPE policy, new insights can be gained.

By using the congruence analysis as a specific case study approach, this research tests the explanatory power of these factors and finds out which is superior in explaining progress towards UPE. Ultimately, this study aims to synthesize a theoretical framework from three separate theories, which can be used to analyse a state's UPE policy and identify those areas that require the most attention in order to maximize progress.

At the societal level, education is considered an "important instrument for levelling social status and for empowering the weaker sections by providing occupational, social and economic upward mobility directly and by qualitatively improving the productivity of the workforce" (Tilak, 2006a). Therefore, knowing which conditions are conducive of increasing access to primary education among the population is of crucial importance, especially in countries where still a large percentage of the population is excluded from such benefits.

In India's case, the complexity of its multi-layered federal government with shared responsibility for education between central and state government, can obscure the decision making process and create bottlenecks. Therefore, in-depth knowledge about the causes behind the large interstate differences can help policy makers, government officials and politicians to overcome them.

1.2 Research scope

Because of India's federal government structure, each federal state is comparable in many respects to national level government structures in other countries. Namely, each federal state in India has both authority and responsibility for educational policy, has its own unicameral or even bicameral parliamentary system, elects its own ministers and raises its own taxes. At the same time, there is considerable uniformity among certain contextual factors on a national level, such as inflation. This provides a strong basis for comparison and allows for a wide variety of available cases to choose from among the 28 different federal states.

The time period examined by this study is from 2000 until 2011. There are three reasons for this. The first reason is the global EFA convention held in Dakar in 2000, where countries renewed their intentions to achieve UPE before 2015 increase commitment to primary education. The second reason is the availability of data, specifically the timing of the national census held in 2001 and 2011. The

third reason is the drafting and acceptance of the national RTE act in 2009, and the Constitutional Amendment of 2002 that led up to it.

1.3 Chapters overview

The first three chapters present the theoretical background, which will be used as the foundation upon which more in-depth analysis can take place:

In **Chapter 2**, the goal of UPE is defined and operationalized, and a number of indicators is discussed that can accurately measure progress towards that goal. In **Chapter 3** the existing literature is examined and three key factors are presented which are deemed most essential to realizing UPE. Furthermore, each key factor is subdivided into smaller aspects and their relationship with UPE progress is predicted and moulded into propositions, four for each key factor. In **Chapter 4** the influence of a number of contextual factors on UPE progress is discussed, as well as selecting two of them as control variables to be used in the case selection process.

The latter four chapters lay the groundwork for the case studies and final analysis:

In **Chapter 5** the selected research methodology for this research is discussed. In **Chapter 6**, a theoretical framework is formulated, consisting of three separate theories that are each based on one of the three key factors of budget size, political commitment, and policy cost-effectiveness. In **Chapter 7** the case selection logic is explained, after which two cases are selected using the two control variables selected in chapter four. In **Chapter 8** some important statistics and recent national primary education schemes of India are discussed as a contextual background against which to perceive the case studies.

The final three chapters contain the presentation and analyses of the case study findings and ultimate conclusions for this study; in **Chapter 9** a short introduction based on some key statistics is given about the selected cases. Following this, the empirical evidence for both states is presented for each of the three theories, and predictions are based using the propositions of each theory about the expected level of UPE progress made in each state. In **Chapter 10** the actual UPE progress is determined using data from appropriate indicators, and these results are compared with the predictions made in the previous chapter. Based on this comparison, conclusions are drawn about the validity of each theory and the theoretical framework in general. Finally, **Chapter 11** presents a summary of the case study findings and conclusions, and an attempt is made to answer the main research question of this study. Lastly, the limitations of the study are discussed and recommendations for future research are given.

Chapter 2 – Measuring Progress

This research looks for the deciding factors that can explain the differences in progress towards UPE, as compared between states in India. However, to be able to compare progress towards UPE, the goal of UPE must be clearly defined and operationalized. In this chapter, first the official definition of the goal of UPE is given. Secondly, a number of indicators is discussed that can accurately measure progress towards that goal. Thirdly, a final selection is given of measures that will be used in this research.

2.1 Definition of UPE

Since the adoption of the Universal Declaration of Human Rights in 1948, countries have formally affirmed that "everyone has a right to education" (UDHR art. 26, un.org). In 1990 in Jomtien, Thailand, the Universal Declaration of Education For All was agreed to by delegates from 155 countries to further strengthen the global effort to improve access to education (unesco.org). In 2000 during the World Education Forum in Dakar, Senegal, UNESCO set six measurable education goals for achieving Education For All (EFA) before 2015 as part of the Dakar framework for action (unesco.org). From these six goals, specifically goal no. 2 aims to achieve Universal Primary Education (UPE):

"Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality. (unesco.org)

Since upper primary education (Classes VI-VIII) for children of ages 11-14 is part of the age group for which primary education is mandatory as per India's recent Right to Education Act, upper primary education is included as part of the goal of UPE in this research.

2.2 UPE progress indicators

In order to measure whether this goal is achieved, a number of progress indicators have been developed that each have specific strengths and weaknesses. In order to better evaluate the usefulness of such measures of progress, it is useful to divide the above goal into two parts, namely:

1. All children have access to free primary education
2. The education provided is off good quality and is completed by all children

The following section provides an overview of progress indicators that coincide with part 1 (enrolment, intake, and attendance rate) and part 2 (attendance, intake to the last grade, expected cohort completion rate, and literacy rate) of the UPE goal.

2.2.1 Enrolment rate and intake rate

According to the official key measures of the EFA-goals, countries are considered to have reached UPE when they have a primary (adjusted) net enrolment ratio of 97%, meaning 97% of all primary-aged children are enrolled at primary schools (or above). The official primary school age differs per country; children usually enter the first grade at age 6, and in most cases have to complete a total of five grades of primary school. Enrolment is measured either using the **net enrolment rate** (NER) or **gross enrolment rate** (GER). In ISCED 2011 (UNESCO-UIS, 2012) the NER is defined as "enrolment of the official age group for a given level of education, expressed as a percentage of the population in that age group". The following formula is used for its calculation:

NER   =   <u>Number of children of age 6-14 enrolled in grades I-VIII</u>   X   100%
                        Total population of age group of 6-14 year olds

The same formula is used for calculating the NER for other levels of education, such as for primary education without upper primary level, the relevant age group is 6-11 for grades I-V. The GER's only difference with NER is that with gross enrolment, students who are enrolled in primary school but are outside the official primary age group are also included. This can quickly inflate percentages even to above 100% for countries that have many repeaters or early/late entrants. This effect is multiplied in case of declining population growth, where previous age groups have larger numbers of students than more recent ones.

While the NER is preferred to the GER, it has three weaknesses of its own. For one, the NER requires extensive and accurate population census data, as it is dependent on age-grade matrix data relating to the exact number of children per age group, and the ages of children enrolled in Class I-VIII (Mehta, 2002). In many countries such data is not readily available and therefore the GER or the simpler **gross intake rate** (GIR - total number of new entrants to grade I as a percentage of all children of the official entry age) is used. Secondly, students enrolled to grade I are not guaranteed to complete grade V (or VIII for that matter).

2.2.2 Attendance rate

The **attendance rate** refers to whether a student is currently attending an educational institution or not, and is calculated in relation to the number of school days and number of children actually attending a class on an annual basis (Mehta, 2002). The benefit of having attendance data instead of

enrolment is that it gives a more accurate picture of those actually using the education system as opposed to those only registered but not attending. Since enrolment to public schools is free, it might be beneficial for those not attending school to still enrol in order to receive benefits like free meals. It is also easier to change enrolment registries, than to systematically change attendance data, although both appear to happen at a large scale (PROBE, 1999).

2.2.3 Dropout rate, survival rate and repetition rate

It is good to keep in mind that UPE makes sense if children not only start, but also complete, primary school. Therefore another type of indicator measures the performance of the system by looking at the number of students successfully completing primary education. Two such measures are:

- the **dropout rate by grade** (proportion of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year – ISCED 2011)
- the **survival rate by grade** (percentage of a cohort of students enrolled in the first grade of a given level or cycle of education in a given school year who are expected to reach a given grade, regardless of repetition – ISCED 2011)
- the **repetition rate by grade (**Number of repeaters in a given grade in a given school year, expressed as a percentage of enrolment in that grade the previous school year.)

Variations of these two can be applied to specific situation. For example, the survival rate can be used to calculate the **cumulative dropout rate**, by subtracting the survival rate from 100 at a given grade. The resulting output says something about the efficiency of the education system. In case only data of a single year is available, the **apparent survival rate** can be used. The difference with the regular survival rate is that, instead of following a single cohort from grade to grade, the apparent survival rate gives the ratio of students in Class V (or Class VIII) to Class I with data taken from the same year. While this does not say anything particular about a single cohort, it does give useful data about the retaining capacity of the system.

2.2.4 Expected cohort completion rate

A more advanced indicator is the expected cohort completion rate, which combines the expected net intake rate with the survival rate to the last grade. Using such measures together with the NER, a more difficult to realize definition of UPE states 97% of children must both enter primary school *and* reach the last grade. This gives a completely different picture; of the 70 countries that have achieved UPE by 2011, for 42 of these the completion rates could be calculated. Of these 42 only 15 countries have achieved UPE by this more difficult standard which includes successful completion (EFA GMR 2013). However, given the current performance of countries it appears to be yet too early to use such a tough criteria.

2.2.5 Literacy rate

The literacy rate measures the percentage of the population of age seven and above which is able to read and write their own name and few basic sentences. Age seven is often used as a minimum threshold for measuring, since, children are taught to be literate in Class I (or age six). Oppositely, the number of children ages six or less becoming literate from home-schooling before attending primary school is negligible. Furthermore, while adult literacy campaigns do exist, the percentage of the out of school population that is effectively made literate through such efforts in India (or other countries) is small. Therefore, literacy can mostly be considered a direct result of attending primary education. As such, it is considered a useful addition to the enrolment and attendance rate in terms of rating progress towards UPE in this study, even though it is not part of the definition of the official UPE goal.

2.3 Chapter conclusion

The **net and gross enrolment rate** (NER and GER) and **net attendance rate** (NAR) are used to give an impression of a state's capacity to offer primary education to all its primary-aged children (i.e. the 'quantity' of education offered). The NER is considered a first choice, because the NER is the official key measure for UPE progress used by UNESCO. The GER is a second choice, since while it is less accurate (especially in case of high repetition rates) it is often the only available option in older data sources. Additionally, in cases of missing data because of private enrolment, as well as students enrolling but not attending due to seasonal work, the NAR can to give insight into the utilization of education per different age groups.

Furthermore, the **dropout rate**, as well as the **survival rate and repetition rate,** are used to say something about the retaining capacity of the education system. Additionally, the **literacy rate** is a key measure of educational output, as many of the benefits of primary education come from being literate. However, since literacy is of yet not part of the goal of UPE, the literacy rate is used solely in this research to indicate both the quality of education, as well as the general level of educational progress (among certain age groups). Ultimately, all of these measures are used together in Chapter 10 to measure the actual UPE progress level.

Lastly, attainment indicators and measures of the outcomes of education (e.g. test scores, and 'the amount of knowledge conferred' or 'level of literacy achieved') are beyond the scope of this research. Nonetheless, as more countries approach 97% or even just 90% enrolment, performance measures such as the **expected cohort completion rate** and **literacy rate** will likely become essential in future primary education policy goals as focus will shift towards improving both the quality as well as the outputs of education.

Chapter 3 – Literature Review

This chapter presents three factors that are deemed most essential to UPE, based on their prevalence in the current literature. These three factors are: 1. political commitment, 2. budget size, and 3. policy cost-effectiveness. Since these factors are broad and/or abstract concepts, this chapter examines the existing literature in order to clarify what is meant by them within the context of UPE policy. This is done by breaking them down into a number of smaller key aspects that make it possible to deduce their influence on UPE as a policy goal. The resulting deduced correlations are presented throughout the chapter and are placed below those sections that relate to the content of the particular proposition.

Furthermore, while each factor offers a distinct angle on what is required to achieve UPE, they can be viewed as being part of one action sequence. First political commitment is required, later budgets are allocated and finally policies are designed and implemented (at least in most cases). As such, they are discussed here in this particular order.

3.1 Political commitment

Political commitment is one of those ambiguous constructs, often cited but never precisely defined (Fox et al., 2011). In many a progress report, political commitment is implied as a necessity for success and the policy area of UPE is no different. For example:
"The contrasting records of two countries in East Asia further show how variable degrees of *political commitment* to EFA have resulted in different outcomes since 2000: while Indonesia championed access to school and is among the countries that have reached the net enrolment ratio target, the Philippines is far from the target and in danger of going backwards" (EFA GMR 2013, p.58)
Therefore, since much importance is given to political commitment as a cause of policy success (or failure), what exactly is meant by political commitment is neither well defined nor are governments judged on their commitment based on clear empirical evidence. Often, the outcome of a policy is presumed a correct indicator for the level of government commitment, which is an unfair and incorrect inference. Having a clear manner to assess government's political commitment allows for greater accountability and aids in the recognition of effective policies adopted by committed governments.

3.1.1 Components of political commitment

Fortunately, recent research efforts towards defining political commitment have been made in the area of policies dealing with the global HIV/AIDS epidemic (The Policy Project 2000, p.7; Fox et al., 2011). According to Fox et al., political commitment "encompasses what governments say (expressed commitment), what policies they establish (institutional commitment) and what they invest (budgetary commitment)." (Fox et al., 2011; p.6).

Expressed commitment

Expressed or stated commitment involves all instances where a government official makes promises towards future action or pledges some kind of governments support towards a certain policy issue. Therefore, expressed or stated commitment is not as concrete and objective as institutional or budgetary commitment. Ultimately, the idea behind stated commitment is that such promises or pledges turn into (actual) institutional or budgetary commitment later on. Governments expressed commitment can also be a trigger for external actors. For example, when high government officials state that they will work towards UPE and call out to the public to enrol and attend primary education, such expressed commitment can lead to support from civil society actors to invest in and work towards realizing UPE or could help to attract foreign aid.

In some cases however, expressed commitment might be considered concrete enough to be counted as institutional (or budgetary) commitment. For instance, when government publicly accepts an international call to action at a well-known convention which is difficult to revoke and which warrants future action, it can be considered institutional commitment. Furthermore, as expressed commitment requires little investment (only the credibility of the politician/political party), research has shown that it is most powerful when it is done "openly, candidly and in a timely manner" (Fox et al, 2011). One well-known example of expressed commitment is the use of party manifestos in governmental elections. The manifestos represent a written promise by the political party to the voters, concerning the policy areas and goals the party's members will work towards after being voted into office. From this it can be deduced that:

P1.1:   Election manifestos accurately presents a political party's intentions towards UPE, as well reflect the wishes of its key constituents. The more priority is given to primary education in the manifesto, the higher the new government's level of expressed commitment.

Institutional commitment

Institutional commitment accounts for instances where politicians words and plans have solidified into institutions. Institutional commitment has a more lasting impact, because institutions are harder to undo (by subsequent governments) once they are established. This is partly due to the lengthy processes that create them, as well as due to the range of agreements, stakeholders and resources that have been invested in them (Fox et al., 2011). Some instances exist where institutional commitment is more rightfully counted as expressed commitment. One such example is when committees or agencies are created that have no actual power and only act as mere figureheads. In the same way, passing a law or regulation in itself is not enough to be considered a strong sign of institutional commitment. To be effective, they have to be both executable and enforceable (Keefer and Khemani, 2003), leading to the following proposition:

P1.2:   Adopting new legislative acts or regulations related to primary education is an expression of
          government's institutional commitment to UPE. This commitment is higher the more the
          legislation is realistically executable and enforceable.

Budgetary commitment

Budgetary commitment is considered the most powerful indicator of commitment (Fox et al., 2011). It might not always be available as an indicator however, as budget data is usually only available in hindsight. When it is available, it is important to make a distinction between the planned or pledged budgets and the budgets that are actually disbursed. While a governments expenditure pattern is a strong indicator of where its commitment lies, some cases of budgetary commitment are better labelled as (mere) stated commitment. For example, when planned budgets (consistently) have unspent funds and therefore the pledged expenditure only exist on paper. This rather shows a lack of political commitment towards policy area, and boil down to promises not kept.

A slightly different but related situation was studied by Rajkumar and Swaroop (2008), who found that additional public spending is unlikely to lead to better outcomes for the sectors of health and primary education in case of governments that have a poor level of governance. These results were found to be particularly relevant for developing countries due to high levels of corruption or low quality or efficiency of bureaucracy. They found that slight increases in public spending did not have any effect on policy outcomes, and they therefore question the quantitative models that have been made for developing countries that estimate the amount of additional spending needed to achieve the millennium development goals. This is another example of why increasing public spending is not enough, if it is merely spent on paper but not in reality, which leads to;

P1.3:   Government's budgetary commitment to primary education corresponds with the amount of
          actual elementary education expenditure as a share of the planned primary education budget.

3.1.2 Benchmarks for budgetary commitment using 'the four ratios'

When committing budgets to a certain policy area, the question that arises is "how much is enough?" To provide an international benchmark for countries, in 1991 the United Nations Development Program (UNDP) proposed four ratios to help national governments calculate how much of the public budget should go into social sector expenditure (UNDP HDR 1991). These benchmarks, based on best practice, suggest that; **1.** about 25% of the gross domestic product (GDP) be used for public expenditure (*public expenditure ratio*), **2.** no less than 40% from all public expenditure should be earmarked for social services (*social allocation ratio*), **3.** more than 50% of total social expenditure should go towards human priority concerns (*the social priority ratio*), and **4.** the product of these three

ratios together is 5% of GDP and amount to the share of national income spent on human priority concerns (*human expenditure ratio*). What is considered human priority concerns differs per country situation. In most low income countries however, it concerns basic education, primary healthcare and basic water systems (UNDP HDR 1991). For example, Dev and Mooij (2002) have calculated the above ratios for India in the year 1998-1999, and found them to be approx. 26% (1), 25.4% (2), 27.4% (3), and 2.78% (4), respectively.

While these benchmarks concern all social sector expenditure, they do indicate that budgetary commitment means allocating a large(r) share of the budget for primary education relative to other policy areas, and relative to other tiers of education. Summarizing this, it can be combined into the following proposition:

P1.4:   Government's budgetary commitment to (primary) education corresponds with the amount of primary education expenditure as a share of total education expenditure, as well as the amount of education expenditure as a share of total public expenditure.

The following table provides an overview of each component of commitment and some examples:

Components of commitment	Indicators of commitment
Expressed	Public statements
	Party manifestos
Institutional	Bureaucratic infrastructure; committees and agencies
	Policies and procedures (projects, organization mandates)
	Laws and regulations
Budgetary	Expenditure per capita
	Expenditure as a % of total budget
	Pledged project grants/investments

Table 3.1 – Types of political commitment, including examples.
Source: own, based on Fox et al. (2011)

3.1.3 Political will

Political will is a concept that is closely related to political commitment. First political will must be generated within the political arena, which then results in political commitment towards a certain policy goal or outcome (Post et al. 2010). One promising example of a research that touches on the concept of political will, is Keefer and Khemani's (2003) work on the political economy of public expenditure choices. Their research contains a theory which explains what drives elected officials and politicians to favour commitment towards a certain policy (area). Among others, the structure of political institutions, the availability of information to voters about the credibility and reputation of politicians, the heterogeneity of the voter base and the visibility of elected officials' policy actions towards voters, are all important for influencing budget choices (Keefer and Khemani, 2003).

However, their theory is highly complex, dealing with a large number of difficult to quantify variables which fall outside the scope of this research. Therefore, for this research a general level of political will to achieve UPE is assumed, and rather it is the type and level of political commitment that will be tested in this research.

3.2 Budget Size

Primary education is generally considered the responsibility of government and not the private sector, regardless whether education is provided through (free) public schools or (subsidized) private ones. Even in countries where the private education sector is large (i.e. the Netherlands), governments use subsidies to chip in and help cover the costs (Slicht et al. 2010). Those same governments however, are faced with multiple demands on scarce public resources, especially with the recession or slowdown of their economies as a result of the financial crisis (Tilak, 2010). Simultaneously, international aid and development organizations are having fewer funds to allocate, because of limited resources in crisis-struck donor countries (Colclough and De, 2010; Nambissan, 2010). Furthermore, these pressures on the public budget are made worse by the effects of a growing population. Therefore, a factor that is essential in achieving UPE is the budget size, or the total amount spent on primary education.

3.2.1 International benchmarks for education expenditure

Regardless of whether resources are scarce, governments must decide how much to spend on education, and more specifically on elementary education. As a country's economy grows, so must its public budget. As economic growth often goes hand in hand with inflation, a higher budget does not necessarily mean a higher spending in real terms. Therefore, a straightforward way to perceive the budget is by expressing it as a percentage of GDP.

As part of the international convergence towards the goals of EFA and UPE, global research and the sharing of country data has increased insight on national education expenditure patterns (OECD, 2013; GMR, 2013; EFA GMR 2013). Calculations of regional averages of countries' national education expenditure, as well as averages across countries with similar per capita income are aimed at establishing an acceptable common baseline or benchmark for developing countries to strive for.

Generally, UNESCO has recommended the minimal amount for public expenditure on education to be 6% of GDP (EFA GMR, 2013; p.9). This same figure has been the target of policymakers in India and it was supposed to be reached within 20 years of its independence (Tilak, 2006b). However, it must be noted that in 2011 only 41 out of 150 countries with available data were spending 6% of GDP or more, while the global average grew from 4.6% to 5.1% of GDP in the period of 1999 to 2011 (EFA GMR, 2013; p.113). This increasing trend is also seen among high income countries. For example, the

average of total education expenditure of OECD countries was 5.4% of GDP for 2000, 5.8% for 2005, en 6.3% for 2010 (OECD Education at a Glance, 2013; p.191). It can therefore be concluded that;

P2.1: A high amount of public expenditure on education as a share of gross state domestic product means more progress towards UPE

3.2.2 Relationship between enrolment and education expenditure

With many governments struggling to achieve UPE, international organizations urge them to increase primary education expenditure. Calculations have been done to estimate the finance gap, or the amount needed that would hypothetically pay for the education of the remainder of out of school children (Delamonica et al., 2004). However, is there such a straightforward linear relationship between budget size and progress towards UPE?

Gupta et al. (2002) use a regression analysis with a number of control variables including urbanization, income per capita, and percentage of the population aged 0-14, on data from 50 countries. They find that for both the variables of the amount of education expenditure as a share of GDP, as well as primary education expenditure as a share of total education expenditure were statistically significant in explaining (part of) the variation in enrolment across countries. They can't however say anything about the effect of changes in the *level* of spending. Furthermore, they find that increasing the amount of funding from the public budget towards primary education by 5%, increases enrolment by 1%. A similar growth of primary education expenditure by 1% of GDP leads on average to an enrolment increase of 3% (Ibid. 2002). This can be phrased as follows;

P2.2: A high amount of public expenditure on primary education as a share of gross state domestic product means more progress towards UPE

Similar empirical evidence comes from Sipahimalani (2000), who finds a positive linear relationship between the growth rate of total enrolments in elementary education and real state expenditures for 15 major Indian states during the 1990s, using a simple regression analysis (statistically significant at 10%) based on national sample survey data. However, the variation between states is quite high and not completely convincing of a straightforward linear relationship.

3.2.3 The private costs of education

One possible explanation of the high variation in those results is that the analysis did not take into account the private expenditure on education. While governments tend to ignore private expenditure as a source of financing in their cost analysis, free public education is generally not free of costs at all, because of fees and material costs associated with education, as well as the opportunity costs of

forgone labour (Mehrotra,1998a). Common types of private expenditure include school fees, books, uniform, exam fee, transportation, private coaching, stationary, study trips, and 'voluntary payments' such as for special celebrations or PTA contributions (NSS 64th Round, 2010).

3.2.4 Private expenditure on education and growth of private school enrolment

The importance of more private expenditure towards education for increases in total enrolment is made clear by the recent trend of increasing private school enrolment. Adhering to the high demand, a recent development in many low-income countries has been the boom in low cost, unaided private schools (Tooley and Dixon 2006 & 2007; Tooley et al., 2007 & 2011). In some urban areas as much as 96% of total enrolment growth comes from enrolment into private schools (Kingdon, 2007a). These private schools act as a supplement, but mostly as a substitute to low quality public schools (Mehrotra and Panchamukhi, 2006), even though they place a higher financial burden on households compared to public schools (Muralidharan and Kremer, 2006; Woodhead, M. et al. 2013).

Furthermore, those against privatization of education emphasize the importance of equity of access, regardless of social class, ethnicity or income, and warn against social stratification with elites moving to high cost private schools leaving the poor in low quality public schools (Härmä, J. 2011). In (rural) areas with low population density however, such low cost private schools are scarce. Accordingly, the amount of private expenditure on education is directly related to enrolment:

P2.3:   High total and per student private expenditure on primary education as a share of gross state domestic product and state per capita income respectively, means more progress towards UPE.

3.2.5 Combining public and private costs

Private costs are often ignored in budget analyses, since acknowledging them as part of total education expenditure would require governments to take responsibility and include such expenditure in their budgets, especially when promising to provide free public education. However, combining the amount of household expenditure with total public expenditure could give additional insights into the relationship between expenditure and enrolment. For example, according to Sipahimalani (2000) in the above mentioned study, Indian state governments had spent 57% of total expenditure on education, while the remaining 43% share was spent by households. This leads to the conclusion that the private and public expenditure on education together are responsible for any progress made towards UPE. Therefore, it follows that;

P2.4:   High total public and private expenditure on primary education per student means more progress towards UPE

3.3 Policy cost-effectiveness

UPE is a straightforward policy goal that can be summarized as achieving full enrolment and optimizing attendance in primary education. However, while UPE has a clear cut policy outcome, in order to achieve it government must do more than simply be outcome-oriented. Given the scarcity of resources discussed in the previous section about budget size, government must be both effective and efficient (i.e. cost-effective).

3.3.1 Measures of cost-effectiveness

As such, ways of measuring both the effectiveness and efficiency of primary schools is offered by Josephine (1999), who uses a number of different unit cost techniques to calculate measures of cost-effectiveness or 'value for money'. Her most basic measure is the **per student normal cost**, which simply is total expenditure amount divided by the number of enrolled students. However, this measure assumes 100% completion. Since most benefits from primary education come from completing it, children dropping out of school prematurely directly translate into wasted expenditure.

A more valid measure is gained, therefore, by using both Josephine's **per student effective cost** (total expenditure divided by the number of students enrolled that will complete primary school) as well as her **total wastage** score (per student expenditure times the number of dropouts). Since, by assuming that past expenditure on a dropout has been wasted, it also means that students dropping out after three years of primary school take with them three years' worth of funding. By using the basis of these two measures and factoring in the repetition rate as an extra cost, a truer measure of the **effective unit cost** for one year of primary education can be created, using the formula:

$$\frac{\text{Total public} + \text{private expenditure}}{\text{Total Enrolment}} \ * \ \left(1 + \left(\begin{array}{c}\text{weighted no. of dropouts} \\ \text{classes I-VIII from one year}\end{array} \ * \ (1 + \text{repetition rate})\right)\right)$$

This measure takes into account the total public and private spending and adds to it the wasted past years' spending on dropouts and repeaters. Specifically, the calculation takes from the total enrolment of a given school year all the students that will dropout during that year, and multiplies them by the number of years they have already received primary education (and funding). To this number is added the percentage of repeaters, and the total is multiplied by the public + private cost per student. This results in the effective unit cost for one year of primary education for a single student. Through the above reasoning, the following proposition can be deduced:

P3.1:   A low effective unit cost, (i.e. the private + public per student cost multiplied by 1+total student wastage and 1+repetition rate), means more progress towards UPE

While cost-effectiveness is a useful way to evaluate a policy, much more important is to know how to optimize the value for money in a given UPE policy. This is done through channelling scarce public funding go towards those factors that have the strongest impact on enrolment, without losing sight of the quality of education.

3.3.2 Enrolment is a function of access, relevance, and quality

According to Mehrotra (1998a) enrolment is a function of access, relevance, and quality of education. Since changes in each of these three factors directly influences the level of enrolment, any primary education expenditure should go towards stimulating the one that has the highest expected return in terms of increased enrolment. In order to estimate which factor should receive priority, a reasonable assumption is that most children (or their parents) want (their children) to go to school. Rather, it is due to factors that prevent them from going that they do not or cannot enrol or attend school. Ultimately access, relevance and quality must be balanced to avoid having a weakest link that pulls down enrolment and attendance rates and many different options are available to achieve this (Mehrotra, 2006b).

3.3.3 Quality versus access debate

Since the relevance factor of education is difficult to influence (as explained later on), increasing enrolment generally comes down to the well-known dilemma faced by education policy makers; the quality versus access debate (Coady and Parker, 2004). The dilemma can be summarized as, when having one bag of money, is it better to spend it on improving quality or access? Often it is difficult to choose one without (negatively) influencing the other, so that increasing access can lower the quality of education and vice versa. For example, offering free midday-meals in public schools often leads to overcrowding of classrooms. In order to make the most cost-effective investment decision, the following sections look more closely into the relationships between access, relevance, and quality of education on the one hand, and enrolment and attendance on the other.

3.3.4 Physical and economic access to education

To better understand the concept of school access, a distinction is made between physical and economic access.

Physical access

Physical access means that children be able to physically attend school. More specifically, the child must be able to reach a school from their home, and the school must have enough space to accommodate the child, and facilities must be present so that the child can remain in school for the full duration of the school day. Optimally this means having a school within walking distance (usually defined as 1-2 km) of the child's home. The distance is important, to ensure the safety of children, especially girls, commuting to school alone early morning or late in the evening.

Furthermore, the school must have enough classrooms and be weather proof in order to accommodate enough children. Leaking roofs, windy creaks or too much heat in summer or coldness in winter are all physical hindrances for children to attend school. This includes having adequate drinking water facilities or possibly a free meal program, since children will otherwise go home for eating lunch or drinking water (Jha, 2007). If the distance to school is too long, they often do not return to attend the second half of the day.

Finally, there can also be social barriers that prevent children to attend a school (PROBE 1999). For example, when a school lies in an adjacent neighbourhood that is home to people from another social class, tribe or faith it might not be socially acceptable to go to that school, even though the school might geographically be within 1-2 km of distance. Additionally, separate toilets for boys and girls are socially required; without these parents might not send their daughters to school if they find it inappropriate for girls to share a toilet with boys (PROBE, 1999). These issues can be summarized by the following proposition;

P3.2: The distance to school negatively influences, and availability of drinking water facilities and girls' toilets positively influences school access, and especially among female students.

Economic access

Economic access refers to having the means to pay for the private costs of education, including the opportunity costs of forgone labour. As mentioned earlier, the private costs of 'free' public schools can be considerable. The costs of education for a single child can constitute as much as 20-30% of the per capita income in some countries (Mehrotra, 1998a). Some households therefore are only able to support education for one or perhaps two children at a time. In times of low income (i.e. during off-season for agricultural workers) the usual response is to let the oldest boys finish their education up to as high a level as possible, while the youngest children (often the girls) are kept home to work or do chores.

These differences might be largest in terms of gender. Societies that have a low level of feminism appoint different roles to males and females in terms of work and education. Especially in rural areas, girls might marry early and not be required or even allowed to work after marriage. Additionally, educated girls are in some regions required to pay larger dowries then non-educated girls. Therefore, sending girls to school may not be perceived as affordable or simply a good investment by their parents (PROBE 1999).

Deolalikar's study (as cited in Jha, 2007) finds empirical evidence that support a positive relationship between (Indian) states' per capita elementary education expenditure and the ratio of females to males in primary school, for the 6 to 14 age group. More research evidence exists that supports this connection. For instance, Mehrotra (1998a) finds that low per capita public expenditure levels and high enrolment rates correlate with low quality education. However, excessive per capita public costs lead to decreased access and school capacity. He further concludes form his research that high private costs lead to gender and income gaps in enrolment and attendance rates as well as other outcome indicators (Mehrotra, 1998a). Combining these insights, one could deduce that;

P3.3:   A high public-to-private ratio of primary education expenditure per pupil means improved access for female students and students from low income families

To improve economic access, government must find a way to lower the private costs of education. There are several demand-side financing techniques that can improve the cost-effectiveness of education (Ensor, 2003; Patrinos, 2007). A number of studies have found evidence of differing measures of efficiency gains from using targeted school vouchers (Coady and Parker, 2004; Guari and Vawda, 2004; Braun-Munzinger, 2005; Bettinger et al., 2010; Lara et al. 2011). Other options include providing direct cash transfers to parents and the granting of subsidies to private schools to allow for tuition free education (Das et al., 2005; De Janvry and Sadoulet.2006).

3.3.5 The quality aspects of education

The quality of education depends on both the physical infrastructure and facilities of a school as well as the quality of teaching. For instance, schools that consist of nothing more than a teacher and an open space to sit can still be a school, a school building without a teacher is not a school. While the teacher is essential however, the lack of proper school infrastructure facilities and teaching aids can form a serious obstacle to providing quality education. The following items are found to be the minimal requirements for a school according to the Indian government (ssa.nic.in):

- School building with a roof, a floor and two classrooms with tables and chairs
- Separate toilets for boys and girls, and one for staff
- Teaching aids, such as a blackboard, chalk, maps, some books and toys
- A large enough playground and a fence around the school
- Readily available drinking water

Presence of such facilities can be considered part of the foundation of China's success in increasing enrolment and attendance, if only for enabling teachers and giving them more job satisfaction and respect (Rao, et al. 2003).

3.3.6 How teacher cost affects quality and access

Teachers are arguably the most important factor to education, both in terms of determining the quality of education, as well as its cost. Cost wise, teacher salary is easily the highest expense in any education policy. In India, at least 85-90% of primary education expenditure goes towards recurrent costs (Mehrotra, 2006a). Furthermore, teacher salaries accounts for 95-99.5% of this recurrent expenditure on primary education (Kingdon and Muzammil, 2009).

The 'per student teacher cost' is a useful measure to compare the cost-effectiveness of teacher salaries, and is calculated by dividing the total salary of the teaching staff by total enrolment or alternatively, by dividing the average teacher salary by the PTR (Josephine, 1999). When education budgets are insufficient to hire sufficient teachers (e.g. because of high salaries), policy makers have two options:

1. They can staff existing schools with a sufficient amount of teachers, yet forgo on opening new schools
2. They can continue opening additional schools to increase capacity and allow for more children to enrol. However, this will spread teachers thin, placing perhaps only or two teachers in schools with more than a 100 students.

The first option would not increase enrolment, yet will maintain a certain level of quality. The second option causes the number of students per teacher - or pupil-teacher ratio (PTR) – to be high, which severely reduces the quality of education. As a global benchmark, MDG no. 2 of achieving UPE in 2015 requires a PTR of 40:1 as a minimum level of quality (GMR 2013). At the same time, India has ambitiously guaranteed (by law) to move towards a PTR of 30:1 as set by the RTE act of 2009.
In some cases despite severe teacher shortage, the demand for education is high enough that children will go to school regardless of overcrowded classrooms. An example could be a single teacher in a rural village school, using multigrade teaching to teach 60 children of different ages in one classroom.

In some states the above situation is common; multigrade teaching was happening in about 71% of public schools in India in 2005 (Muralidharan and Kremer, 2006) and in 2006-2007 the PTR in the state of Bihar and in Uttar Pradesh reached a staggering 78:1 and 73:1 respectively (Jha and Parvati, 2009: p.13), while in individual districts in Bihar the PTR was as high as 130:1 (Jha, 2007). This is on par with the worst performing Sub-Saharan African countries and does not bode well for the resulting quality of education, despite a teacher's best efforts. From these insights the following relationship is deduced;

P3.4:   High public expenditure per teacher leads to either a high per student teacher cost or a high pupil-teacher ratio (PTR), which means reduced progress towards UPE through decreased school access or low school quality, respectively.

While the PTR has important implications for education quality, there are many aspects that determine teacher/teaching quality and all are important to the quality of education. The key-ones are:

- Language of instruction (local or Hindi) and whether English is taught as a subject
- Shirking (non-teaching) and absenteeism
- Teacher qualifications and experience
- Share of female teachers
- Reputation of equal in-class treatment of pupils of disadvantaged social class, caste, tribe or gender.
- Multi-grade and double shift teaching
- Pupil Teacher Ratio (PTR)

While teacher salary is linked solely to the qualifications and experience of the teacher, the latter is not important for most of the items in the above list. This has causes an (international) trend towards the use of para-teachers by government.

3.3.7 Job tenure and the para-teachers trend

Regular teachers in India have tenure and considerable political power through a strong and nationwide union and constitutionally protected positions in national and state level legislative assemblies. This has caused teacher salaries to increase more than the real national per capita income year after year (Kingdon and Teal, 2007). Another problem because of tenure is that of high teacher absenteeism and shirking among regular. Teachers cannot be fired and often experience low job satisfaction and status, causing 25% of teachers in public schools to be absent (Muralidharan and Kremer, 2006) and 50% to be shirking on any given day (Jha, 2007). Furthermore, while in India teachers have lobbied almost exclusively for increased salary allocations (Kingdon and Muzammil, 2009), there is no such parents or students lobby to balance these one-sided demands.

These issues have made governments look for cheaper alternatives, which have been found in the form of para-teachers. Though there are inter-state differences in definitions of what exactly amounts to a para-teacher, namely para-teachers are a "universe of teachers in primary and upper primary schools who have been appointed on contract and/or on terms and conditions which are different from the regular cadre teachers in the state", as cited in Kingdon and Sipahimalani-Rao (2010). Different in this definition mostly means less; earning a wage which is only a fraction of a regular teacher's wage,

having received less official training, and being less academically qualified. There is therefore considerable resistance to seeing para-teachers as full-grown substitutes of 'regular' teachers. One concern is of equity, as those being taught by para-teachers are receiving lower quality education than when taught by regular, more qualified teachers. This inequity is made worse by the fact that para-teachers are usually hired to teach in more backward areas to the poorest sections of society, where regular teachers would not willingly go (Pandey, 2006).

3.3.8 Relevance aspect of education

The relevance aspect refers to the benefits provided by education. For example, potential benefits include better job prospects, a higher minimum wage, literacy, as well as longer life expectancy and lower infant mortality through knowledge of hygiene and nutrition (PROBE 1999). These benefits and others together cause the demand for education. Some economists argue that education should not be classified as a public good and that it should be financed privately given the large private economic gains (Tilak 2007a). Regardless, relevance of education can be improved through increasing the value of education, such as through improving job prospects and minimum wages (Patrinos – IIEP brochure, 2007; Braun-Munzinger, 2005).

While there are several arguments why primary education alone is not sufficient for ensuring a rise out of poverty (Tilak 2007b), it is mostly important to keep in mind that the economic value of the education is dependent on how common an elementary education degree becomes amongst peers of similar social class and economic background, as they will compete for similar jobs. In a ILO study about Indian wage trends from 1983-2005, it was found that up until the level of upper primary education there was hardly any increase in the average daily earnings of regular workers and that the significant wage increases come after completing secondary school and higher education (Karan and Selvaraj 2008). For casual workers the level of education hardly seems to matter at all, and college graduates earned just 15% more than illiterates who had not completed any education.

These low wage increases makes sense when Indian labour conditions are considered. While in the organized sector (minimum) wages are determined through official negotiations between employer and employees, in the unorganized sector (usually defined as business with 10 or less employees) labourers are vulnerable because of underemployment, illiteracy and a lack of knowledge of the (ineffective) minimum wage laws (Varkkey and Mehta, 2012). Most workers will not report receiving a wage below the minimum, out of fear to lose their job. It is found that only after achieving full literacy and preferably completing secondary education that workers can manage to receive a minimum wage. Combining these conclusion, adds up to the following proposition:

P3.5:   A high expected average wage increase from primary school completion means increased demand for primary education, causing higher private investment as well as higher enrolment rates and therefore increased progress towards UPE

3.4 Chapter conclusion

In Indian states, minimum wages have in the past (and in some cases still are) not been pegged to the consumer price index. Therefore the real minimum wage decreases year by year. Often, lax labour departments do not even make an effort towards the mandatory 5-year adaptation. Based on national surveys, 80 per cent of the workers in the unorganized sector reportedly received less than half or even a third of the required minimum wage (Varkkey and Mehta, 2012). However, it remains so that for the poor, education is the only way out of such social inequality. It just means that primary education alone is not enough, but that it is the first step towards a socially and economically stronger civil society. Regardless, it is an essential first step, and one that cannot be taken soon enough.

Lastly, this chapter has discussed a large number of issues, which together give insight into the relationship between government actions and enrolment, as well as the many co-determinants of education quality and access. Therefore, since these insights are shaped into workable theories in the following chapters, Table 3.2 presents an overview of the propositions that have been deduced throughout the chapter:

Section 3.1 Political Commitment	
P1.1	Expressed commitment: election manifestoes
P1.2	Institutional commitment: laws and regulations
P1.3	Budgetary commitment: planned vs actual public spending
P1.4	Budgetary commitment: relative spending on education
Section 3.2 Budget size	
P2.1	Relative spending amount: public education exp. as a % of GSDP
P2.2	Relative spending amount: public primary education exp. as a % of GSDP
P2.3	Absolute spending amount: per student private spending
P2.4	Absolute spending amount: total public and private per student exp.
Section 3.3 Policy cost-effectiveness	
P3.1	Cost-effectiveness: effective unit costs
P3.2	Physical access: distance to school and availability of drinking water and girls' toilet
P3.3	Economic access: public-to-private ratio of per student exp.
P3.4	Quality of education: per teacher exp., PTR and per student teacher cost
P3.5	Relevance of education: expected average wage increase from primary school completion

Table 3.2 – Propositions overview

Chapter 4 – Control Variables

The literature review has made clear that there are many factors which affect progress towards UPE. However, there are also many contextual factors that are outside government's control, yet are influencing the result of government's efforts. Some factors are known to influence the relationship between spending and enrolment and might therefore be useful as control variables to aid the case selection process later on. This chapter starts off by summing up what the main considerations were for deciding on which factors to include as potential control variables. Second, for each of these factors it is deduced in what manner they are likely to affect enrolment. Third, by looking at some empirical evidence from existing research, two factors are selected as control variables to be used in this research.

4.1 Selection criteria for potential control variables

Three main criteria were used when selecting factors to be discussed as potential control variables. Firstly, those factors were selected that had been used in existing research of a similar nature. Secondly, they were also selected for having readily available data corresponding with the time period researched in this study. Thirdly, a strong case can be made for each indicator when explaining how they influence enrolment.

4.1.1 Urbanization

Urbanization, or the percentage of people living in urban areas as opposed to rural ones, appears to have a positive influence on enrolment. There are few possible explanations for this. For one, urban areas mostly have a high(er) population density, while rural ones often have a low(er) one. This affects enrolment, since schools become less efficient in an environment with a low population density. If there are simply not enough children of a certain age to fill one grade, then either multiple grades will have to be combined using multi-grade teaching or classes will be half empty. While the former reduces the quality of education, the latter reduces its efficiency by using a teacher and material that could have been used for a full classroom. Furthermore, high density areas generally have better infrastructure, leading to shorter travelling time, (constant) availability of electricity and drinking water. Relatedly, urbanization is associated with better health and sanitation status (Gupta et al., 2002).

4.1.2 Percentage of the population of age 0-14

While for countries that have achieved UPE education expenditure goes mostly to running costs and less towards investment in new sector growth, aspiring UPE countries have to account for additional investment towards increasing capacity as well. This is especially true for countries with growing populations, since these countries have an increasing share of their population at (pre)primary school-

age (Gupta et al. 2002). Therefore, while total enrolment numbers might be increasing steadily, net enrolment rates could very well be in decline. This means that the percentage of the population of (pre)primary school age is negatively correlated with enrolment.

4.1.3 Income per capita

First of all, Mehrotra (1998a) found that high private education costs can lead to gender and income gaps in enrolment. This means that the lower the per capita income, the higher the chances that private education is too costly for some or even all children in a household. Second, since the relative cost of schooling gets lower the more the household income increases, it is expected that enrolment increases when income does. Furthermore, considering education as normal good would mean that the demand for education increases for higher income levels (Gupta et al., 2002).

4.2 Selection of control variables

Evidence from Gupta et al. (2002) confirms the reliability and validity of urbanization and income per capita. However, the influence of 'percentage of the population aged 0-14' on the relationship between education spending and enrolment was dubious. On the one hand the empirical evidence showed there was a slight positive correlation with primary school enrolment, yet on the other hand the relationship was highly negative with most other educational attainment indicators such as secondary school enrolment. Based on these findings, **income per capita** and **urbanization** are used as control variables in this research.

Chapter 5 – Research Methodology

This chapter explores and selects a research methodology that is deemed most suitable for finding an answer to the research question presented in the introduction. First, the research design is discussed and the selection of a congruence analysis as a specific case study approach is explained. Second, the scope of this study is discussed. Third, the goal and theoretical relevance of this research is looked into.

5.1 Research design

Based on the examined literature, two ontological assumptions are made about the structure of knowledge as starting points for this research. These assumptions are then used to select the most appropriate research design for answering the research question and achieving the research goals.

The first assumption is that there exist a large variety of factors which together affect progress either directly or indirectly. While some of these factors might have a strong causal relationship with progress, they cannot explain it entirely or consistently by themselves. The second assumption is that each perspective offers its own unique explanation or theory for the relationship between a group of causal factors and the measured progress.

Keeping the above assumptions in mind and given that the unit of analysis in this study is on the level of countries or states and that much of the required data can only be collected ex-post, both a 'large-N' and 'experimental' research design are difficult to achieve. Rather, a small-N case study design seems appropriate. When comparing the generic definition of a case study research by Blatter and Haverland (2013; p.19), it corresponds with the specific characteristics of this research and the assumptions discussed above. Namely;

"a small number of cases [both having] a large number and diversity of empirical observations per case, and an intensive reflection on the relationship between concrete empirical observations and abstract theoretical concepts."

Blatter and Haverland further state that case study research is ideal for investigating new, complex or abstract phenomena. This corresponds with the issue at hand. Firstly because, while UPE as a policy goal is by no account new, the global attention it has received since the 1990 world conference on EFA has given rise to both urgency and innovation in public policy responses. Furthermore, the complexity of this issue and the large variety and interdependency of factors has become clear from the literature review. Secondly, while for the dependent variable it is relatively easy to use indicators

such as enrolment and attendance to make it concrete and measurable, many important independent variables such as education quality, relevance, access and different types of political commitment are abstract and not easily made concrete.

Following their generic definition of case study research, Blatter and Haverland (2013) subsequently offer a number of distinct approaches to case study research, each ideally suited to deal with a specific characteristic of the generic type. In order to come to a more comprehensive and accurate account of explaining the differences between states in their progress towards UPE, the three distinct perspectives of political commitment, budget size and policy effectiveness takes centre stage in this research. Therefore, Blatter and Haverland's congruence analysis approach fits the bill.

5.1.1 Congruence analysis

Blatter and Haverland (2013) define a congruence analysis as "a small-N research design in which the researcher uses case studies to provide empirical evidence for the relative strength and explanatory relevance of one theoretical approach in comparison to other theoretical approaches" (Blatter and Haverland, 2013; p.144). A further distinction is made between a competing and complementary approach. While the former aims to find the best theory among several, the latter approach has each theory contribute insights unique to it in order to add to the overall knowledge of the researched topic. Additionally, those insights might be combined into a single, more comprehensive theory.

In this research, all three perspectives contribute to a more complete understanding, by each explaining the effect of some, but not all, key variables on progress towards UPE. Together they provide for a more valid and reliable explanation than each could have done on its own. At the same time, the literature review has made clear that as each perspective is important, none of the three perspectives can accurately predict the level of progress on its own. Therefore, the complementary approach is applicable to this research.

A congruence analysis starts off by "deducing sets of specific propositions and observable implications from abstract theories" (Blatter and Haverland, 2013; p.144). Each proposition says something about the relationship between certain (aspects of) independent variables (budget size, etc.) and the dependent variable (UPE progress). After selecting the most appropriate or 'crucial' cases for optimizing theory comparison and testing, the deduced expectations are then compared with a broad set of empirical observations from each case. These observations provide measures of the independent variables for the selected case(s). This results in specific predictions for each proposition about the expected value of the dependent variable for a given case (i.e. the actual UPE progress made).

From there, the actual level of the dependent variable is measured for each case and the findings are compared with the predictions from each proposition. This is done to evaluate the explanatory and predictive power of each proposition, as well as the theory's to which they belong. The ultimate goal of the approach is to compare the level of congruence that each theory achieves between its predictions and the collected empirical evidence and accord the highest value to the theory that achieves a level of congruence superior to the alternatives.

There are several criteria that are used in this research to decide which theory is considered superior. First, that theory could be found superior for which most of its proposition accurately predict the measured outcome (in this case the UPE progress level). A suitable statistic for this is the absolute deviation around the measured outcome, which measures the average deviation of the theory's propositions. A second approach assumes that different propositions look at different aspects of the measured outcome. As such, predictions are not necessarily wrong if they differ from the measured outcome since their respective influence might be strong, yet simply not correlate consistently with outcome levels. Rather, the average of all propositions together then gives an accurate prediction of the measured outcome. A third option considers the theory superior, which had the most propositions that accurately predicted the measured outcome.

5.2 Research scope

Now that the research approach has been selected, it is necessary to define the boundaries of the study. The following sections clarify the choices made in terms of unit of analysis and time period analysed.

5.2.1 Unit of analysis

India is a federal union of states and union territories. The Indian states are the unit of analysis in this case study, of which there are 28. This is because of the India's favourable characteristics, such as its federal government structure, and its large variance among population, urbanization and income levels across different states. The seven union territories are excluded, since not only are they directly controlled by central government they are also mainly small urban regions. Therefore, while Delhi and Puducherry do have directly elected legislative assemblies and executive council of ministers, they are still excluded from case selection (**india.gov.in**). Furthermore, central government is taken as simply one of the state-level constituents, and only its direct effect on state-level affairs is considered.

5.2.2 Time period selection

The time period examined by this study is from 2000 until 2011. There are three reasons for this. The first reason is the global EFA convention held in Dakar in 2000, where countries renewed their intentions to achieve UPE before 2015.For India specifically this has meant the launch of the SSA program in the year 2000. This international momentum and consequent actions could provide states

with an extra incentive to increase commitment to primary education, since by joining hands with central government's efforts they can take partial credit for any achievements made.

The second reason is the availability of data. The increasing online availability of useful countrywide data such as national sample surveys and annual reports by the Indian government, greatly support the possibility of an in-depth case analysis. However, more important than this is the timing of the national census held in 2001 and 2011. Having realistic population data is essential for generating both gross and net enrolment rates, since these are dependent on knowing the size of the relevant age cohorts. The census is combined with a number of useful measures, some of which are used to aid with case selection.

The third reason is the drafting and coming into force of the national RTE act in 2009, and the legislation that led up to it. For example, while the 86th constitutional amendment act was passed in 2002, by not coming into force it sparked considerable debate and put UPE on a more prominent place of the national agenda.

5.3 Research goal and theoretical relevance

The literature suggests that each of the three factors on its own is not convincing enough to accurately and consistently explain the level of progress towards UPE. Therefore, three theories will be formulated; one theory for each of the three factors. Combining these three theories accomplishes the main goal of this research, which is to create a single comprehensive theoretical framework that can explain UPE progress. The theoretic relevance of this research lies in developing such a new theoretical synthesis, which is a more comprehensive depiction of reality than the individual theories/factors can provide.

Additionally, the theoretical framework is to act like a balanced scorecard to determine the strengths and weaknesses of an individual UPE policy. By producing specific prediction scores for each proposition, it becomes clear for each of the three factors which of their respective areas perform the worst, and which therefore would increase progress the most if their performance were to be improved. In other words, if progress for a certain state is disappointing or better than expected, applying the theoretical framework will give specific insight into its cause. This approach will ultimately lead to answering of the research question, by explaining the effect that key factors within government's sphere of control have on realizing UPE.

Chapter 6 – Theoretical Framework

In this chapter a theoretical framework is formed, consisting of three separate theories each based on one of the three factors discussed in the literature review: **1. political commitment**, **2. budget size** (total amount spent), and **3. policy cost-effectiveness**. These three factors themselves consist of a number of key aspects, which each explain some extent of the level of progress made towards UPE. Section 6.1 details the process of theory formulation and section 6.2 presents an overview of each of the three formulated theories.

6.1 The theory formulation process

By deducing propositions from these three factors based on one or more of their key aspects, predictions can be made about the direction and extent of their influence on the level of progress towards UPE. Grouped together these propositions form a theory surrounding a single concept deemed essential to realize UPE. The more propositions, the more explicit a theory becomes, but also the more difficult it will be to test it and compare it against the other two. Therefore, for each theory, those four propositions have been deduced from the existing literature that are deemed most essential in specifying the theory. Additionally, a constitutive proposition is formulated that explains the core concept of the theory and its relationship with progress to UPE.

These propositions will be tested against actual data taken from two Indian states, in order to validate the reliability and predictive capability of each of the three theories. This is done by operationalizing each proposition, matching them with the relevant data, and assigning a value to each proposition based on its relative strength compared to data from other states or the national average. The more the expectations match with the empirical data, the stronger the likelihood that the related theory holds, and is accepted as (part of) a satisfactory answer to the research question.

In the existing literature on analysing UPE policy outcomes, most studies look into the level of progress towards UPE, while focusing on only one of the above three factors, i.e. by questioning whether government is sufficiently committed or enough funding was given or if funds were spent effectively (EFA GMR 2013, p.58; RECOUP WP No.18, 2008). It is the author's opinion however, that each factor offers a unique perspective and is important in order to fully account for the differences in success between states in achieving UPE.

At the same time, while each perspective offers its own approach and requirements for success, there are most likely interdependencies. For example, while it is difficult to prove whether having a large budget or a cost-effective policy is more important, they are not necessarily unrelated. Funding might

be sizeable but insufficient, creating a piling up of inefficiencies that can cause good policies to underperform (Delamonica et al., 2004). In the same way, a cost-effective policy still requires funding and political support; no policy can achieve its goals if government pulls the plug half-way through. The same goes for funding; since a large primary education budget might not be sufficient, if teacher salaries are abnormally high or funds are budgeted but not actually spent.

6.2 Three theories on UPE policy

Based on the previous chapters, three theories on UPE policy can be formulated. These theories can be summarized as follows:

- Theory 1: What matters most is government's level of commitment
- Theory 2: What matters most is the total amount of expenditure
- Theory 3: What matters most is the effectiveness of expenditure

While each of these theories is considered essential to explain the level of progress towards UPE, theory 2 is considered the main theory compared to which the other two theories have to proof their worth. This is so, because the existing literature favours quantitative analyses to explain the progress made of countries or states. Additionally, because it is impossible to completely uncouple the concept of expenditure amount from the other two theories. Rather, theory 1 and 3 cast a light on different aspects related to expenditure, than simply its size. While it might be possible to formulate and test theory 1 and 3 without any such linkages to expenditure amounts, it would not add to the validity of these theories.

In the following subsections, for each theory the core arguments and concepts that constitute its basis are presented in proposition zero. After that, propositions one through four hold the content of each theory, i.e. they predict the relationship between political commitment, budget size or policy cost-effectiveness on the one hand, and the level of progress towards UPE on the other.

6.2.1 Theory 1: Political commitment

P1.0:   Government is an agent authorized by the people to invest part of their resources towards policies that provide the highest amount of benefit to those people in the long run. These resources are also used by politicians as targeted transfers to specific voter groups in order to secure re-election. Politicians go about this by locking in these resources through expressions of varying types of political commitment, in order to make sure those resources are used for certain policies and not others. Such commitment is demonstrated by means of expressed, institutional and budgetary commitment, for which the latter types are the most powerful.

P1.1:   Election manifestos accurately presents a political party's intentions towards UPE, as well reflect the wishes of its key constituents. The more priority is given to primary education in the manifesto, the higher the new government's level of expressed commitment.

Institutional commitment

P1.2:   Adopting new legislative acts or regulations related to primary education is an expression of government's institutional commitment to UPE. This commitment is higher the more the legislation is realistically executable and enforceable.

Budgetary commitment

P1.3:   Government's budgetary commitment to primary education corresponds with the amount of actual elementary education expenditure as a share of the planned primary education budget.

P1.4:   Government's budgetary commitment to (primary) education corresponds with the amount of primary education expenditure as a share of total education expenditure, as well as the amount of education expenditure as a share of total public expenditure.

6.2.2 Theory 2: Budget size (main theory)

P2.0:   Primary education policies are generally efficient because of (inter)national sharing of best practices. Therefore, the only way to achieve more progress is to increase both private and public spending. If inefficiencies exist (bureaucracy, corruption, etc.) they simply need to be taken into account as part of the expected cost.

Relative spending amount

P2.1:   A high amount of public expenditure on education as a share of gross state domestic product means more progress towards UPE.

P2.2:   A high amount of public expenditure on primary education as a share of gross state domestic product means more progress towards UPE.

Absolute spending amount

P2.3:   High total and per student private expenditure on primary education as a share of gross state domestic product and state per capita income respectively, means more progress towards UPE.

P2.4:   High total public and private expenditure on primary education per student means more progress towards UPE.

6.2.3 Theory 3: Policy cost-effectiveness

P3.0:   To maximize progress, UPE policy requires spending to be optimally balanced amongst improving access, relevance and quality. Expenditure inefficiencies in the form of misallocation of funds exist, because public spending goes, regardless of efficiency, to those

constituents that have the strongest political influence (i.e. salaries of teachers, subsidies for private schools, and assistance to (inter)nationally subsidized projects).

Cost-effectiveness

P3.1:   A low effective unit cost, (i.e. the private + public per student cost multiplied by 1+average per student wastage and 1+repetition rate), means more progress towards UPE.

Physical access to education

P3.2:   The distance to school negatively influences, and availability of drinking water facilities and girls' toilets positively influences school access, and especially among female students.

Economic access to education

P3.3:   A high public-to-private ratio of primary education expenditure per pupil means improved access for female students and students from low income families.

Quality of education

P3.4:   High public expenditure per teacher leads to either a high per student teacher cost or a high pupil-teacher ratio (PTR), which means reduced progress towards UPE through decreased school access or low school quality, respectively.

Relevance of education

It was discussed in chapter three that enrolment is a function of access, quality and relevance. Therefore, the proposition that covers relevance of education would add to a more complete representation of the different aspects that make up a cost-effective primary education policy. In section 3.3.7, the following proposition was deduced:

P3.5:   *A high expected average wage increase from primary school completion means higher private expenditure towards primary education and therefore increased progress towards UPE*

There are some difficulties with testing this proposition however. First of all, there is no accurate state wise income data available that is linked to educational attainment. Furthermore, the demand for education depends mostly on parents' perception of the potential (wage) gain from education. Such knowledge is not usually accurately available to parents, except from what they receive as feedback from people in their own environment. Therefore, instead of attempting to estimate demand levels and its impact on the level of private expenditure on education despite these difficulties, focus goes directly towards the level of private expenditure on primary education, which is measured extensively in propositions P2.3 and P2.4.

Chapter 7 – Case Selection

In line with the congruence analysis approach applied in this research, in this chapter two cases are selected that are considered best suited to test the predictive capability of each of the three theories.

7.1 Crucial cases

Different selection options are available that best allow testing of the different theories, yet the preferred selection technique for this research is dependent on so called 'crucial cases'. Crucial cases are those, which contain at the same time a most-likely scenario for applying the main theory, as well as a least-likely scenario for the alternative theories. A given case is considered a most-likely case, when the background assumptions held by the main theory match with the contextual factors within the case. A least-likely case contains contextual factors that are opposite from those background assumptions.

While it possible to find such a crucial case when testing competing theories, the complementary theories under trial in this study together do not make it probable to find a case that is both most-likely to the main theory and least likely to the alternative theories. Most of all because each theory focuses on different factors, and therefore their propositions are not necessarily conflicting. Instead, two cases will be selected for this research; one presenting a most-likely case for the main theory and the other a least-likely case for the main theory. The findings of both alternative theories are then compared to the findings of the main theory, to see if they do a better job in explaining the empirical evidence found by the main theory in both cases.

7.2 Using control variables for case selection

To help determine both a most- and least-likely case, control variables can be used to differentiate between the contextual backgrounds of the 27 states. Based on the discussion in chapter four, the control variables income per capita and urbanization have been selected for this purpose. Since both urbanization and income per capita positively correlate with primary school enrolment, most progress is expected in those states that score well on both of these indicators. In the same way, states that score low on these two variables are bound to due to have worse progress overall, all else being equal. The following table presents each state (column 1) and state-wise data on urbanization (column 2) and income per capita (column 4), as well as the state's national ranking in both areas (column 3 and 5), and a combined ranking using both urbanization and income rankings (column 6).

	% of Population living in Urban areas (2001)	National Ranking	Net State Domestic Product Per Capita[1] (2001) in Rs. at Constant (2004) Prices	National Ranking	Combined Ranking
Goa	49.76%	1	39339	1	1
Punjab	33.92%	7	25992	2	2 (shared)
Maharashtra	42.43%	4	22258	5	2 (shared)
Tamil Nadu	44.04%	3	19748	7	4
Haryana	28.92%	8	25598	3	5
Mizoram	49.63%	2	17245	10	6
Gujarat	37.36%	5	18200	8	7
Karnataka	33.99%	6	17402	9	8
Kerala	25.96%	12	20681	6	9
West Bengal	27.97%	9	17225	11	10
Andhra Pradesh	27.30%	10	17213	12	11
Uttarakhand	25.67%	13	15364	18	12
Himachal Pradesh	9.80%	28	22543	4	13
Arunachal Pradesh	20.75%	19	16793	14	14
Rajasthan	23.39%	16	13933	19	15 (shared)
Jammu and Kashmir	24.81%	15	13784	20	15 (shared)
Manipur	25.11%	14	12641	21	15 (shared)
Madhya Pradesh	26.46%	11	11715	24	15 (shared)
Tripura	17.06%	23	16947	13	19
Nagaland	17.23%	22	16540	15	20
Meghalaya	19.58%	21	15518	17	21
Sikkim	11.07%	26	15953	16	22
Chhattisgarh	20.09%	20	12202	23	23 (shared)
Jharkhand	22.24%	17	10451	26	23 (shared)
Uttar Pradesh	20.78%	18	9672	27	25
Assam	12.90%	25	12529	22	26
Odisha	14.99%	24	10701	25	27
Bihar	10.46%	27	5994	28	28

Table 7.1 – All-states overview of urbanization rates and per capita NSDP for the year 2001
Source: Based on Census of India 2001 and Economics statistics - Government of India
(http://planningcommission.nic.in/data)

7.3 Selecting two cases

Using the information in Table 6.1, both least- and most-likely cases are selected.

7.3.1 Most-likely case: Punjab

For the most-likely case, the most suitable scenario is the state scoring highest on urbanization and income per capita. The best choices are therefore Goa (1st), followed by both Maharashtra and Punjab (shared 2nd). While Goa comes in first, it is not deemed the best choice. First of all, it is not very representable for other Indian states, since due to its Portuguese colonial history and popular beaches it has many international inhabitants and high tourism income. Furthermore, some crucial educational statistics such as net enrolment rates are not available for Goa. Therefore, either Maharashtra or Punjab is the best choice. Maharashtra scores higher on urbanization, while Punjab has a higher

income per capita. Since income per capita has a stronger effect on the relationship between spending and enrolment, Punjab is considered the best choice.

7.3.2 Least-likely case: Bihar

For the least-likely case, the lowest scoring state is Bihar, which has an urbanization rate of 10.46% and income per capita of 5994 Rs. At the same time, Bihar scores much lower than the second lowest ranked state, Odisha, on both urbanization and income, and the availability of enrolment data is good. Bihar is therefore selected as the second case, representing the least-likely scenario.

Chapter 8 – Case Background: India

This chapter presents a brief overview of some key statistics of India's population. These facts present the background against which the two cases, the Indian states of Punjab and Bihar, are to be perceived.

8.1 Brief historical overview of primary education policy in India

A prime example of a country which has been struggling to meet the goal of UPE is India, the country currently hosting the largest population of the world's poor. In 2010 India's total population accounted for 1.2 billion people, of which 360 million people were living below the poverty line of 1.25 dollar a day, and an astonishing 830 million were surviving on less than two dollars a day (World Development Indicators, http://databank.worldbank.org/). In the year 2000, India had a primary school-aged population (aged 6-10) of 112 million of which an estimated 17 million were out of school; more than any other country in the world and more than twice the number of China (UIS Statistics; EFA Global Monitoring Report 2003, Table 5). Surprisingly however, despite its poor and fast growing population, that number declined by 90% to less than 1.7 million in 2011 (EFA Global Monitoring Report 2013, p.54).

India formalized its vision for universal enrolment in elementary education in 1950 within article 45 of the constitution as one of the Directive Principles of State Policy (PROBE, 1999). However, these directive principles simply implied an intention to which government could not be held accountable in court. Adding to this was the ambiguity that education was located on the Concurrent List of the constitution, meaning shared legislative powers between the central and state government.

Financially this has meant that between 10-15% of education expenditure has come from central government budgets, and 85-90% has been financed by state governments (Jha and Parvati, 2009). For elementary education the central government share is larger, mostly through channelling of international aid (Colclough and De, 2010) and the introduction of a special education cess of 2% of the total central budget (Tilak, 2006b) towards elementary education. While total education expenditure was time and again advised to be 6% of GDP (Tilak, 2006a), a common rule of thumb has been to spend half of this amount on primary education (CABE Committee, 2005; Mohanty, 2007).

The lack of legal accountability resulted in limited effort towards expanding elementary education for the following 50 years. At the end of the 1990s the Indian government stepped up its commitment by adding primary education to article 21A of the list of Fundamental Rights, making negligence punishable by law. However, even though the 86th Amendment to the constitution was passed in 2002, an official coming into force date was never published, making it void (Mehrotra, 2012).

8.1.1 Centrally sponsored scheme: Sarva Shiksha Abhiyan

A new impulse was given when central government launched the Sarva Shiksha Abhiyan (SSA) programme in 2000 aimed at improving quality of and access to primary education ([ssa.nic.in)](ssa.nic.in). SSA was intended to "achieve the goal of universal primary education by 2007 and that of universal elementary education by 2010" (Mehta, 2002). However, its design seemed to have favoured economically better of states. This is due to the required partial matching of central grants money (about 25 per cent of funds received through the SSA programme), and the burden of additional recurrent expenditure from newly hired teachers in following years (Jha and Parvati, 2009).

8.1.2 Right To Education Act

When progress towards the Dakar EFA goal were found to be insufficient (Govinda, 2008), the need for and feasibility of a Right to Education (RTE) Act was debated on for some years (Jain and Dholakia, 2009). Such an act was subsequently passed as a Constitutional Amendment in 2002, but only enacted in its final form by Parliament in 2009, coming into force in 2010. The RTE Act ensures elementary education as a fundamental right to every child aged six to fourteen, and also specifies minimum quality norms for elementary schools (Mehrotra, 2012).

8.2 Types of educational institutions

During the case study analysis, a distinction is often made between public and private schools, and different subtypes that belong to either category. Therefore, specific definitions are given in this section for each school type.

Public schools

All schools that are being funded by government and in which government is in some way involved in management are considered public (NSS 64th Round, 2010).

Public local body schools

Local body schools are those which are set up and funded by municipal or local government authorities, and village councils.

Private schools

There is no 'black or white' distinction between public and private schools. Despite relatively few 'pure cases', the difference between public and private schools can best be seen as continuum. Ranging from purely government owned, funded and managed public schools to completely independent private schools that are only linked to government authority through laws, regulations and oversight or quality inspections (Kitaev, 1999). A private school is commonly seen as any formal school that is outside of the public education system.

The following definition of private education is given by Kitaev (1999), based on a definition by UNESCO: "All formal schools that are not public, and may be founded, owned, managed and financed by actors other than the state." This definition even holds where "the state provides most funding and has considerable control over these schools (teachers, curriculum, accreditation, etc.)" (Kitaev, 1999, p.43). This includes all schools which are either (or both) private in terms of ownership, management or major share of funding and expenditure; e.g. teachers paid from tuition fees or private sponsors (Ibid, p.43).

Private aided schools

As the above definition of private schools states, schools that are privately managed but for which all recurring costs are funded by government, are called private-aided schools in India. This also means that all teachers have become government track employees with tenure and tuition fees are made zero. Since there is no real distinction with public schools in terms of funding, these schools are considered public schools in terms of enrolment.

Private unaided schools

These are the schools that are in the private side of the public-private continuum. They are financially independent as well as privately owned and managed, while they might receive small local subsidies or targeted support. In India, a further distinction is made in terms of whether a private school is officially recognized by government. Recognized schools have to fulfil certain requirements regarding facilities and legal stature. If they cannot meet such conditions (such as a minimum size playground, number of toilets, etc.) they are considered unrecognized and illegal. In 2005, about 50% of all private schools were unrecognized (Muralidharan and Kremer, 2005).

Chapter 9 – Case Study Findings

Now that the theoretical foundation for the case studies has been laid, the current chapter presents the key findings deduced from the collected data for both Bihar and Punjab. To start out, a brief introduction is given of Bihar and Punjab in section 9.1, in order to become familiar with some relevant socio-economic characteristics of both states. Next in sections 9.2 to 9.4, specific predictions are made for each proposition regarding the expected level of progress towards UPE in the states of Bihar and Punjab during the period of 2000-2011. Each of these predictions is summarized by a score ranging from 1 to 5. These prediction scores correspond with the following levels of progress:

1 – Low
2 – Below average
3 – Average
4 – Above average
5 – High

In this chapter, the theories are discussed in the same order as in Chapter 5; first the findings about political commitment are processed, then the data for the size of education expenditure, and finally the data relating to policy cost-effectiveness.

9.1 Case introductions

9.1.1 Punjab – some basic facts

Being economically well, Punjab is known for being India's leading agricultural state. Specifically, Punjab contributes to almost a quarter of the country' total food production (www.ifc.org, 2011). Its socio-demographic characteristics are not unlike many high income countries. Its population growth has been slowing down considerably in recent decades (see Table 9.1), and its per capita income is second only to Goa and its urbanization rate ranking third nationwide.

	2001	% of total	2011	% of total
0-9	4501548	16.23%	4786106	19.65%
10-14	2583402	9.31%	2783242	11.43%
15-19	2817683	10.16%	2555933	10.49%
20-24	2776636	10.01%	2339151	9.60%
25-29	2463861	8.88%	1945622	7.99%
All ages	**27743338**	**100%**	**24358999**	**100%**

Table 9.1 - Punjab population distribution by age, for age group 0-29
Source: Census of India 2001 & 2011

	Urbanization		Income per capita (Rs.)	
	2001	2011	2001	2011
Bihar	10%	11%	5994	20708
Punjab	34%	37%	25992	69737
National	28%	31%	16764	53331

Table 9.2 - Urbanization rate and income per capita (2001 income in 2004 constant $, 2011 income in 2012 constant $)
Source: Government of India, MOSPI, Central Statistics Office

9.1.2 Bihar – some basic facts

Besides its important role in thousands of years of Indian history, Bihar is recently known for being the poorest state in India. Characterized by fast population growth (see Table 9.3), its 0-9 years age group is almost double the relative population size of the same age group for Punjab. Like Punjab, its prime export is agricultural goods. Unlike Punjab however, productivity is not so high and income per capita is the lowest in the country. Urbanization rate has only grown 1% over the research period, with 9 out of 10 people still living in rural areas in 2011.

	2001	% of total	2011	% of total
0-9	23810374	28.69%	27801306	26.71%
10-14	11063777	13.33%	13919882	13.37%
15-19	7190188	8.66%	9472695	9.10%
20-24	6323193	7.62%	8064735	7.75%
25-29	5908308	7.12%	7671705	7.37%
All ages	**82998509**	**100%**	**104099452**	**100%**

Table 9.3 - Bihar population distribution by age, for age group 0-29
Source: Census of India 2001 & 2011

9.2 Measuring political commitment

The findings in this section give insight into the level of a state's political commitment towards achieving UPE.

9.2.1 Election manifestoes from largest winners of the State Assembly elections (2000 – 2010)

All of the 28 Indian states hold state assembly elections to elect their own state legislature, called the Legislative Assembly. Its members consist of a fixed number of representatives chosen from each of the state's different electoral districts. Following the elections, the party or coalition holding the majority of seats in parliament then chooses from among itself the state executive, consisting of the chief minister of state and his ministers. The state assembly is elected for a period of five year, after which new elections are held. These elections occur at different times for each individual state. The following section summarizes what the largest winners of each election have promised in their election manifestoes regarding primary education.

Bihar

Rashtriya Janata Dal (winner)
• To open girl schools in Muslim populated areas.

• Provide free regular and technical education for women.	

Bharatiya Janata Party & Janata Dal (United) & Samata Party coalition (runner up)
• Introduce free and compulsory education.

Communist Party of India (ML)
• Stop privatization of education.
• Fill all vacant posts for government teachers.
• Guarantee all necessary facilities and adequate number of teachers in primary schools.

Table 9.4 - Bihar State Assembly Elections in 2000

Sources: http://electionaffairs.com, http://www.indian-elections.com/partymanifestoes, http://www.elections.in

Janata Dal (United) & Bharatiya Janata Party coalition (winners)
• End anarchy in the field of education.
• Achieve 100% literacy within 5 years.

Rashtriya Janata Dal (runner up)
• Opening girls' schools in Muslim populated areas.

Lok Jan Shakti Party & Congress coalition (placed 4th & 5th)
• Provide a budgetary allocation for all minority educational institutions.
• Reopen closed schools.
• Raise the government expenditure on education to six per cent of the state's GDP.

Table 9.5 - Bihar State Assembly Elections in 2005

Sources: http://electionaffairs.com, http://www.indian-elections.com/partymanifestoes, http://www.elections.in

P1.1 – Bihar:

The State Assembly elections in Bihar are characterized by competition between two changing coalitions, one of which depends highly on the Muslim community as a vote bank. This is reflected in the manifestoes of the year 2000 winning coalition, as they promise specific improvements to primary education for Muslim girls to attract the Muslim vote. However, this would only address a fraction of all the primary school students. Employment and economic development were seen as a priority by almost all parties. While primary education has received more attention than other levels of education, the attention given to it is still minimal. Mostly unrealistic promises are made that have no chance of being fulfilled. For example, the winning coalition in the 2005 election promises full literacy within 5 years. With low primary enrolment levels and quality of education, combined with a lack of sufficient funding, such a claim is worthless (let alone the high levels of adult illiteracy). The most specific promises are made by the Communist Party of India (ML), which has focused on specific issues and solutions. However, they could only claim a small percentage of votes.

Prediction: The stated commitment towards primary education was present but unconvincing for both governing periods and therefore a below average level of progress towards UPE is expected (2 out of 5).

Punjab

Congress (winner)
• The Congress will strive towards 100% literacy by opening new schools, ensuring presence of teachers and pay special attention to border and backward areas.
• Special emphasis will be given to education of girls and students from B.C, 'S.c. and poorer sections.
• All schemes relating to scholarships, textbooks and allowances to poor students and girls will be restored.

Table 9.6 - Punjab State Assembly Elections in 2002
Sources: The Congress Party Manifesto (2002), http://electionaffairs.com, http://www.indian-elections.com/partymanifestoes, http://www.elections.in

Shiromani Akali Dal & Bharatiya Janata Party coalition (winner)
Quality education for all, which includes: • Rupees 50 million Rs. to be spent on 100 block level Adarsh schools, to educate 1.3 lakh children within 3 years • All vacant posts of teachers will be filled • Free education for SC/BC/Dalit girls up to graduation level through scholarships and financial assistance • Grant of cooperative education loans up to 1 million Rs. at a nominal interest to the children of the marginal • All privately managed government recognized schools and colleges will again start getting 95% grants in aid
Congress (runner up)
No mention of education in vision for major investment areas Point 6. Education development on manifesto includes among others: • Implement SSA in all districts to achieve UPE • Raise education spending to 6% of GSDP, with 30% to higher education • Specially targeted education schemes to ensure full enrolment for 6-14 age group.

Table 9.7 - Punjab State Assembly Elections in 2007
Sources: SAD Election Manifesto (2007), The Congress Party Manifesto (2007), http://electionaffairs.com, http://www.indian-elections.com/partymanifestoes, http://www.elections.in

P1.1 – Punjab:

The State Assembly elections in Punjab are mostly between the (national) Congress party and a coalition of the (local) Shiromani Akali Dal and the (national) BJP. It is clear from the manifestoes that Punjab is economically well off, and that education is deemed important. Nonetheless, with many families sending their children to private schools, most attention is turned towards improving and enlarging universities and colleges. Since most out of school children come from economically backward families in rural areas, primary education is mentioned with specific solutions in mind for those voters specifically. The Congress Party, winner of the 2002 elections, clearly targeted this group as well by claiming to strive towards 100% literacy. However, no specific improvements or funding goals were mentioned. Simply, they promised improvement for all the weaker sections of society, for which enrolment levels were lowest; girls, backward classes, scheduled castes and poor households. The promise of restoring scholarships did not account to much, as these never received much funding to begin with.

The 2007 elections were won by the previous election's opposition. Education, including primary, received more attention from this coalition. The solutions they had proposed were better planned and more realistic, and had specific funding amounts attached to them. Additionally, the plans for secondary and university level education were well thought out as well. The Congress Party did not change their focus much since the previous elections. This indicates that there is also a large group of voters that does hold much interest for improving the access to education for the underprivileged out of school population.

Prediction: For the first governing period (2002-2007), stated commitment to UPE was present but not convincing of change, resulting in a below average expected level of progress towards UPE (2 out

of 5). For the second governing period (2007-2012), the stated commitment to UPE was more convincing including practical plans, and as such an above average increase in progress towards UPE is expected (4 out of 5). Therefore, the overall progress is expected to be average (3 out of 5).

9.2.2 Legislative acts related to primary education (2000-2011)

Laws and regulations are products of the state legislature, and as such represent a more concrete form of the promises made to the public than those made in the election manifestoes described above. The regulations presented here are those legal Acts or amendments of Acts passed by government in Bihar and Punjab from 2000 to 2011, which directly affected primary education (http://www.punjab.gov.in, http://www.lawsofindia.org, http://www.educationbihar.gov.in).

Bihar

The Bihar Elementary School Education Committee Act, 2011

For immediate constitution of ad hoc elementary education committee and for ensuring people's participation in the management, control and supervision of the elementary schools of the State of Bihar. This Act is a response to the central government's Right to Education Act of 2009.

Punjab

Punjab school education board (Amendment) Act, 2005

Amendment calling for annual audits of the accounts, as well as giving power to the state legislature to remove the chairman and vice chairman upon misconduct or abuse of power, and increase the appointment of members of certain committees.

The Punjab Scheduled Castes and Backward classes Act, 2006

To reserve vacancies for state government jobs connected to primary and secondary schools for members of Scheduled Castes and Backward Classes.

The Punjab School Teachers Re-Employment Act, 2006

The act offers reemployment to teachers until the end of the school year, to teachers who would previously have been let go after reaching their retirement age during that school year.

The Punjab Education Development (Amendment) Act, 2007

Establishes the Punjab education development board, which is to set up (108) free schools offering high quality education. Schools are to be private-public partnerships in rural areas, each school teaching classes I-XII to 2000 low income students. Funding consists of 750 million Rs. of central government assistance and 370 million Rs. of special cess tax levied on liquor, supplemented by %0% private funding.

The Punjab Official Language Act, 2008

The Act makes Punjabi the official language of Punjab, and ensures that Punjabi is taught to all students studying in standards 1 to 10, as one of the compulsory subjects from the academic year commencing April 2009.

P1.2 – Bihar: Corresponding to the lack of attention paid to primary education in the State Assembly elections, hardly any regulations relating to primary education were passed from 2000-2011. The only Act that did was a response to the national Right to Education Act of 2009. Since state governments were obliged to assimilate the RTE Act into state law, it does not as such count as an intention by the Bihar government to improve primary education.

Prediction: Given the low institutional commitment, a low level of progress towards UPE is expected (1 out of 5).

P1.2 – Punjab: Starting from 2005, several legal Acts or amendments of Acts focusing on primary education have been passed in Punjab. While it appears as though during the second governing period (2007-2012) not many regulations were produced in contradiction to the election manifesto of the corresponding elected government. However, a number of Acts relating to primary education did get passed in 2012, yet were outside the scope of this research. Overall, the Acts passed do not have any major implications as expected from the above discussed elections. What stands out most is the Punjab Education Development (Amendment) Act of 2007, which is an immediate application of the promise made in the election manifesto of the winning coalition and solidifies the promise of a substantial sum towards primary education. However, nothing major was created that was not already mentioned in the election manifesto.

Prediction: Due to the low level of institutional commitment up to 2005, and the moderate level of institutional commitment shown from 2005-2008, a similar low level of progress is expected in the first half (1 out of 5) and a moderate level of progress in the latter half (3 out of 5) of the research period. Combined, the overall progress is expected to be below average (2 out of 5).

9.2.3 Comparing budgeted public expenditure amounts with actual spending

Compared to stated and institutional commitment, budgetary commitment is considered the most valid and reliable measure of a government's political commitment. The following data will be used to evaluate government's public expenditure patterns. This section deals with actual spending versus budget expenditure amounts.

							In millions of Rupees
Bihar	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Budgeted	27753	28311	31861	30471	46488	53312	48376
Actual	14177	26746	29079	32805	37734	46612	49694

Punjab							
Budgeted	5618	6014	6971	6987	6943	8378	10567
Actual	5096	5353	5194	5568	5903	7585	9154
All States							
Budgeted	361100	390969	437152	498748	577409	744521	841566
Actual	334875	381183	425747	499984	584821	741607	889323

Table 9.8 – Actual and budgeted amounts of public expenditure on primary education

Source: Analysis of budgeted expenditure on education, various issues - Government of India, Ministry of HRD, Planning & Monitoring Unit

P1.3 – Bihar: In five out of seven years, the actual primary education expenditure falls short compared to the budgeted amount. In comparison, the national average hardly fell only slightly short in the first three years, and even exceeded the budgeted amount three times during the last four years. Either budgets are planned too optimistically or perhaps funding is captured before it is spent.

Prediction: Based on the above figures, the budgetary commitment of the government of Bihar is low for some years, and below average for others. Therefore, progress towards UPE is expected to be below average (1.5 out of 5).

P1.3 – Punjab: Actual spending is lacking considerably for the entire period, ranging from 10-25% of the budgeted amounts. Furthermore, the fact that the budget is kept steady for three consecutive years, and that actual spending even declines in 2006-07, signify that government is doing its best to keep primary education expenditure to a minimum.

Prediction: The budgetary commitment of the government of Bihar in terms of actual spending is low for the entire period. As such, progress towards UPE is expected to be low (1 out of 5).

9.2.4 Public expenditure ratios

Another way to evaluate budgetary commitment is by analysing the relative size of public spending compared to the all-state average and to external benchmarks. The data in Table 9.5 contains three important ratios, which together paint a picture of government's level of budgetary commitment to primary education. In section 3.1, several international benchmarks were discussed which can assist in evaluating these numbers. Public expenditure as a share of Gross State Domestic Product (GSDP) was suggested to be 25%, while education expenditure as a share of GSDP should optimally be 6%. From the latter it can be calculated that education expenditure is to be about 25% of total public spending. Primary education should be 50% of education expenditure, and higher for states where expansion of school coverage is warranted.

Bihar	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Public Exp. as a % of GSDP	22.1%	18.8%	21.2%	19.9%	19.8%	18.8%	18.4%	17.5%
Education Exp. as a % of Public Exp.	20.1%	19.1%	25.4%	25.2%	24.7%	23.2%	23.6%	22.7%
Primary Education Exp. as a % of Education Exp.	59.4%	50.7%	59.2%	56.1%	56.4%	57.0%	60.6%	57.2%
Punjab								

Public Exp. as a % of GSDP	17.4%	17.8%	16.8%	14.6%	15.1%	14.1%	13.7%	14.3%
Education Exp. as a % of Public Exp.	13.8%	13.6%	13.7%	13.6%	13.0%	14.0%	14.5%	13.7%
Primary Education Exp. as a % of Education Exp.	23.4%	21.8%	21.5%	20.6%	18.5%	17.2%	19.0%	20.3%
All States								
Public Exp. as a % of GSDP	15.2%	14.1%	13.5%	13.3%	13.2%	13.4%	13.7%	13.6%
Education Exp. as a % of Public Exp.	18.8%	19.0%	20.0%	19.9%	19.4%	20.1%	21.5%	22.2%
Primary Education Exp. as a % of Education Exp.	43.9%	43.8%	43.5%	42.4%	44.4%	42.7%	43.2%	43.0%

Table 9.9 - Public Exp. as a % of GSDP, Education Exp. as a % of Public Exp., Primary Education Exp. as a % of Education Exp.
Source: Author's calculations using data from Analysis of budgeted expenditure on education, various issues - Government of India, Ministry of HRD, Planning & Monitoring Unit

P1.4 – Bihar: The level of public expenditure starts out well at 22%, but consequently steadily decreases down to 17.5%. The all-state average however, is much lower. One explanation for this is Bihar's low GSDP, and the fact that it receives financial support from the central government's SSA program. Since such external subsidies to primary education are not part of GSDP amounts, but are part of the expenditure amounts above, all ratios are somewhat inflated compared to all-state averages. Regardless however, in years of where the public expenditure to GSDP ratio is falling, the primary education expenditure remains somewhat constant, similar to the all-state average. Furthermore, the primary education is close to 60% of total education expenditure, which is much higher than the all-state average and the 50% benchmark.

Prediction: In terms of committing scarce government resources the government of Bihar is showing an average level of commitment, and thus the expected level of progress towards UPE is average (3 out of 5).

P1.4 – Punjab: The public expenditure to GSDP ratio starts out higher than the (low) all-state average, but soon converges to a similar level in 2009. While the public expenditure level is already low compared to the 25% benchmark, the education expenditure to public expenditure ratio is even further from it, with a mean 13.5% compared to the 25% benchmark. Additionally, it is clear from the primary education expenditure to education expenditure ratio that this low value is caused by holding out on primary education expenditure. With an average of only 20%, the education funding share received by primary education is less than half the all-state average and only a third of that in Bihar. One explanation of this could be the large share of private schools at the primary education level, which shifts the cost burden to households.

Prediction: The government of Punjab shows a clear preference for public spending to other areas than education, and more specifically primary education. Based on these results, a low level of progress towards UPE is expected (1 out of 5).

9.3 Measuring budget size

9.3.1 Public expenditure compared to GSDP

The data in Table 9.6 contains two ratios that show types of public expenditure as a share of GSDP. In sections 3.1 and 3.2 in chapter three, various benchmarks were discussed that can be used to evaluate both these ratios. While education expenditure as a share of GSDP was suggested to be 6% (section 3.2), the human expenditure ratio (section 3.1) comes closest to primary education expenditure as a share of GSDP. Since other human priority concerns such as drinking water facilities and health care are part of this 5%, the share reserved for primary education is about 3-3.5% (the same benchmark is found when factoring in that from 6% of education expenditure, 50% should go towards primary education).

Bihar	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Education Exp. as a % of GSDP	4.44%	3.59%	5.40%	5.01%	4.89%	4.37%	4.33%	3.99%
Primary Education Exp. as a % of GSDP	2.64%	1.82%	3.20%	2.81%	2.76%	2.49%	2.63%	2.28%
Punjab								
Education Exp. as a % of GSDP	2.41%	2.41%	2.29%	1.99%	1.97%	1.97%	1.99%	1.97%
Primary Education Exp. as a % of GSDP	0.56%	0.53%	0.49%	0.41%	0.37%	0.34%	0.38%	0.40%
All States								
Education Exp. as a % of GSDP	2.87%	2.68%	2.69%	2.65%	2.56%	2.69%	2.94%	3.02%
Primary Education Exp. as a % of GSDP	1.26%	1.17%	1.17%	1.12%	1.14%	1.15%	1.27%	1.30%

Table 9.10 – (Primary) Education Exp. as a % of GSDP
Source: Author's calculations using data from Analysis of budgeted expenditure on education, various issues - Government of India, Ministry of HRD, Planning & Monitoring Unit

P2.1 & P2.2 – Bihar: There appears to be a slow but regular decrease for both ratios from 2005 to 2010. Specifically, during that period education expenditure and primary education expenditure as a share of GSDP have dropped 26% and 28% respectively. One reason for this could be that GSDP is increasing, but expenditure levels are not increasing as fast. Compared to the all-state average however Bihar is far ahead. At the same time, both ratios are close to their respective benchmarks of 6% and 3%. And since these benchmarks represent ideal situations, in some cases getting close to them is already good enough, especially when not much additional spending is required for investing in the system's expansion.

Prediction (P2.1 & 2.2): Given the high values of both ratios, but also their drop in recent years, an average level of progress towards UPE is expected (3 out of 5).

P2.1 & P2.2 – Punjab: Education expenditure is 2.5% at most and soon falls down to 2%, where it remains for 5 years straight. Primary education expenditure is even worse off; at its lowest point it is only 1/10 of the 3-3.5% benchmark. The trend seems to go in the same downward direction as education expenditure. Compared to the all-state averages, especially primary education is worse off.

Prediction (P2.1 & P2.2): Given the low values of both ratios, and their consistent decrease throughout the analysed period, a low level of progress towards UPE is expected (1 out of 5).

9.3.2 Private costs of primary education for different school types

The total private expenditure on primary education as a % of GSDP gives an impression of the financial investment by households to pay for 'free education' or private schooling. Ultimately, it is the entire investment in primary education that determines the level of progress towards UPE. Amounts are shown as a % of GSDP and NSDP per capita, to make them comparable to other states and the all-state average.

	Private exp. on public primary schools, as a % of GSDP	Private exp. on private primary schools, as a % of GSDP	Total private exp. on primary education, as a % of GSDP	Per student private exp., as a % of NSDP per capita
Bihar	1.15%	0.05%	1.20%	9.2%
Punjab	0.33%	0.26%	0.58%	6.8%
All States	0.29%	0.35%	0.64%	5.5%

Table 9.11 - Private expenditure on primary education by school type, for the school year 2004-05
Source: Author's calculations based on EE in India analytical report 2004-05 - NIEPA, Sonalde et al. (2010), and Analysis of budgeted expenditure on education, various issues - Government of India, Ministry of HRD, Planning & Monitoring Unit

	Private exp. on primary schools in rural areas, as a % of GSDP	Private exp. on private primary schools in urban areas, as a % of GSDP	Total private exp. on primary schools all areas, as a % of GSDP	Per student private exp., as a % of NSDP per capita
Bihar	0.61%	0.23%	0.84%	6.2%
Punjab	0.66%	0.23%	0.89%	9.8%
All States	0.42%	0.29%	0.72%	4.5%

Table 9.12 - Private expenditure on primary education by school area, for the school year 2007-08
Source: Author's calculations based on Analysis of budgeted expenditure on education, various issues - Government of India, Ministry of HRD, Planning & Monitoring Unit, and NSS 64th Round (2010), and EE in India analytical report 2007-08 - NIEPA

P2.3 – Bihar: The private expenditure as a share of GSDP of 1.2% is a substantial amount compared to amount spent by government in the same year (2004), which was 1.8% of GSDP (see Table 9.10), and compared to the all-state average of 0.64%. The large private-public spread is not strange in this case, since most schools in Bihar are government schools. This percentage has gone down to 0.84% in 2007, while the public share and all-state average has gone up to 2.81% (see Table 9.10) and 0.72% respectively. The per student expenditure as a share of net income has gone down as well, from 9.2% in2004, to 6.2% in 2007. While the amount of private expenditure in urban areas as a share of GSDP is lower than the all-state average, the low urbanization rate of Bihar should be considered. Therefore, overall the numbers compare favourable to the all-state average.

Prediction: Given the relatively high private expenditure overall and per student in both 2004 and 2007, above average progress towards UPE is expected (4 out of 5).

P2.3 – Punjab: Despite the relatively high share of private schools in Punjab, the amount of private expenditure spent on private education as a share of GSDP does not perform well against the all-state average. One explanation for this is Punjab's high GSDP; while private expenditure amounts are actually high, there is only so much that can be spent on primary education. Beyond a certain amount of household income, there private expenditure on primary education might simply have reached a ceiling. Whether this is the case is questionable however. Since the per student expenditure was higher in 2007 as compared to net income per capita, as was the total private investment in primary education as a % of GSDP. All in all, compared to the all-state average 2004 was about equal, and 2007 performed somewhat better.

Prediction: Given the average private expenditure ratios in 2004 and the above average scores in 2007, average progress is expected in the first half of the research period, and above average progress towards UPE is expected in the second half (3.5 out of 5).

9.3.3 Per student expenditure on primary education

While it is important for a state to spend a large share of its income on primary education, the relative effectiveness of this amount depends strongly on the size of the state's population. More specifically, the size of its school-age population determines how much funding is available per child. Furthermore, states with high population growth will have to invest more in primary education relative to states with little to no population growth. Data on the per student expenditure is presented in the tables below.

	Per student public exp.	Private exp. per public school student	Total exp. per public school student	Average private exp. per student	Average per student exp.	Exp. per private school student
Bihar	1114	704	1818	725	1826	2466
Punjab	2215	1444	3659	2252	3985	5160
All States	2581	688	3269	1329	3169	2920

Table 9.13 - Public and private per student expenditure on primary education, for the year 2004-05
Source: Author's calculations using data from EE in India analytical report 2004-05 - NIEPA, Sonalde et al. (2010), Analysis of budgeted expenditure on education 2004-05 to 2006-07 - Government of India, Ministry of HRD, Planning & Monitoring Unit

	Per student public exp.	Private exp. per student (rural area)	Private exp. per student (urban area)	Average private exp. per student	Average per student exp.
Bihar	1886	439	2675	566	2423
Punjab	2522	3159	6705	3888	6042
All States	3405	826	3626	1374	3977

Table 9.14 - Public and private per student expenditure on primary education, for the year 2007-08
Source: Author's calculations using data from NSS 64th Round (2010), and Analysis of budgeted expenditure on education 2007-08 to 2009-10 - Government of India, Ministry of HRD, Planning & Monitoring Unit, and EE in India analytical report 2007-08 - NIEPA

P2.4 – Bihar: What stands out from the data in the above tables, is the per student public expenditure for 2004 and 2007. In both cases, it is about half the all-state average. Furthermore, while the private

expenditure per public school student is close to the all-state average in 2004, it is considerably lower than the all-state average by the year 2007 data. The lower private expenditure in 2007 could very well be from an increasing amount of subsidies of school supplies, such as books and uniforms, by the SSA scheme.

Prediction: Both the private and public per student amounts are low compared to the all-state average, so the expected progress towards UPE is low (1 out of 5).

P2.4 – Punjab: While the public per student expenditure is somewhat low in 2004 and low in 2007 compared to the all-state average, these amounts are counteracted by high private expenditure per student. While the average per student private spending amount is already almost double the all-state average, it is even three times that in 2007. Therefore, the average per student expenditure is about one and a half times the all-state average for both 2004 and 2007.

Prediction: The below average public spending amount on the one hand, combined with the much above average private spending amount on the other, means progress towards UPE is expected to be above average (4 out of 5).

9.4 Measuring policy cost-effectiveness

Government should strive to be cost-effective and keep costs down as much as possible. At the same time, they should not neglect to invest in the quality of education. Whether governments have struck the right balance, is analysed in the remainder of this chapter.

9.4.1 Calculating effective unit costs

If quality standards are insufficient due to insufficient per student expenditure, then the resulting poor quality education will cause students to dropout before graduating in Class V. These children will be without a diploma or having obtained literacy; the most important outcomes of primary education. If they want to continue with upper primary school but no such school is nearby, or there is a school but the quality is insufficient making them dropout prematurely, then again important outcomes of the primary school system have been missed. For the goal of UPE, it can be argued that only students that reach the end goal are counted as progress towards UPE.

Therefore, the accumulated private and public expenditure for students that dropout early, as well as part of the expenditure on students who cannot continue to Class VI for lack of an upper primary school in the vicinity, have been wasted. The effective per student cost is gained by dividing the total wastage over the students that do succeed, within their respective school levels (primary or upper primary). For students dropping out during upper primary school, only their investment into upper primary education is counted as wasted for the below calculations.

	Class I	Class II	Class III	Class IV	Class V	Class VI	Class VII	Class VIII
Bihar	3733770	2831812	2227493	1802685	1816555	1228481	1066748	1002562
Punjab	474565	474751	456242	440416	428026	394811	354703	330688
All States	31943049	27887844	25943420	23457185	24273356	20343150	18568347	17173454

Table 9.15 - Total enrolment for class I-VIII for the year 2007-08

Source: Statistics of school education 2007-08 - Government of India, Ministry of HRD

	Enrolment Class I-VIII	Total wasted school years method 1	Total wasted school years method 2	Per student normal cost	Effective unit cost method 1	Effective unit cost method 2
Bihar	15710106	4626196	4772716	2423	3435	3481
Punjab	3354202	391391	288187	6042	6840	6610
All States	189589805	27987244	37737622	3977	4666	4966

Table 9.16 - Effective unit cost calculation for the year 2007-08, using two different methods:

Method 1: Wasted number of school years calculated using the apparent survival rate for 2007-08 * accumulated spending

Method 2: Wastage calculated using dropout rate * 1+repetition rate * accumulated spending from past years

Source: Author's calculations using data from Statistics of school education 2007-08 - Government of India, Ministry of HRD, NSS 64th Round (2010), and EE in India analytical report 2007-08 & 2008-09 – NIEPA, and Analysis of budgeted expenditure on education 2007-08 to 2009-10 - Government of India, Ministry of HRD, Planning & Monitoring Unit

P3.1 – Bihar: The dropout rate in Bihar is significant, with many children dropping out already during their first year of primary school. Additionally, many do not make it to upper primary school after graduating from Class V. Only about one in four children makes it all the way to Class VIII. The low normal costs have clearly affected school quality, causing the effective per student cost to rise to 40% above the normal cost. Despite Bihar's high dropout rate however, the effective unit cost is still below the all-state average due to the low normal cost. It is doubtful that the students who did graduate have gained the same knowledge and skills from their low cost education, as those who have received education of a higher quality. This cannot be deduced from the above data however, and is therefore ignored in this evaluation.

Prediction: The effective per student cost is significantly higher than the normal per student cost. At the same time however, the effective per student cost is still low compared to the all-state average. Therefore, the expected level of progress towards UPE is above average (4 out of 5).

P3.1 – Punjab: The dropout rate for Class I-V is low and for Class VI-VIII it is somewhat higher. Due to the high per student normal costs however, the accumulated wastage is still around 10-15%. Nonetheless, the difference between Punjab's effective unit cost compared to the all-state average is smaller than for their respective normal unit costs.

Prediction: The effective per student cost is only slightly higher than the normal per student cost. However, it is still much above the all-state average and thus the expected level of progress towards UPE is below average (2 out of 5).

9.4.2 Measuring physical access to education

Physical access is important for increasing enrolment levels. Excellent teachers might be available, but if children cannot reach or be present in school because of physical hindrances, then it is of no use to

57

them. Data about the most common deterrents (more so for female students) have been listed in Table 9.17 – 9.19 below.

	Distance to nearest primary school (in % of all villages)		Distance to nearest upper primary school (in % of all villages)	
	In village	1-5 km	In village	1-5 km
Bihar	90.9%	9.1%	69.0%	27.6%
Punjab (incl. Chandigarh)	100%	0.0%	80.0%	20.0%
National	97.8%	2.2%	68.9%	26.7%

Table 9.17 – % of villages having a (upper) primary school nearby, for the year 2004-05
Source: Sonalde et al. (2010)

	Primary only		Upper primary only		Primary & upper primary		Average all schools	
	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08
Bihar	4.77%	15.30%	27.95	39.9	18.48%	39.26%	8.88%	21.62%
Punjab	57.62%	84.00%	60.02	86.04	71.59%	95.36%	63.15%	86.09%
National	24.27%	41.95%	36.91	59.43	46.76%	63.95%	32.70%	50.55%

Table 9.18 - % of (upper) primary level schools having a separate girls' toilet, for 2004-05 & 2007-08
Source: EE in India analytical report 2004-05 & 2007-08 – NIEPA

	Primary only		Upper primary only		Primary & upper primary		Average all schools	
	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08	2004-05	2007-08
Bihar	81.51%	75.17%	88.58	93.23	90.04%	95.78%	83.43%	80.41%
Punjab	91.94%	97.17%	91.68	97.66	94.20%	93.48%	91.55%	97.53%
National	78.80%	84.50%	79.87	88.86	86.68%	90.32%	80.60%	86.30%

Table 9.19 - % of public (upper) primary level schools having drinking water facilities, for 2004-05 & 2007-08
Source: EE in India analytical report 2004-05 & 2007-08 – NIEPA

P3.2 – Bihar: In 2004, 9.1% of villages had no primary school and 31% no upper primary school within a 1km radius of the village. While the former figure is much higher than the national average, the latter is on par with it. Furthermore, girls' toilets were only present in about 10% and 20% of all schools for the years 2004 and 2007 respectively, compared the national average of approx. 30% and 50% for the same. Lastly, drinking water facilities in 2004 and 2007 were on par with the national average of 80-85%.

Prediction: Given the average score for drinking water facilities, and the below average score for distance to primary schools and the low score regarding presence of girls' toilets, progress towards UPE is expected to be below average (2 out of 5).

P3.2 – Punjab: All villages have primary schools within the village, and the percentage of villages without in-village upper primary schools is second only to Kerala (at 98%) and Assam (at 81.8%). Girl's toilets are present in nearly two thirds of schools in 2004, and this number has risen to 86% of schools in 2007. Both figures nearly double the national average rates. Drinking water facilities are at a high level, and are reaching almost 100% in 2007.

Prediction: All scores are high, absolutely and relative to the national average. As such, progress towards UPE is expected to be high (5 out of 5).

9.4.3 Measuring economic access to education

While the amount of public and private expenditure in primary education is important, equally important for ensuring enrolment of socially and economically weaker section of society is the public-to-private ratio. By ensuring that the lion's share of education costs are covered by public expenditure, the private costs can be kept low and also the poorer households can send their children to school. In this way, part of the tax revenue from richer households pays not only for their education, but also for the education of the poor, thereby assisting them to make the investment. Reversely, if the private costs of education are high compared to public expenditure, then it is only the poor households, and more often girls than boys, that will not be able to participate.

	Public-to-private ratio 2004-05	Public-to-private ratio 2007-08
Bihar	1.54 : 1	3.33 : 1
Punjab	1 : 1.02	1 : 1.54
All States	1.94 : 1	2.48 : 1

Table 9.20 - Public-to-private expenditure ratio, for the years 2004-05 and 2007-08
Source: Author's calculations using data from EE in India analytical report 2004-05 & 2007-08 – NIEPA, Sonalde et al. (2010), and NSS 64th Round (2010), and Analysis of budgeted expenditure on education 2007-08 to 2009-10 - Government of India, Ministry of HRD, Planning & Monitoring Unit

P3.3 – Bihar: The public-to-private ratio was about 25% below the all-state average in 2004, yet rose to 35% above the average in 2007. This positive change is caused by both an increase in public per student expenditure, as well as reduction in the private cost per student.
Prediction: The below and above average scores combined, indicate that progress towards UPE in terms of enrolment of (girl) students from poor households will be average (3 out of 5).

P3.3 – Punjab: For both the analysed years the public-to-private ratio is less than 1, meaning that private spending outreaches public expenditure. The 2004 ratio is nearly half that of the all-state average and the 2007 one is even close to one-fourth of the all-state average. Cause for the low public-to-private ratios, is both a low public per student expenditure as well as a high private per student cost.
Prediction: The low scores for both 2004 and 2007 predict that progress towards UPE in terms of enrolment of (girl) students from poor households will be low (1 out of 5).

9.4.4 The effect of teacher costs on quality of education

Since staff costs take up over 90-95% of all recurrent education expenditure, balancing teacher costs and PTR values are essential for a cost-effective UPE policy. More teachers quickly inflate the per student cost, but too few lead to overcrowding of class rooms and low attendance and high dropout rates.

In millions of Rupees

	Bihar	Punjab	All States
Total public primary education expenditure	46612	7585	741607
Direction, admin. & insp.	-825	-125	-17561
Non formal education	0	0	-7106
Scholarships	0	0	-1816
Text books	0	0	-2315
MDM state share	-3024	-202	-18544
SSA, of which on teachers	-5414	-245	-17442
13th finance commission	0	0	-747
Other expenditure	<u>-63</u>	<u>-918</u>	<u>-19373</u>
Total public primary education expenditure on staff salary	**37286**	**6094**	**656703**

Table 9.21 - Calculation of total public expenditure on primary school staff salary, for the year 2009-10

Source: Analysis of budgeted expenditure on education 2009-10 to 2011-12 - Government of India, Ministry of HRD, Planning & Monitoring Unit, and Bihar CSS Report (2007), School expenditure data by state and sub head 2009-10 – SSA

	Bihar	Punjab	All States
Total number of teachers	332834	104049	5698295
Number of teachers (public schools)	331170	78734	3875410
Number of teachers (private aided schools)	87	3163	503159
% of teacher in public schools	99.50%	75.67%	68.01%
% of teacher in private aided schools	0.03%	3.04%	8.83%
PTR all schools	57	28	32
PTR public school	57	26	33
PTR private aided school	66	49	33
Total enrolment	19007493	2908324	184734221
% enrolment in public schools	99.96%	70.38%	69.51%
% enrolment in private aided schools	0.03%	5.29%	9.03%
Average teacher salary* (in Rs.)	112560	74405	149981
Per student teacher cost (in Rs. for public & private aided schools)	1971	2662	4626

Table 9.22 - Per student teacher cost and PTR for public and private aided schools, for the year 2009-10

*The public spending amount used to calculate the average teacher salary, includes the spending on non-teacher staff. Therefore, the real average salary is lower and relatively more so the lower the real salary is.

Source: EE in India Flash Statistics 2009-10 – DISE, and results from Table 9.17

P3.4 – Bihar: The average teacher salary in Bihar is about 25% less than the all-state average. The per student teacher cost is less than half. However, this low per student teacher cost is caused by the high PTR of 57, almost 80% more than the average. The high PTR is a likely cause for the high dropout rate mentioned in section 9.4.1.

Prediction: While teacher salary levels are lower than the all-state average (for an slightly above average score), far too few teachers have been hired leading to a very high PTR. The combined effect on progress towards UPE is expected to be below average (2 out of 5).

P3.4 – Punjab: The average teacher salary is half that of the all-state average. On top of this, enough teachers have been hired to reduce the PTR in public school to 26, which is far below the all-state average. Despite the low PTR, the per student teacher cost is still much below the all-state average.

Prediction: All scores are favourable, promising good quality education at a low cost. This means that progress towards UPE is expected to be high (5 out of 5).

Chapter 10 – Analysis of case study findings

In this chapter, the actual level of progress from 2000 to 2011 regarding UPE is measured for both the states of Bihar and Punjab in section 10.1. This is done by evaluating the actual progress made towards UPE by using the progress indicators detailed in Chapter 2. Once the level of progress has been determined, in section 10.2 the actual progress is compared with the prediction scores that were prepared in Chapter 9. Using this comparison as a basis, a final analysis of the strength and weaknesses of each theory and the individual propositions is performed, in line with the congruence analysis proper. This analysis leads to conclusions about the validity of the propositions and the three theories and theoretical framework in general, which will be discussed in section 10.3. Finally, section 10.4 summarizes the chapter's results.

10.1 Measuring progress

Progress can be measured in two ways; 1. In absolute terms, i.e. the absolute figures associated with attainment of UPE (the actual enrolment rate compared to full enrolment) 2. In relative terms, i.e. the values of progress indicators compared to the national or all-state average. While the first says something about the real progress made, the second helps to evaluate how much that progress is actually worth in relative terms. For example, a 10% increase in the net enrolment rate over a 10 year period might not count as much progress in real terms, but if most neighbouring states within a similar economic climate are showing a decline in net enrolment rates it becomes that much more valuable. Therefore, the national averages are used as benchmarks or 'thermometers' of the overall economic climate to aid in determining the relative value of the progress made.

The same progression scale is used as for the prediction scores. For each of the following dimensions of progress, a score with value 1 to 5 is assigned:

1. Primary level enrolment
2. Upper primary level enrolment
3. School attendance
4. Literacy
5. Student retention (using repetition, dropout and apparent survival rates)

The five-score average represents the overall level of progress made towards UPE. Since enrolment is the main indicator used for measuring progress to UPE, it is part of two scores, and therefore 40% of the final score.

10.1.1 Primary level enrolment

For evaluating the progress in terms of primary level enrolment growth, the gross enrolment rates from 2002-03 to 2010-11 are consulted. Bihar's GER reports a sizeable gender gap, which does not get smaller until the final year of 2010-11. Nonetheless, steady improvement is shown for enrolment rates of both boys and girls. The fact that the GER continues to rise to far above the 100% mark, is because it gets inflated due to Bihar's high repetition rate (see Table 10.8). However, since these repetition rates have been decreasing in the same period, the true growth rate of enrolment should be even larger. Overall, progress would be considered high, if not for the considerable gender gap. Therefore, it is **above average**.

GER	Bihar			Punjab			National		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2002-03	80%	65%	73%	66%	71%	68%	95%	91%	93%
2004-05	95%	71%	84%	74%	81%	77%	111%	105%	108%
2005-06	99%	74%	87%	75%	81%	77%	113%	106%	109%
2006-07	106%	82%	95%	78%	85%	81%	115%	108%	111%
2007-08	115%	94%	104%	94%	92%	93%	115%	113%	114%
2008-09	120%	101%	111%	106%	104%	105%	115%	114%	114%
2009-10	126%	109%	118%	-	-	-	114%	114%	114%
2010-11	131%	124%	128%	109%	108%	109%	115%	117%	116%

Table 10.1 – Gross Enrolment Rates for primary level (Class I-V), for 2002-03 to 2010-11
Source: Educational Statistics for various years - Government of India, Ministry of HRD, and 7th & 8th All India School Education Survey - NCERT

Despite its high income, Punjab's 2002-03 GER values were the lowest in the country. Remarkably, enrolment rates were higher for girls. One explanation for this is that enrolment data for unaided, and especially, unrecognized private schools was lacking until recently. As was mentioned earlier, in case private education cannot be afforded for all children in a household, often it is the girls who are sent to the cheaper public schools. Punjab has high private enrolment, and therefore its enrolment levels, and more so for boys, are underrepresented in these data. Focusing on Punjab's GER, it remains low up to 2006-07 showing below average growth, and then more swiftly catches up to just below the national average, showing **above average** growth in the second four-year period.
Progress scores: Bihar 4 out of 5 – Punjab 4 out of 5

10.1.2 Upper primary level enrolment

Upper primary education is an important step towards secondary school and college. In Bihar, at the start of the measurement period in 2002-03 this step had not yet been made as only 26% of upper primary aged children were enrolling for upper primary education in 2005-06. Both the GER and the NER do make substantial progress; annual progress for the GER fluctuates between 2% and 10%. Given Bihar's low repetition rate for the upper primary level (see Table 10.8), the GER is not far behind the NER for most years. Lastly, while the GER has yet to catch up to the national average, it

did close the spread somewhat (from 34 %-points behind to 21 for the GER, and from 17 %-points behind to 9 for the NER), showing **above average** growth.

GER	Bihar			Punjab			National		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2002-03	29%	18%	24%	55%	57%	56%	62%	54%	58%
2004-05	40%	24%	32%	64%	67%	65%	74%	65%	70%
2005-06	41%	26%	34%	66%	69%	68%	75%	67%	71%
2006-07	46%	32%	39%	68%	70%	69%	78%	70%	74%
2007-08	53%	39%	46%	70%	68%	69%	81%	74%	78%
2008-09	54%	41%	48%	92%	90%	91%	83%	77%	80%
2009-10	61%	50%	55%	-	-	-	84%	79%	82%
2010-11	68%	60%	65%	96%	92%	94%	88%	83%	86%

Table 10.2 – Gross Enrolment Rates for upper primary level (Class VI-VIII), for 2002-03 to 2010-11
Source: Educational Statistics for various years - Government of India, Ministry of HRD, and 7th & 8th All India School Education Survey - NCERT

NER & GER	Bihar		Punjab		National	
	NER	GER	NER	GER	NER	GER
2005-06	26%	34%	38%	68%	43%	71%
2006-07	33%	39%	44%	69%	48%	74%
2007-08	37%	46%	43%	69%	53%	78%
2008-09	43%	48%	50%	91%	56%	80%
2009-10	49%	55%	52%	-	58%	82%
2010-11	53%	65%	72%	94%	62%	86%

Table 10.3 – Net and Gross Enrolment Rates for upper primary level (Class VI-VIII), for 2005-06 to 2010-11
Source: Educational Statistics for various years - Government of India, Ministry of HRD, and 7th & 8th All India School Education Survey - NCERT

Punjab's GER is just below the national average in 2002-03. However, the national gender gap of 8% is not present in Punjab. Until 2007-08, the GER increases at about the same pace as the national average showing average growth. After that however, Punjab's GER for the upper primary level quickly surpasses the average by 8%. Due to its high repetition rate in the upper primary level, the GER is somewhat inflated compared to the NER. On the other hand, the lack of accurate private school enrolment data is caught up when data for unrecognized private schools is added, which is shown by the 20% increase of the NER in 2010-11. This also means that the real NER was likely closer to the GER then is shown for the period of 2005-2009. Therefore, the final score of the NER is the most realistic one, which outclasses the national average by 10%. Considering the average growth in the first period, the overall progress in upper primary enrolment is **above average**.
Progress scores: Bihar 4 out of 5 – Punjab 4 out of 5

10.1.3 School attendance
Attendance rates provide a different approach to estimating the current utilization of the school system, by categorizing students as attending school or not, regardless of which school they enrol at. This is helpful in case government has difficulty getting enrolment data from private schools, which

lead to undervalued enrolment rates (such as in Punjab until 2010). The following tables show the net attendance rates in 2007-08 and 2009-10, for primary (Table 10.6) and upper primary (Table 10.7) school students in rural and urban areas. Table 10.8 presents a comparison between the NAR for all students attending primary and upper primary education in 2004-05 and 2009-10.

For Bihar, the NAR has decreased at both primary and upper primary across all categories (except girls attendance of upper primary schools in rural areas), despite already being below the national average by about 10% for primary and 15% for the upper primary level in 2007-08. The NAR for the entire 6-14 age group did show considerable improvement in rural areas between 2004-05 and 2007-08, but apparently was not able to maintain this in subsequent years. While the national average benchmark showed negative growth for some of the NAR data, the negative growth for Bihar was much more than that, therefore counting as **little or no** progress to UPE.

NET ATTENDANCE RATE		Bihar		Punjab		National	
		Boys	Girls	Boys	Girls	Boys	Girls
Rural	2007-08 Class I-V	75%	68%	87%	81%	86%	83%
	2009-10 Class I-V	65%	61%	85%	87%	79%	77%
Urban	2007-08 Class I-V	75%	79%	73%	78%	86%	84%
	2009-10 Class I-V	70%	65%	83%	76%	79%	78%
Total	2007-08 Class I-V	75%	69%	83%	80%	86%	83%
	2009-10 Class I-V	65%	61%	85%	83%	79%	77%

Table 10.4 – Net Attendance Rates in rural and urban area schools, for boys and girls in Class I-V
Source: NSS 64th Round (2010), and NSS 66th Round (2013) - Government of India, MOSPI, Central Statistics Office

NET ATTENDANCE RATE		Bihar		Punjab		National	
		Boys	Girls	Boys	Girls	Boys	Girls
Rural	2007-08 Class VI-VIII	45%	33%	67%	63%	59%	54%
	2009-10 Class VI-VIII	36%	37%	58%	59%	55%	56%
Urban	2007-08 Class VI-VIII	53%	52%	68%	62%	67%	64%
	2009-10 Class VI-VIII	42%	42%	58%	63%	60%	59%
Total	2007-08 Class VI-VIII	46%	35%	67%	62%	61%	56%
	2009-10 Class VI-VIII	36%	37%	58%	61%	56%	57%

Table 10.5 – Net Attendance Rates in rural and urban area schools, for boys and girls in Class VI-VIII
Source: NSS 64th Round (2010), and NSS 66th Round (2013) - Government of India, MOSPI, Central Statistics Office

NET ATTENDANCE RATE		Bihar		Punjab		National	
		Boys	Girls	Boys	Girls	Boys	Girls
Rural	2004-05 Age 6-14	69%	57%	90%	88%	84%	77%
	2007-08 Class I-VIII	78%	69%	90%	85%	87%	83%
Urban	2004-05 Age 6-14	81%	76%	90%	88%	89%	88%
	2007-08 Class I-VIII	77%	80%	80%	83%	88%	86%
Total	2004-05 Age 6-14	70%	59%	90%	88%	85%	79%
	2007-08 Class I-VIII	78%	70%	87%	85%	87%	84%

Table 10.6 – Net Attendance Rates in rural and urban area schools, for boys and girls in Class I-VIII
Source: NSS 61st Round (2006), and NSS 64th Round (2010) - Government of India, MOSPI, Central Statistics Office

Punjab starts out with a NAR at 3% below the national average in 2007-08, and improves to above the national average in 2009-10 for the primary level. The NAR for upper primary level was about 6% above the national average, which is reduced to 3-4% above it in 2009-10. The NAR for the Class I-VIII group decreases slightly and becomes almost equal to the national average in 2007-08. With a slightly negative growth compared to the national average, the level of progress for Punjab associated with attendance is **below average**.

Progress scores: Bihar 1 out of 5 – Punjab 2 out of 5

10.1.4 Literacy

Since adult literacy campaigns are few in number and scale, growth in literacy rates are safely to be accredited to primary education. It is worth noting however, that almost all literacy growth comes from the youth, and illiteracy is highest among older generations, especially women. Therefore, states with high population growth coupled with a low life expectancy, such as Bihar, have both a greater inflow of new literates and a higher outflow of illiterates than states with low population growth and high life expectancy, such as Punjab.

For Bihar, the overall literacy rate increased by 16.8% compared to the national average of 9.2%. This gain was spread in favour of female literacy. Considering the growth over the 1993-2011 period however, the increase in literacy would count only 0.8% above average. Furthermore, Bihar retains the last place nationally in terms of literacy. Taking this into account, the level of progress associated with the 2001-2011 period is (only) **above average**.

LITERACY	Bihar			Punjab			National		
RATE	Male	Female	Person	Male	Female	Person	Male	Female	Person
1993	54.0%	22.0%	39.0%	62.0%	48.0%	55.0%	63.0%	36.0%	50.0%
2001	59.7%	33.1%	47.0%	75.2%	63.4%	69.7%	75.3%	53.7%	64.8%
2004	71.0%	42.0%	57.2%	81.0%	68.0%	74.9%	79.0%	58.0%	68.8%
2011	73.4%	53.3%	63.8%	81.5%	71.3%	76.7%	82.1%	65.5%	74.0%

Table 10.7 – Literacy Rates for male and female persons of age 7 and above, for various years
Source: NSS 55th Round (2001), Census of India 2001 & 2011, and Sonalde et al. (2010)

While Punjab's male literacy has remained slightly below the national average in 2001 and 2011, Female literacy was about 6% above the average in 2001 and has remained so. The overall gain was 7% versus 9.2% of the average. Dropping 6 places in the national ranking, Punjab's progress to UPE in terms of literacy was **below average**.

Progress scores: Bihar 4 out of 5 – Punjab 2 out of 5

10.1.5 Student retention

Retaining students is essential to achieving UPE. The repetition rate, dropout rate, and apparent survival rate together provide an accurate picture of the school systems retaining capacity.

In the case of Bihar, primary level repetition rates started out much higher during the first four years, and then converged slightly above the national average, showing above average progress. The state had much better repetition rates for the upper primary level, although rates fluctuated around 3%, moving back up during the last two years, overall showing **average** level progress.

REPETITION RATE	Bihar		Punjab		National	
	Primary	Upper Primary	Primary	Upper Primary	Primary	Upper Primary
2003-04	13.66%	-	10.02%	-	7.83%	-
2004-05	13.54%	-	8.24%	-	6.29%	-
2005-06	11.13%	3.29%	7.41%	13.16%	6.60%	6.40%
2006-07	7.18%	4.10%	8.02%	4.19%	6.11%	6.02%
2007-08	6.70%	2.08%	7.73%	14.98%	5.24%	4.69%
2008-09	3.90%	0.84%	8.73%	7.47%	3.88%	2.75%
2009-10	9.95%	4.37%	4.26%	6.67%	5.08%	3.35%
2010-11	6.68%	3.04%	0.61%	0.37%	3.17%	1.83%

Table 10.8 – Repetition Rates for primary and upper primary levels, for the years 2003-04 to 2010-11
Source: EE in India Flash Statistics, for various years – DISE

Bihar's dropout rates were mostly around the national average, getting worse before they got better in 2009 and 2010, to end up around the average again, meaning **average** level progress. Finally, fluctuated around the starting point for the first four years, yet ended up catching up to the national average by 15%-points after increasing by 10% for each of the last four years, showing **above average** growth. Bringing all indications together, the three scores combine into a **slightly above average** level of progress.

DROPOUT RATE	Bihar			Punjab			National		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2003-04	-	-	9.36%	-	-	6.33%	-	-	10.64%
2004-05	-	-	11.36%	-	-	8.92%	-	-	9.96%
2005-06	-	-	9.34%	-	-	2.30%	-	-	8.61%
2006-07	13.43%	14.22%	13.79%	5.36%	5.56%	5.45%	9.63%	9.08%	9.36%
2007-08	12.63%	11.27%	12.00%	2.99%	2.81%	2.91%	8.37%	7.65%	8.02%
2008-09	13.60%	13.27%	13.44%	4.74%	4.72%	4.73%	9.35%	8.86%	9.11%
2009-10	7.52%	5.16%	6.39%	1.50%	2.21%	1.82%	7.13%	6.37%	6.76%
2010-11	7.08%	4.18%	5.68%	1.91%	1.65%	1.80%	6.92%	6.07%	6.50%

Table 10.9 – Dropout Rates for primary level, for the years 2003-04 to 2010-11
Source: EE in India Flash Statistics, for various years – DISE

APPARENT SURVIVAL RATE	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Bihar	39%	46%	54%	40%	49%	58%	69%
Punjab	90%	94%	96%	99%	93%	92%	80%
National	67%	70%	73%	72%	76%	78%	82%

Table 10.10 – Apparent Survival Rate for primary level (Ratio of Class V to I), for the years 2004-05 to 2010-11
Source: EE in India Flash Statistics, for various years – DISE

The repetition rate for primary level students in Punjab decreases more quickly and to a lower level than the national average. For the upper primary level, the repetition rate fluctuates until reaching a level below the average as well, meaning an overall **high** level of progress. Punjab's dropout rate decreases to minimum levels and ends up much below the national average, indicating a **high** level of progress. The apparent survival rate reaches a near perfect level in 2007-08, but then decreases to below average values. The overall progress associated with the survival rate is therefore **below average.** Combining the three scores gives an **above average** level of progress.
Progress scores: Bihar 3.3 out of 5 – Punjab 4 out of 5

10.2 Congruence analysis of using case study findings

Now that the actual level of progress has been quantified for Bihar and Punjab, the level of progress predicted in Chapter 9 can be compared to the observations from section 10.1 regarding the actual progress made. Following the congruence analysis proper, the measured level of progress made is used to analyse the accuracy of the predictions from each of the propositions. Ideally, each proposition would offer a prediction for a specific part of the measured outcome, based on one of the key aspects that determine the theory's unique perspective on reality. This is done to give insight in the validity of each theory, i.e. its capacity to accurately explain the results of a given case.

While progress was measured here as a multi-dimensional concept, it was not possible to link individual propositions and their related predictions, one from each theory, to one of the measured dimensions of progress. One reason for this is that it was found impossible to isolate the effect of a theory or proposition on a single dimension of progress. Another is that the three theories are complementary, rather than predicting contradictory outcomes of a single event. This means that each theory (through its propositions) enlightens a certain part of the total picture, so that by combining them the total picture is seen clearly.

Therefore, propositions should not be discredited by default if their prediction of the level of progress was off the mark. Rather, they help explain why progress was not as low or as high as it could have been, as when a specific factor's influence had not existed. Nonetheless, while each proposition might explain (part of) the overall result, some propositions are better indicators of progress levels than others. Since the latter type is clearly superior, the propositions that have provided the best predictions are filtered out and analysed in order to recognize what makes them superior.

Practically this means that, which ones performed best is decided by taking the difference between a prediction and the actual progress and then adding the differences calculated for both predictions connected to a proposition. Amongst similar scoring proposition, those are considered superior if at least one of its predictions was close to the actual progress. Following the best ones, an analysis is

performed on the ones that were average, and lastly the ones that were off the mark, in order to verify their usefulness. If no reasonable explanation can be found for why those that wrongly predicted the level of progress, it is argued that they are removed from the theoretical framework.

To assist with the upcoming analysis, Table 10.11 summarizes the individual prediction scores.

	T1: Political commitment				T2: Budget size				T3: Policy cost-effectiveness			
	P1.1	P1.2	P1.3	P1.4	P2.1	P2.2	P2.3	P2.4	P3.1	P3.2*	P3.3*	P3.4
Bihar	2.0	1.0	1.5	**3.0**	**3.0**	**3.0**	**4.0**	1.0	**4.0**	2.0	**3.0**	2.0
Punjab	**3.0**	2.0	1.0	1.0	1.0	1.0	**3.5**	**4.0**	2.0	5.0	1.0	5.0

Table 10.11 – Prediction scores overview for each theory/proposition, accurate predictions in **bold type**
*These propositions relate to expected progress for female students and students of low income households

10.2.1 Best-performing propositions

The best-performing propositions are (from best to worst): P2.3, P3.1, and P1.1.

First place goes to P2.3, which bases its predictions on the total private spending amount relative to state and per capita income. It is an interesting result, given that private spending is not usually included in quantitative analyses estimating public spending amounts for achieving education for all (i.e. Mehrotra, 2012). And yet is highly logical to include private spending, if progress truly depends mostly on the total amount spent. Especially since private spending outclassed public spending even on the national level.

Second best performed P3.1, which based its prediction on the effective unit cost. Using a variation of the per student cost, it closely relates to P2.4. Rather, the difference is that for P3.1 its basic premise was that it matters how funds are spent, and therefore it greatly factored in the wastage or 'un-cost effective' use of funds lost through dropouts. According to this different perspective, high per student costs were seen as non-efficient and thus negative, while for P2.4 high per student amounts are seen as more funding and thus as positive. The former turned out to be more accurate.

A third place performance was achieved by P1.1. The below average prediction score for Bihar underrepresented the state's commitment, as shown by the relatively large share of its GSDP spent on primary education. Therefore, whether this result trustworthy is difficult to estimate based on just these two cases. In terms of attaching prediction scores, P1.1 is probably the most difficult. Since Indian politics makes active use of clientelism and votebanks, combined with the difficulty of tying results to individual politicians or even parties, the promises of politicians often hold little value. In most places, promising education does not win elections, promising jobs does. However, manifestoes do reflect some intentions and desires of certain groups in society and as such is one of the few indicators that could help predict policy and spending priorities early on.

10.2.2 Average performing propositions

The propositions with both a strong and a weak prediction are: P1.4, P3.3, P2.1-P2.2 and P2.4. Looking at P1.4 and P3.3, political commitment based on public spending priority compared to other sectors and levels of educations was an accurate predictor for Bihar. This is so, because Bihar depends much more on public expenditure to finance its primary education as seen by the public-to-private ratio calculated for P3.3. Punjab's primary education however, is made possible by its large private spending amounts. Therefore, the predicted score for Punjab underrepresents its expected level of progress for both P3.3 and P1.4. While P3.3 was based on existing research evidence, which expected a larger gender and income gap for smaller public-to-private ratios, this does not match the results from both cases. The non-existing gender gap in Punjab compared to the large gender difference in Bihar was counter to their respective public-to-private ratios. The negative effect on enrolment and attendance might very well hold true for low compared to high income households, however, this requires attendance data per income category, which was not available for state level.

What both predictions do show is that Punjab's level of progress would likely be (far) above average, if its political commitment to UPE were to be higher (such as its commitment to secondary level, but mostly, university level). Using the data from P3.3 it becomes clear that Punjab's progress towards UPE consists mostly of a large share of private enrolment from high income households. And while the public-to-private ratio is meant as an indicator of cost-effectiveness, when combined with the public expenditure ratios from P1.4 the resulting measure might be quite a robust indicator. It would measure government versus private society's commitment on the one hand, and allow for guessing about the effectiveness and implications of such a division in spending.

P2.1 and P2.2's results are similar to those of P3.3 and P1.4. Given its focus on public expenditure as a share of state income, Bihar's level of progress was accurately predicted, while that of Punjab was underestimated. While these results make sense for P2.2, which measures primary education's share of state income, P2.1's result is more unexpected. The share of state income going towards education in general was expected to be a better predictor for Punjab. With its focus on high quality college level education and high income, one would expect to see a higher share of public spending towards education. Again, the culture of private education in Punjab is likely overruling these results. Therefore, P2.1 and P2.2 will likely become more accurate indicators of overall progress levels if combined, for example, by the private expenditure towards primary education as a share of state income.

P2.4's premise is that the total per student spending stands at the basis of how much can be achieved for the education of that student. Therefore, having an accurate estimate of the total average amount spent per student directly translates to an estimate of how much progress can be achieved for that

student. Bihar's low per student cost suggested a quantity over quality approach; setting up many low cost schools to get as many students in school, without worrying about quality or student retention. Punjab's low public and high private per student spending indicated that since per capita income was high, families that could afford it paid for high quality private schools. The lower public per student spending meant however that for some that could not afford private schools, education would still be out of reach. If only the amount of per student spending would matter, than Bihar's approach would not have worked. While it can be debated which policy is the preferred one, the fact is that both policies were able to be moderately successful. This conclusion credits the policy cost-effectiveness theory.

10.2.3 Worst-performing propositions

It is noteworthy that the four worst performing propositions, i.e. P3.2, P3.4, P1.2 and P1.3, are not from the main theory based on budget size. P3.2 (physical access to education) and P3.4 (per student teacher costs) both give maximum progress scores to Punjab, since by these measures the state was able to achieve high quality facilities, nearby schools and low cost teachers. On the other hand, Bihar was given below average scores on both these accounts. While these results accurately depict the quality levels of teacher and school facility combined with their relative costs, few improvements could be made to enhance these propositions.

For one, the high private costs could be incorporated in the teacher costs for Punjab. Furthermore, the public plus private per student spending amounts could be linked to the school facilities in P3.2, to form a composite measure of both cost and effectiveness. While P3.2 does measure quality, it lacks a cost-element to balance out Punjab's higher, and Bihar's lower per student spending. The result does match the existing research evidence, given that the high physical access level have helped to completely remove the gender gap in Punjab, while the low physical access levels in Bihar correspond to a gender gap of considerable size. Additionally, while it is difficult to imagine the precise effect on progress from overcrowded classrooms as measured in P3.4, it is likely that it reduces the effectiveness of education and which is currently unfortunately not part of the UPE goal. The damage done by classrooms with 60 to 100 students with a single teacher might very well exceed low poor performance such as low test scores, and have currently overvalued Bihar's actual progress made, as well as undervalued the higher quality education environment of Punjab.

Finally, P1.2 (laws and regulations) and P1.3 (actual versus budgeted amounts) predicted low progress for both states based on low political commitment. While P1.3 does correctly show the lack of interest from government in case of the underuse of budgets in Punjab, for Bihar the cause might be the 50%-50% or 75%-25% funding arrangements made by the SSA program of the central government. Central government funds are then only released when state governments first commit an equal amount, which

a poor state like Bihar simply might not have. Often also, funds are released much delayed giving public officials no time to spend it before the next budget period starts. At the same time, laws and regulations are difficult to measure over a relatively short time span of 10 years. Laws are often made to last decades or even centuries as is also true for something as fundamental as education. Therefore, given these arguments and results both these propositions are likely not be valid and reliable enough to be used in this framework.

10.3 Implications for individual theories and the combined theoretical framework

Now that the individual propositions have been evaluated, attention in this section is shifted towards the implications of the above results on the validity and usefulness of each of the three theories, as well as the combined theoretical framework. For this meta-analysis, several statistics regarding the overall and per theory prediction scores and actual progress scores are shown in Tables 10.12 and 10.13 below.

	Bihar			Punjab		
	Mean	Variance	Mean abs. deviation	Mean	Variance	Mean abs. deviation
T1: Political commitment	1.9	0.55	1.43	1.8	0.69	1.65
T2: Budget size	2.8	1.19	0.90	2.4	1.92	1.38
T3: Policy cost-effectiveness	2.8	0.69	0.90	3.3	3.19	1.75
Overall	2.5	0.98	1.08	2.5	2.31	1.59

Table 10.12 – Mean and variance for the overall and per theory prediction scores, and the overall and per theory mean absolute deviation around the actual progress scores for Bihar (3.3) and Punjab (3.4).

	Bihar	Punjab
Enrolment (primary)	4.0	4.0
Enrolment (upper primary)	4.0	4.0
School attendance	1.0	3.0
Literacy	4.0	2.0
Student retention	3.3	4.0
Overall progress score	**3.3**	**3.4**

Table 10.13 – Overall (5-score mean) and per category actual progress scores

Some general implications about the theories have already been inferred from the analysis in section 10.2. Against the background of these results, this chapter is concluded by discussing the respective value and position of each theory within the theoretical framework.

Budget size

As the main theory, expectations beforehand based on the control variables of income per capita and urbanization pointed towards more progress for the rich and urbanized Punjab, and less for the poor and rural Bihar. While both the predicted and actual level of progress measured does not confirm this difference, these results do come with few caveats. Mainly, since progress levels were compared to the national average scores, a state can boast a high level of progress even though it actually ranks lowest

for several progress indicators at the end of the measured period. Furthermore, since Bihar started out at the bottom of the all-state ranking for quite some progress indicators, at the same time it had the most room available for making progress. Additionally, for many scores such as enrolment or attendance, the initial values are made up mostly of the highest income sections of society.

Therefore, the more progress is achieved the more difficult it becomes to keep progressing, as eventually only the poorest households in the most remote villages remain. Since percentage scaled progress indicators were used, an increase from 70 to 80% might actually be much more costly in terms of public expenditure, then the costs from 40 to 50%. This means that while Bihar has made slightly above average progress compared to the national growth in progress levels and has thus closed the gap between itself and other bottom-scoring states, the fact remains that the state still scores lowest for many indicators.

However, the propositions representing the budget size theory have shown high performance as indicators for level of progress to UPE. Using the gained insights, a better balance of measurements in terms of private-public spending will further improve these propositions. The case study findings appear to point towards the strength of the main theory (budget size), which expounds that the size of spending is what matters most to determine progress towards UPE.

Policy cost-effectiveness

Despite the accuracy of this theory considering the variance and mean absolute deviance for Punjab scores, the overall results of the cost-effectiveness theory is good, with its prediction scores deviating only 0.5 and 0.1 points compared to the actual progress made. To make the propositions both more valid and reliable as individual indicators of the level of progress, some improvements can be made. First of all, by making the effective per student cost relative to per capita income, it is less biased towards low income states. Second, by adding private spending amounts to the per teacher cost, it becomes more realistic of the true cost-effectiveness. Third, the public-to-private ratio is a measure best combined to other budget size related indicators. New propositions can be formed that combine both the cost-effectiveness and budget size aspect. Fourth, the physical access scores need to be linked to per student expenditure levels, to make it not only a measure of effectiveness of quality levels but also of cost.

Political commitment

The statistics in Table 10.2 show that the actual progress was considerably higher, than the expected progress predicted by measuring the level of political commitment. Furthermore, the prediction scores based on political commitment showed the highest mean absolute deviation around the overall actual progress scores. One reason for this is that the private investment in primary education expenditure is not part of government commitment. Another reason could be that in case of Bihar, for example,

government gives out somewhat mixed signals. Additionally, comparison of the actual versus budgeted public expenditure amounts should be investigated more, so that the causes of these differences are understood well enough to use it as an accurate predictor. Finally, the public expenditure ratios should in most cases not be used as stand-alone data, since they are contingent on other variables, such as the share of private enrolment and the per capita income. In conclusion, given the complexity of the issue, political commitment might be a concept to abstract to be suitable as an indicator for concrete progress levels. While measuring political commitment can help predict future progress by estimating the coming years' budget decisions, given the timespan of elected governments such a prediction should not cover more than five years.

Chapter 11 – Research overview and conclusion

11.1 Research summary

This research has set out to find an explanation for the large regional differences in progress towards universal primary education (UPE). Based on the existing literature, three factors were identified as likely causes of progress towards UPE; 1. political commitment, 2. budget size and 3. policy cost-effectiveness. After the congruence analysis approach was selected as the most suitable research design, the three factors were used as the central concepts of three theories about UPE policy. Each of the theories offers a different perspective about the expected UPE progress level of a country or state.

Then, for each theory four propositions were deduced from the existing literature, which predict the expected UPE progress level based on a key aspect of the theory's main concept. Furthermore, of the three theories, the theory about budget size is considered the main theory against which the other two theories have to prove their worth. This is because a variety of existing research evidence supports a positive relationship between spending and enrolment, and because of the popularity of quantitative analysis studies estimating the budget requirements for reaching UPE.

The next step concerned the selection of a least and most likely case regarding the main theory, using per capita income and urbanization as selection criteria. Specifically, these two were used in order to control for their known positive influence on the relationship between public spending and enrolment levels. As a result, the Indian states of Bihar and Punjab were selected for the case study. For both the states, specific predictions were made regarding UPE progress levels for the, in total, twelve propositions (four for each of the three theories). Additionally, these predictions were translated into predictions scores ranging from 1 to 5. Following these results, the actual UPE progress level was measured for both Bihar and Punjab.

Using the progress indicators selected at the beginning of the study, five categories of progress were analysed and ultimately combined into a single progress score ranging from 1 to 5. Through comparing the predicted and actual UPE progress levels, it was possible to discover about some of the strengths and weaknesses of the individual propositions. Finally, the proposition-level analysis was followed up by a discussion of the implications of the congruence analysis for the validity of each of the three theories and for the combined theoretical framework made up of these theories.

11.2 Research outcomes

Several conclusions can be drawn from the findings presented in Tables 10.11 to 10.13 in Chapter 10:

1. Bihar and Punjab's progress scores are very similar, both for the predicted and actual progress scores.
2. The actual progress is about one point higher than the predicted level of progress.
3. Using the per theory means for predicted scores, budget size and policy cost-effectiveness came in tied in terms of accurately predicting the level of progress for Bihar, policy cost-effectiveness came out best for Punjab
4. Using the per theory mean absolute deviation around the overall actual progress score, budget size turns out to be the best predictor for both Bihar and Punjab.
5. The best individual predictor was the proposition based on the total private spending amount

These conclusions have implications regarding the structure of each of the three theories, as well as on the way these theories are used in the theoretical framework. First of all, theory 1 (political commitment) should be further tested and adjusted, and specifically the propositions about laws and regulations and actual versus budgeted public expenditure amounts should (for now) be dropped from the theory. The remaining propositions might not be best suited to use as indicators of the overall progress level, but they can act as indicators for assessing whether government is doing all it can or whether there is still room for improvement in terms of its commitment, for cases where UPE progress does not increase as fast as wanted.

Secondly, theory 2 (budget size) is likely made more accurate by the inclusion of private expenditure in all of the propositions, so that a balanced prediction comes from each of them. Third, theory 3 (policy cost-effectiveness) is helped by inclusion of private costs for per student teacher cost calculations, and by linking total per student costs to the proposition regarding physical access. Lastly, effective per student costs might also be adjusted relative to the per capita income to adjust for the high differences in private per student expenditure. Overall, the performance of the budget size theory was considered best, both considering the mean absolute deviation, the highest number of accurate predictions and for having the best predictor out of all twelve propositions.

11.3 Data limitations

One hurdle faced during this research was the limitations that were present on account of the empirical data for the research period. This section details any difficulties faced depending on the availability, consistency, and accuracy of the data used.

11.3.1 Availability

In terms of the availability of data, one factor was the upcoming use of internet during the research period. The use of computers in combination with internet to collect and share public data was far less in the 2000 – 2005 period than during the latter half of 2006 – 2011. Therefore, some public

documents and statistics were not, or in a smaller variety and amount, available in the first half of the research period. This problem has been alleviated somewhat by using data from a larger variety of sources whenever possible, although this posed another challenge in terms of consistency as described below.

11.3.2 Consistency

Due to the growing use of digital reporting, public statistics and analytical reports grew in terms of the variety of indicators and statistics they contained. However, frequent format changes occurred as well, which caused specific statistics to only be available in the same form for some years, and then be dropped for other, similar statistics in later years. Therefore, as much as possible those indicators and sources have been selected that provided consistent measures throughout much of the research period.

11.3.3 Accuracy

Likely the most important aspect of data is its accuracy. Something that equally relates to consistency of data is that different data sources provided widely varying data for a given year. For example, enrolment data provided by state governments to the national Ministry of Human Resource Development differed much from the enrolment data collected from the district offices using the DISE stats initiative set up together with UNICEF. This is mostly due the differences in measuring the unaided and unrecognized private schools that are being created without state governments being aware of them.

Combined with inaccurate population estimates, the accuracy of the gross and (especially) net enrolment rates for Punjab were hard to assess. Even for Bihar some surveys (e.g. the 2004-05 Indian Human Development Survey, from which data is presented in Sonalde et al., 2010) did find about 20% of private enrolment, suggesting that the almost exclusively public enrolment figures might not represent accurate enrolment figures. For Punjab, a sudden jump in enrolment rates were seen when the enrolment from private unrecognized school was added in the year 2010-2011, which consisted of 27% of total enrolment. Even though enrolment growth was measured, since it is possible and likely that enrolment growth was higher in private schools (see section 3.2.4) than public and private-aided schools, enrolment growth might have been underestimated.

11.4 Research conclusion and answering of RQ

This research started out in search of answering the question of "How to explain the interstate differences regarding the level of progress towards universal primary education in India?"
To find this answer a theoretical framework has been created and tested using a congruence analysis approach. This theoretical framework consists of three complementary theories, each based on one of the three key factors of political commitment, budget size, and policy cost-effectiveness. After

empirically testing the validity of this theoretical framework in a dual case study analysis, it is concluded that the main theory on budget size is the best predictor, as it contained the most propositions with accurate predictions together with a decent mean prediction score. The theory on policy cost-effectiveness performed best given its weighted average, though variance among propositions was high. The political commitment theory substantially underestimated the level of UPE progress, resulting in two of its propositions to be dropped. Finally, for each theory the private costs of primary education were found to be an essential indicator of UPE progress. Practically, the latter means that governments should become more aware of the importance of the financial burden on households as an inhibitor for sending children to primary school, and therefore towards reaching UPE.

Given the research methodology used, the conclusion from the case studies should not be generalized to similar cases. Rather, the usefulness of the congruence analysis approach is in its ability to generalize its conclusions directly to the theoretical discourse. This means that the implications drawn from the case study findings have been used to gain important knowledge about the relationships between key factors and UPE progress levels. This knowledge can be used in future studies regardless of whether they look at similar cases. Additionally, the gained understanding has been used at the end of Chapter 10 to adjust the three theories and theoretical framework in general. Since the theoretical framework is strongly rooted in the theoretical foundations that we use to infer the relationships between key factors and UPE progress levels, it can be used to assess the relative UPE progress level of a country or state compared to the worldwide or national average, respectively.

Finally, it is recommended that future research expand on the understanding we have of other factors deemed to have a strong influence on UPE progress, which might have been omitted from this research. Ultimately, by improving the understanding about the interaction between core concepts, more accurate and reliable propositions and theories can be formulated to explain or predict observed levels of UPE progress in the future.

Bibliography

Bettinger, E., Kremer, M., & Saavedra, J. E. (2010). Are Educational Vouchers Only Redistributive?. *The Economic Journal*, *120*(546), F204-F228.

Blatter, J., & Haverland, M. (2012). *Designing case studies: explanatory approaches in small-N Research*. Houndsmills Basingstoke: Palgrave Macmillan.

Braun-Munzinger, C. (2005). *Education Vouchers: An International Comparison*. New Delhi, India: Centre for Civil Society Working Papers, CCS.

CABE Committee. (2005). *Report of the Central Advisory Board of Education (CABE) Committee on Free and Compulsory Education Bill And Other Issues Related to Elementary Education.* New Delhi: Government of India.

Census of India 2001 (2006). *Census Data Finder*. India, New Delhi: The Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India. Retrieved from http://www.censusindia.gov.in/Census_Data_2001/Census_data_finder/Census_Data_Finder.aspx

Census of India 2011(n.d.). *Population Enumeration Data*. India, New Delhi: The Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India. Retrieved from. Retrieved from http://www.censusindia.gov.in/2011census/population_enumeration.aspx

Coady, D. P., & Parker, S. W. (2004). Cost-effectiveness analysis of demand-and supply-side education interventions: the case of PROGRESA in Mexico. *Review of Development Economics*, *8*(3), 440-451.

Colclough, C., & De, A. (2010). The impact of aid on education policy in India. *International Journal of Educational Development*, *30*(5), 497-507.

Das, J., Do, Q. T., & Özler, B. (2005). Reassessing conditional cash transfer programs. *The World Bank Research Observer*, *20*(1), 57-80.

De Janvry, A., & Sadoulet, E. (2006). Making conditional cash transfer programs more efficient: designing for maximum effect of the conditionality. *The World Bank Economic Review*, *20*(1), 1-29.

De, A., & Endow, T. (2008). *Public Expenditure on Education in India: Recent Trends and Outcomes*, (RECOUP Working Paper No. 18). Retrieved from University of Cambridge, Faculty of Education website: http://ceid.educ.cam.ac.uk/publications/WP18-ADfin.pdf

Delamonica, E., Mehrotra, S., & Vandemoortele, J. (2004). Education for All: How much will it cost?. *Development and change*, *35*(1), 3-30.

EFA Global Monitoring Report 2003. (2003). *Gender and Education for All: THE LEAP TO EQUALITY*. Paris: Unesco.

EFA Global Monitoring Report 2013. (2014). *TEACHING AND LEARNING: Achieving quality for all*. Paris: Unesco.

Ensor, T. (2003). *Consumer-led demand side financing for health and education: an international review*. Dhaka, Bangladesh: World Health Organization.

Fox, A. M., Goldberg, A. B., Gore, R. J., & Bärnighausen, T. (2011). Conceptual and methodological challenges to measuring political commitment to respond to HIV. *Journal of the International AIDS Society*, *14*(Suppl 2), S5.

Gauri, V. and Vawda, A. (2004) Vouchers for Basic Education in Developing Economies: An Accountability Perspective, *The World Bank Research Observer, 19*(2), 259-280.

Govinda, R. (2008). Education for all in India: Assessing progress towards Dakar Goals. *Prospects*, *38*(3), 431-444.

Gupta, S., Verhoeven, M., & Tiongson, E. R. (2002). The effectiveness of government spending on education and health care in developing and transition economies. *European Journal of Political Economy*, *18*(4), 717-737.

Härmä, J. (2011). Low cost private schooling in India: Is it pro poor and equitable?. *International Journal of Educational Development*, *31*(4), 350-356.

Jain, P. S., & Dholakia, R. H. (2009). Feasibility of implementation of right to education Act. *Economic and Political weekly*, 38-43.

Jha, P. (2007). Guaranteeing Elementary Education A Note on Policy and Provisioning in Contemporary India. *Journal of South Asian Development*, *2*(1), 75-105.

Jha, P., & Parvati, P. (2009). *The Challenges of Public Finance.* New Delhi: NUEPA.

Josephine, Y. (1999). *School efficiency and policy of resource planning: a pilot study on Mysore high schools.* New Delhi: NIEPA.

Karan, A.K., & Sakthivel, S. (2008). *Trends in wages and earnings in India: Increasing wage differentials in a segmented labour market*, New Delhi, ILO Subregional Office: ILO Asia-Pacific Working Paper Series, May.

Keefer, P., & Khemani, S. (2003). *The Political Economy of Public Expenditures*. Mimeo, Washington D.C.: The World Bank.

Kingdon, G. G. (2007a). The progress of school education in India. *Oxford Review of Economic Policy*, *23*(2), 168-195.

Kingdon, G. G., & Sipahimalani-Rao, V. (2010). Para-teachers in India: Status and impact. *Economic and Political weekly*, *45*(12), 59-67.

Kingdon, G. G., & Teal, F. (2007). Does performance related pay for teachers improve student performance? Some evidence from India. *Economics of Education Review*, *26*(4), 473-486.

Kingdon, G. G., & Teal, F. (2007b). Does performance related pay for teachers improve student performance? Some evidence from India. *Economics of Education Review*, *26*(4), 473-486.

Kingdon, G., & Muzammil, M. (2009). A political economy of education in India: The case of Uttar Pradesh. *Oxford Development Studies*, *37*(2), 123-144.

Kitaev, I. (1999). *Private Education in Sub-Saharan Africa: A Re-examination of Theories and Concepts related to its Development and Finance*. Paris: UNESCO International Institute for Educational Planning

Kumar, A. (2007). Punjab elections: Exploring the verdict. *Economic and Political Weekly*, 2043-2047.

Kumar, A. (2007). Punjab elections: Exploring the verdict. *Economic and Political Weekly*, 2043-2047.

Lara, B., Mizala, A., & Repetto, A. (2011). The effectiveness of private voucher education evidence from structural school switches. *Educational Evaluation and Policy Analysis*, *33*(2), 119-137.

Mehrotra, S. (1998b). Education for all: policy lessons from high-achieving countries. *International Review of Education*, *44*(5-6), 461-484.

Mehrotra, S. (2006b). Reforming elementary education in India: A menu of options. *International Journal of Educational Development*, *26*(3), 261-277.

Mehrotra, S. (2012). The cost and financing of the right to education in India: Can we fill the financing gap?. *International Journal of Educational Development*, *32*(1), 65-71.

Mehrotra, S., & Delamonica, E. (1998a). Household costs and public expenditure on primary education in five low income countries: A comparative analysis. *International Journal of Educational Development*, *18*(1), 41-61.

Mehrotra, S., & Panchamukhi, P. R. (2006). Private provision of elementary education in India: Findings of a survey in eight states. *Compare*, *36*(4), 421-442.

Mehta, A. (2011*). Elementary education in India: analytical report 2008-09: progress towards UEE*. New Delhi: NUEPA.

Mehta, A. C. (2002). Can there be Alternative Indicators of Enrollment? A Critical Review of the Frequently Used Indicators. *Journal of Educational Planning and Administration*, *16*(4), 551-565.

Mehta, K. & Varkkey, B. (2012*). Minimum Wages in India: Issues and concerns*. Retrieved from http://paycheck.in

Mohanty, S. (2007). *Common Minimum Programme and the Social Sector Investments.* New Delhi: CBGA.

Muralidharan, K., & Kremer, M. (2006). Public and private schools in rural India. *Cambridge, MA*.: *Harvard University, Department of Economics.*

Nambissan, G. B. (2010). The global economic crisis, poverty and education: a perspective from India. *Journal of Education policy*, *25*(6), 729-737.

NSS 55th Round. (2001). *Literacy and Levels of Education in India 1999-2000,* (Report No. 473). New Delhi: National Sample Survey Office, National Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India.

NSS 61th Round. (2006). *Status of Education and Vocational Training in India 2004-05*, (Report No. 517). New Delhi: National Sample Survey Office, National Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India.

NSS 64th Round. (2010). *Education in India, 2007-08: Participation and Expenditure*, (Report No. 532). New Delhi: National Sample Survey Office, National Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India.

NSS 66th Round. (2013). *Status of Education and Vocational Training in India 2009-2010*, (Report No. 551). New Delhi: National Sample Survey Office, National Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India.

OECD (2013). *Education at a Glance 2013: OECD Indicators.* OECD Publishing. *http://dx.doi.org/10.1787/eag-2013-en*

Pandey, S. (2006). Para-teacher scheme and quality education for all in India: policy perspectives and challenges for school effectiveness. *Journal of Education for Teaching*, *32*(3), 319-334.

Patrinos, H. A. (2007). Demand-side financing in education. *Education Policy Series, International Academy of Education (Paris) and International Institute for Educational Planning (Brussels). Paris: UNESCO*.

Per Capita Net State Domestic Product at Constant (2004-05) prices & % Growth over previous year. (2014). Retrieved from http://planningcommission.nic.in/data/datatable/data_2312/DatabookDec2014%20161.pdf

Post, L. A., Raile, A. N., & Raile, E. D. (2010). Defining political will. *Politics & Policy*, *38*(4), 653-676.

PROBE Team. (1999). *Public report on basic education in India*. New Delhi: Oxford University Press.

Rajkumar, A. S., & Swaroop, V. (2008). Public spending and outcomes: Does governance matter?. *Journal of development economics*, *86*(1), 96-111.

Rao, N., Cheng, K. M., & Narain, K. (2003). Primary Schooling in China and India: Understanding How Socio-Contextual Factors Moderate the Role of the State. *International Review of Education*, *49*, 153-176.

SAD Election Manifesto. (2007). *Punjab Legislative Assembly 2007-2012: Committed to Service and A Better Tomorrow*, Chandigarh. Retrieved from http://punjabtoday.blogspot.nl/2007/02/punjab-elections-shiromani-akali-dal.html

Saeed, M. M. S. (2014). *INDIAN STATE ASSEMBLY ELECTIONS, 2012: A STUDY OF 5 VIDHAN SABHAS*. Retrieved from http://irs.org.pk/ecosocio/spja12.pdf

Schlicht, R., Stadelmann-Steffen, I., & Freitag, M. (2010). Educational Inequality in the EU The Effectiveness of the National Education Policy. *European Union Politics*, *11*(1), 29-59.

Sipahimalani, V. (2000). India: Financing of elementary education in India in the 1990s. *South Asia Education Sector Technical Working Paper*, (2).

Sonalde, D., Amaresh, D., Joshi, B. L., Mitali, S., Abusaleh, S., & Reeve, V. (2010*). Human Development in India: Challenges for a society in Transition*. New Delhi: Oxford University Press.

State-wise overview of SDP in 1999-2008. (2009). Retrieved from http://mospi.gov.in/State-wise_SDP_1999-2000_20nov09.pdf

State-wise overview of SDP in 2004-2011. (2012). Retrieved from http://ecostatassam.nic.in/stinc_State_wise_SDP_11-12.pdf

The Congress Party Manifesto 2002. (n.d.). Retrieved from http://ppcc.in

The Congress Party Manifesto 2007. (n.d.). Retrieved from http://ppcc.in

The Policy Project. (2000). *Measuring Political Commitment*. Retrieved form http://www.policyproject.com/

Tilak, J. B. (2006a). On allocating 6 per cent of GDP to education. *Economic and Political Weekly*, 613-618.

Tilak, J. B. (2006b). Cess-driven allocations for education. *Economic and political weekly*, 1331-1333.

Tilak, J. B. (2007a). Inclusive growth and education: on the approach to the Eleventh Plan. *Economic and Political Weekly*, 3872-3877.

Tilak, J. B. (2007b). Post-elementary education, poverty and development in India. *International Journal of Educational Development*, *27*(4), 435-445.

Tilak, J. B. (2010). The Global Financial Crisis and the Financing of Education in Asia. *National University of Educational Planning and Administration New Delhi, INDIA*, *24*(3), 237-268.

Tooley, J., & Dixon, P. (2006). 'De facto' privatisation of education and the poor: implications of a study from sub-Saharan Africa and India. *Compare*, *36*(4), 443-462.

Tooley, J., & Dixon, P. (2007). Private schooling for low-income families: A census and comparative survey in East Delhi, India. *International Journal of Educational Development*, *27*(2), 205-219.

Tooley, J., Dixon, P., & Gomathi, S. V. (2007). Private schools and the millennium development goal of universal primary education: a census and comparative survey in Hyderabad, India. *Oxford Review of Education*, *33*(5), 539-560.

Tooley, J., Dixon, P., Shamsan, Y., & Schagen, I. (2010). The relative quality and cost-effectiveness of private and public schools for low-income families: a case study in a developing country. *School Effectiveness and School Improvement*, *21*(2), 117-144.

UNDP Human Development Report 1991. (1991). New York: Oxford University Press

UNESCO-UIS. (2012). *International Standard Classification of Education ISCED 2011*. Montreal, Quebec: UNESCO Institute for Statistics.

Verma, P. S. (2002). Punjab Assembly Elections: Sharply Polarised Electorate. Economic and Political Weekly, 2281-2284.

Woodhead, M., Frost, M., & James, Z. (2013). Does growth in private schooling contribute to Education for All? Evidence from a longitudinal, two cohort study in Andhra Pradesh, India. *International Journal of Educational Development*,*33*(1), 65-73.