AN OBJECTIVE EVALUATION OF INNOVATIVE EDUCATION STRATEGIES: CASE STUDY OF INDIA

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Abstract

Educational achievement is one of the pillars of comprehensive development that plays a significant role in balancing the socio-economic fabric of a country. The development of over a billion citizens of India, its most valuable human resource, warrants building strong foundations in education. Although India has substantially increased its school enrollments through innovative education strategies, huge challenges remain in terms of school retention and completion. We discuss three innovative strategies namely Mid-Day Meals (MDM) scheme, female literacy campaign including Kasturba Gandhi Balika Vidyalaya (KGBV) program, and Education Guarantee Scheme and Alternative and Innovative Education (EGS&AIE) schemes and their success. The high school drop-out rates and low female literacy continue to pose serious challenges. Our study shows that by improving communication and expanding Open and Distance Learning (ODL) programs India can improve retention and school completion. This will lead to universal education, literacy, and faster economic growth in India.

INTRODUCTION

The general election of 2014 has brought in new enthusiasm in India. Businesses are upbeat about the growth, the youth are looking forward to new job opportunities, farmers, manufacturers and financial analysts are expecting big spurts of boom. There is new hope on the economic scene and a renewed interest in Indian economy from foreign investors and financial institutions. There is a single party government in New Delhi after three decades that gives strong signal of political stability. It was only a few years ago that the world was excited about the new coalition called the BRIC nations and India was being discussed in the same league as China. However, the last three years 2011-2014 were extremely challenging for India. The harsh realities of poverty, low educational achievement, high maternal and infant mortality, poor sanitation and high crimes against women brought a lot of international attention. The overall score card from United Nations Development Program, the world gatekeeper of human development was less than

desirable. India was ranked 135 among the 187 countries, much lower than China, Brazil and Russia; lower than Vietnam, Syria, Iraq and South Africa and just above Ghana and Bangladesh (HDR, 2014). On educational achievement, the report card is abysmal. India ranks 145th lower than some of the poorest countries of the world Zimbabwe, Nicaragua, Uganda, Rwanda and Angola[i]. This is a wake- up call for India.

In all the years since independence and through all the Five years plans, several initiatives and innovative education strategies were proposed to increase access to schools, increase enrollments and improve retention and improve completion rates. The most recent census data for 2011 made public by the Ministry of Human Resource Development (MHRD), Government of India (http://mhrd.gov.in/statist) shows the literacy rates are about 80% for males and 60% for females, far below the OECD countries and the most industrialized countries including its neighbor China. While the enrollments at the elementary level are almost 100%, we have high dropout rates. The enrollment at the secondary level is about 50% and a mere 21% in higher education.

It would be gross overstatement that nothing was done to improve the education and literacy in India. The fact is not enough was done to place where India should be today. The purpose of our study is to review and assess some of India's past and current innovative education policies in terms of what has been achieved and what more needs to be done. The jobs of tomorrow and the future economic growth depend heavily on educational achievement (Schultz, 1961, Becker, 1992, Angrist and Krueger, 1991, Oreopoulos, Philip, 2006). We carry out an objective analysis of the current education trends and develop a model to evaluate income-education relationship. We suggest innovative new initiatives that will likely improve overall educational achievements in India. For our analysis the data[ii] used in this study are taken from two main sources namely the Human Development Report by the United Nations Development Program (UNDP) (http://hdr.undp.org) and the National Level Educational Statistics, Ministry of Human Resource Development, Government of India (http://mhrd.gov.in/statist?field_statistics_category_tid=30)

POST INDEPENDENT INDIA AND ITS EDUCATIONAL CHALLENGES

India's literacy rate in 1951 stood at 18%. The number of primary schools was 209700, the number of secondary schools 7400, number of colleges 578 and 27 universities in the entire country. The student teacher ratio was about 20:1 and the total population of India was 361 million (Tables 1, 5, 8 and 10 on MHRD site http://mhrd.gov.in/statist?field_statistics_category_tid=30).All in all, India inherited large population coupled with low literacy rates and the British education system that had emphasis on formal education and limited options of study. Even though there were some new initiatives to suit the local ethos like "Nai Talim: New Education ", Indian education system continued to show a very heavy commonwealth flavor in terms of Education being a public good and largely concentrated in public sector with centralized education policies and centralized

assessments. There were very few educational institutions in the private sector other than those run by religious minorities, mainly the Christians and some run by princely states, limited only to the rich and elite. As a result promoting literacy and building educational skills was largely the responsibility of the state governments. The total public expenditure on education was less than 1 % of the GDP (see , Table 25 at http://mhrd.gov.in/statist?field_statistics_category_tid=30) and India had no national policy on education. As such the National Policy of Education (NPE) in 1968 marked an important step in the history of education in post-independent India. It aimed towards national progress, a sense of common citizenship and culture, and promotion of national integration.

By 1971, India's population had grown to 540 million, an increase of 50%, literacy rates had doubled but stood only at 35%. Number of Primary Schools had doubled to 4084, and secondary schools, colleges and universities increased 3 to 4 times(see Table 16 http://mhrd.gov.in/statist?field_statistics_category_tid=30) As Basu (1991) pointed out that this heavy investment in higher education, a subject of much criticism, turned out to be a boon for India in terms of the software industry revolution for India that brought much needed foreign exchange in the 90s.

Prior to 1976, all education matters were the responsibility of the states. Through the constitutional amendment of 1976 education was included in the concurrent list, making education the joint responsibility of the federal and the state governments. During Rajiv Gandhi's government, through the 174th amendment to the Government of India (Allocation of Business) Rules, 1961, on September 26, 1985, the Department of Education was transformed and the Ministry of Human Resource Development (MHRD) was created giving it the responsibility of human capital formation. The MHRD had two main departments: the Department of School Education and Literacy and the Department of Higher Education. A new education policy called the National Policy on Education(NPE) India 1986((NPE document, 19986-92 page 5), stated " In the Indian way of thinking, a human being is a positive asset and a precious national resource which needs to be cherished, nurtured and developed with tenderness and care, coupled with dynamism….". It was the beginning of focus on improving overall literacy, educational outreach in rural areas and promoting female education. The National Policy of Education (NPE) in 1986 was supposed to prepare the groundwork to take India into the twenty first century. The NPE 1986 is often known as the policy for quality, access and social justice. India made substantial progress in basic education as the Gross enrolment ratios((GER) indicated that the proportion of children in the 6-14 years age group actually enrolled in elementary schools) increased progressively from 32.1 % in 1950-51 to 78% in 1991. It was still short of 100% target rate and the female enrollment rate was mere 66% (see, Table 6E and 7 at http://mhrd.gov.in/statist?field_statistics_category_tid=30)

In the ensuing section, we examine India's educational achievement since 1986. We evaluate if all the talk of the national education policy and its Plan of Action

(POA) 1992 was just hype or it was indeed substantive new initiative with innovative strategies that had real outcomes.

NPE 1986-92 AND BEYOND

The National Policy on Education (NPE) 1986, as modified in 1992, had three major outcomes in relation to education: i) Universal access and enrolment by free and compulsory elementary education, ii) Universal retention of children up to 14 years of age, and iii) a substantial improvement in the quality of education to enable all children to achieve essential levels of learning[iii]. NPE 86-92 was so designed that education would play a positive and interventionist role in correcting social and regional imbalance, empowering women, and in securing a rightful place for the disadvantaged and the minorities. It also suggested a goal of six percent of the GDP as expenditure to fund these activities.

India made substantial progress from 1991-2001 in raising its literacy rates from 52% to 65% and the gender composition was even more impressive. Men's literacy rose from 64 to 76% and the female literacy rose from 39 to 54 %. This was made possible by the initiatives to keep children in School.

Below we discuss three major initiatives, launched by government of India for increasing overall educational attainment among all sections of the society and their success. Here are three major initiatives of NPE that have grown over the years, and have continued to aid the national education policy, although they fell short of the goals they had hoped to achieve.

Mid-Day Meals (MDM) scheme
In 1995, the central government launched the "Mid-Day Meals" (MDM) scheme. India has a long tradition of school feeding programs. The origin of the MDM program dates back to 1925 in Madras, revitalized by Tamil Nadu, Kerala and Gujarat in 1980. MDM now covers some 130 million school children throughout India. This scheme extends to all public schools, government aided schools, Alternative and Innovative Education including Madarsa and Maqtabs(Muslim religious schools).   Several studies (Afridi, Barooah,and Somanathan, 2010; Banerjee and Duflo, 2012) have shown that in spite of its shortcomings MDM has been one of the successful schemes to bring students to school and increased retention. It also helped to increase female enrollments.

Female Literacy
According to 2011 census, out of 100 girls who enroll in schools only 14 completed their education in urban areas and only one out of every 100 enrolled completed her education in rural areas. This was alarming. Low female literacy rates were the result of social, cultural and economic reasons. Rural and urban households struggling with poverty were less likely to send their girls for education who could otherwise provide help at home and enable mothers to work outside in the fields or otherwise to support family incomes. There was great economic and gender

inequity in access to education. Enrollment for the children of poor families (Per capita incomes less than Rupees 3000 or $50) was 25% percentage lower than those from families with per capita incomes of Rupees 10000 or roughly $170, (Ferro, Rosenblatt and Stern, 2004). Given the growth of nonfarm employment in rural areas, female education has been of greater significance in rural areas.

According to 2001 Census, 47 districts in the country had female literacy rate below 30 percent. Most of these districts are concentrated in Bihar, Jharkhand, Uttar Pradesh and Orissa. Special efforts were made in collaboration with local bodies and functionaries of Panchayati Raj at the village level to literate women. Kasturba Gandhi Balika Vidyalaya (KGBV) program was launched in August, 2004 as part of the Sarva Shiksh Abhiyan (SSA) to set up 750 residential schools at elementary level for girls belonging predominantly to the SC, ST, OBC and minorities, in economically backward blocks. Government supported community efforts to provide more favorable environment and make schools more gender friendly including provision of clean and covered toilets. The latest data (Tables 18, 19 at http://mhrd.gov.in/statist?field_statistics_category_tid=30) showed that girls' enrollment at the primary and Secondary school level was about 90% of the boys' enrollments but it was mere 80% at the higher secondary level and beyond. Lack of female teachers was considered a big factor in low female literacy. As we have discussed above the major problem has been the retention of the female students. This huge drop out of females from the education system is considered as the single major factor for the failure in reaching the goal of universal elementary education and the reason why India ranks so low on indicators of education and overall development. In the following sections we will develop the role education plays in development process and show the loss of potential incomes because of low female literacy and high dropout rates.

Adult and Vocational Education and Education Guarantee Scheme and Alternative and Innovative Education (EGS & AIE)
Education Guarantee Scheme and Alternative and Innovative Education were one of the largest schemes of this type that were launched to increase enrollments and completion The main purpose was to serve traditional and non-traditional older students , who had joined school and dropped out or even those who never joined through a variety of innovative schemes.

The NPE,1986, as modified in 1992, recognized the National Literacy Mission (NLM) as one of the three instruments to eradicate illiteracy from the country, the other two being SSA and non-formal education. NLM was launched on May 5, 1988 as a Technology Mission to impart functional literacy to non-literates in the country in the age group of 15-35 years in a time-bound manner. This age-group was the focus of attention because they were in the productive and reproductive period of life.

Education Guarantee Scheme and Alternative and Innovative Education (EGS&AIE) were specially designed to provide access to elementary education to

children in school-less habitations and out-of-school children. The scheme envisaged that child-wise planning must be undertaken for each out-of-school child. EGS addressed the need where there was no formal school within the radius of one km and there were at least 15-25 children of 6-14 years age group who were not going to school. In exceptional cases remote habitations in hilly areas even for 10 children an EGS school could be opened.

Alternative Education interventions for specific categories of very deprived children e.g., child labor, street children, migrating children, working children, children living in difficult circumstances and older children in the 9+ age group especially adolescent girls are being supported under EGS and AIE all over the country.

It supported flexible strategies for traditional out-of-school children (those who lived near the school facility but did not join school or dropped out) through bridge courses, residential camps, drop-in centers, summer camps, remedial coaching. It was helpful as it provided elementary education to 8.6 million children in 2004-05. These programs were implemented through Zilla Saksharata Samities (District Level Literacy Societies). These were area-specific, time-bound, volunteer-based, cost effective and outcome-oriented. By the end of the 10th Plan period (2007), NLM had made 127.45 million persons literate, of which, 60% were females, and 23% belonged to Scheduled Castes (SCs) and 12% to Scheduled Tribes (STs). 597 districts were covered under Total Literacy Campaigns of which 502 reached Post Literacy stage and 328 reached Continuing Education stage, a sign of success in adult literacy.

As of 2014, there were over 10000 diploma granting institutions that awarded vocational degrees. These were all post-secondary educational institutions. About 2% of the persons aged 15–29 years received formal vocational training and another 8% have informally acquired skills (NSSO, 2006). This data shows that there is still a big need for vocational training through Open School systems. In many countries like Korea, Japan and Germany 60 to 96% of the youth in the age group 20-24 are vocationally trained. How the Open and Distance Learning (ODL) can be used for informal training to raise the youth competency is still an open question being debated. Perhaps it will be a part of the new National policy of education currently under discussion.

STATUS REPORT

India's literacy rates raised sharply from 18.3 percent in 1951 to 75 per cent in in 2013. Although quite impressive in itself, India continued to lag behind several other developing countries in the region such as China with 86 percent and Sri Lanka 92 percent (UNDP and UNCTAD 2014).

As of 2011 census there were 1.5 million schools, primary, junior, and high schools (also called secondary and senior secondary schools), an increase of about 350% which was quite remarkable. The student teacher ratios in schools increased to near forty before coming down to about 30 in the last few years[iv]. However there was imbalance in the growth of school buildings and students and teachers to teach in schools. This is one of the most serious issues facing Indian education policy makers and has caught huge media and public attention. We will not discuss this any further as we would need a whole new study for this topic alone.

The number of colleges as per most recent census stood at 36671, an increase by 600% and the number of universities was 727, an increase of 2800%. (See, Table 16 http://mhrd.gov.in/statist?field_statistics_category_tid=30)

The number of universities included public and private universities and research institutes. It is significant to note that 40 % of these research institutes and private universities and deemed universities are all private. The higher educational institutions have exploded in numbers and it poses a real question about the quality of education. The metrics for quality assurance and comparing it with world class education is another topic of enquiry.

FIGURE 1
Drop-Out Rates Classes 1-V by Gender (Percentage)
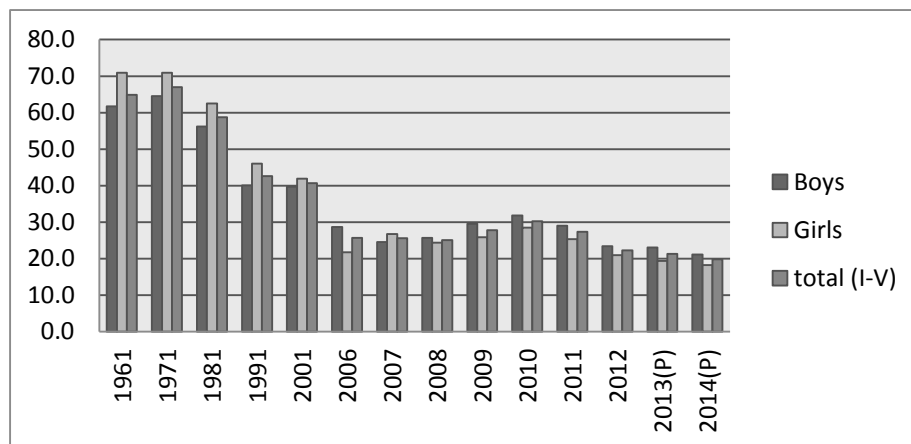
Data: MHRD statistics (see Appendix Table A3)

It is heartening to know that there has been an overall decline in the rates from near 70% to about 20%. The decline in the female drop-out rate is greater than the male drop- out rates, making them more equal. There were 22 female per 100 male teachers in 1951 and by 2011 it is now 78 for primary schools, 80 for upper primary(junior high) and about 66 for secondary (high) schools. This is one big

reason for huge drop in female drop-outs. This data is available from MHRD (op. cit.)

Figure 2 shows drop-out rates for classes 1-8 that covers students ages 6-14. The rates were significantly higher to begin with (about 80%) since 1960-61 and continue to be high in the forty % range in 2013-14. The female rates, as expected were higher as we include higher classes. This is partly due to social and cultural factors that more girls will leave school once they reach puberty. The lack of proper facilities in schools in rural areas and general cultural barriers are the main reasons for high female drop outs.

What we are most concerned with is the question of overall literacy and its impact on economic growth. The biggest hurdle in achieving global standards of universal education seems to be the high drop- out rates in schools and higher female drop – out rates. The red bars indicating the female dropout rates are higher than those green bars for overall dropout rates and the blue bars that show for the boys. The two figures 1-2 above show a time series trend that shows decline in dropout rates between classes 1-V which is critical in reaching the target rate of 100% for elementary education. We notice faster falling rates for girls than for boys, an impact of some of the innovative strategies that particularly encourage girl education.

FIGURE 2
Drop-Out Rates Classes1-VIII by Gender (Percentage)
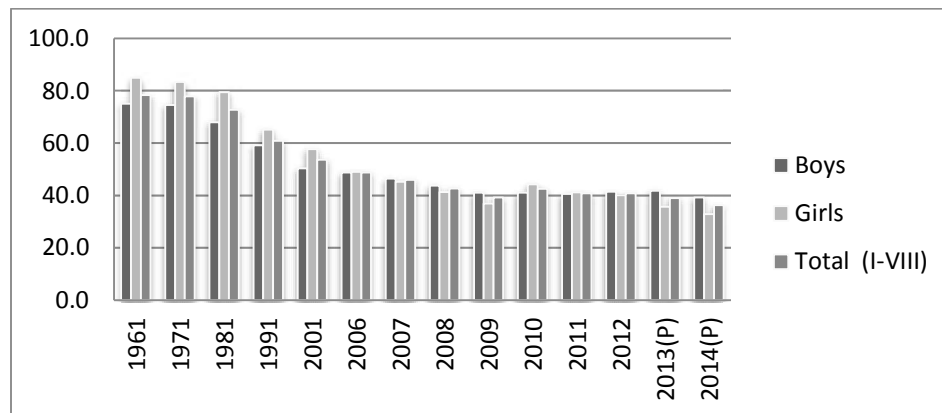
Data Source: MHRD (See Appendix Table A3)

The most recent numbers show that efforts to promote gender equity and promote female participation in local bodies are being reflected in lower drop-out rates for females than males. If these trends continue, Gandhi's dream of universal girl education would be fulfilled.

The country still has a formidable task of bringing the drop-out rates down to zero to achieve universal elementary education and meet the Millennium Development Goals (MDG). In the next section we explore if the alternate schooling via Open and Distance Learning can be a primary policy tool to bridge this gap and meet the MDGs.

OPEN AND DISTANCE LEARNING (ODL)

It was in 1962 that University of Delhi offered the first correspondence course and the correspondence education continued to expand in the next two decades throughout the country. The Open Schools and Distance Learning, now popularly known as ODL is the alternate schooling for millions of Indians. This is now one of the largest Open School systems in the world. Diverse groups like women, tribal, youth or drop out children turned to ODL for variety of reasons. ODL to an extent could address needs of women who moved out of formal system of education for personal or social reasons, rural or tribal population whose needs were not satisfied by the mainstream educational processes, youth who wanted vocational education, people with disabilities who could not attend regular schools, all these people could turn to ODL for achieving their respective goals. As of 2014 this provides for over 30 million students, twelve percent of all higher education student population in the country. The female students' numbers are about 1552064 and that is about 40% of total distance learners as of the most recent statistics available with the MHRD. See Table below.
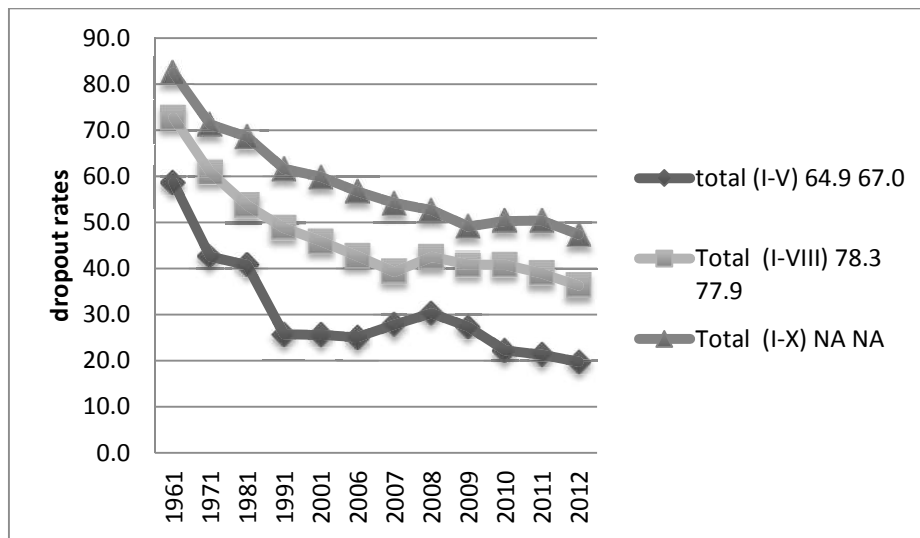
TABLE 1
Enrolment in Higher Education through Regular & Distance Mode
(Percentage)

Mode	Male	Female	% of Total
Regular	48.42	39.65	88.07
Distance	6.68	5.24	11.92
Total	55.11	44.89	100
Data source: MHRD/ AISHE 2012-13 Report; Appendix Table A1			

The numbers of females in Open School that covers secondary education is about a quarter of all the students in this program.

Figure 3 shows that there are declining aggregate drop -out rates at all levels, classes 1-V, 1-VIII and 1-X. Since the focus of MHRD and all innovative policies has been to raise the literacy levels and provide universal elementary education by bringing students to schools and keeping them there and improve retention and increase completion. We notice a sizeable decline in the rates for the classes (1-V) and that is an encouraging sign. The rates at junior high (high primary and up to class X are still 50% and that calls for active solutions.

FIGURE 3
Total Drop-Out Rates Classes 1-V, 1-VIII and 1-X

Data Source: MHRD; Appendix Table A3

Open school system that brings the flexibility and can reach students at their homes and be available at their preferred times must be pushed. It is important to realize that for the success of ODL additional learning support materials like the radio lectures and other forms of printed materials must be made accessible. Best practices in ODL should be the focus of the new national policy.

EDUCATION AND GROWTH NEXUS: DATA, MODEL AND RESULTS

Schultz (1961), Becker (1962) and several other economists have emphasized that education is human capital investment and it is as essential as the other form of capital for economic growth. Studies by Angrist and Krueger (1991) and Oreopoulos (2006) have shown the impact of education on incomes and earnings.

In this section we shall look at the long term trends in education and rate of growth of incomes in India. India's GDP per capita in 2010 was lower than the GDP per capita for the United States and for United Kingdom in 1870. In spite of all the glory that goes with its name, its rich cultural history and its phenomenal growth of the software industry in the late 90 and the early 2000s, India remains a developing country with overall HDI in the bottom half of the medium HDI countries. About 300 million people are still in poverty and average educational achievement as measured by the Education Index, a component of the HDI, is lower than the poorest countries of Sub-Saharan Africa. The Graph below shows the relative ranking of India in terms of the HDI over the last 25 years.

FIGURE 4
HDI RANK INDIA 1990-2014
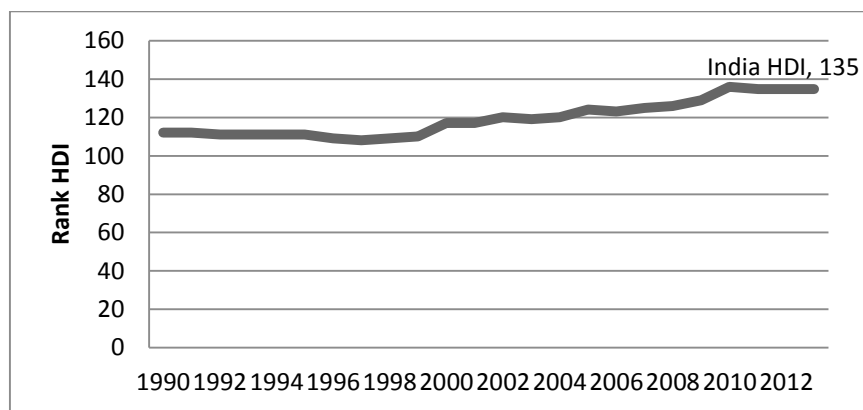
Data source: HDR 2014, http://hdr.undp.org

Next we examine the data for the two components of the Education index: the Expected Years of Schooling (EYS) and Mean Years of Schooling (MYS)

**Expected Years of Schooling (EYS) and Mean Years of Schooling (MYS)**
Expected Years of Schooling (EYS is the average number of years a student is expected to continue in school once he or she is enrolled. The world averages for EYS-W are between 11to13. This is the green line. India's EYS-I on the other was about 7 in 1990 and has risen to 11.7. The gap between the EYS –W and (EYS – I) has been reducing over the years. This is a good sign that innovative strategies to bring more children to school like the MDM, EGS &D AIE and the SSA and the focus on female literacy are showing their results.

Mean Years of Schooling (MYS): MYS on the other hand captures the average number of years students stay in school. It is a big indicator of retention and completion. The world average MYS-W increased from 5.9 years from 1990 to 8.2 years in 2012. However for India MYS-I has increased from 2.9 to only 4.43 years and that is nearly half of world average and this is India's biggest challenge. While

the many initiatives have been able to bring students to school, we have not been able to keep them in school and make them complete some level of school.

The figure below shows the divergence in rates between India and the world average in two important dimensions that make up the education index. The drop-out rates continue to be a challenge. All future initiatives must be focused on retention. Open and Distance learning education has great potential.

FIGURE 5
India and the World - Mean and Expected Years of Schooling

Data: HRD 2014, http://hdr.undp.org
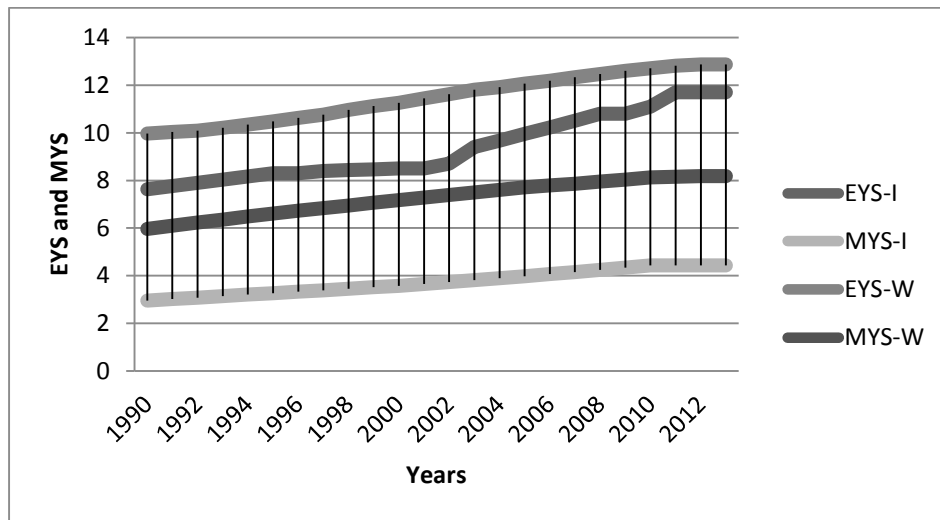
Econometric Model:
We compare India's GNI (PPP), MYS-I and EYS-I and compare it with the World Averages of MYS over the same period labeled as MYS-W and world average for EYS written as EYS-W for the last 25 years. The table below summarizes these variables. It is significant to note that the world average of Mean years of Schooling that includes over 175 countries since 1990 is twice that of India. The difference between the world averages and the average of India's MYS, MYS-W and MYS-I and EYS-W and WYS-I are significant. See the tables and results below:

TABLE 2
Summary Statistics

	MYS-W	MYS_I	EYS-W	EYS-I
Mean	7.262261	3.732167	11.48238	9.360417
Median	7.334062	3.697700	11.53762	8.600000
Maximum	8.181314	4.430000	12.86965	11.70000
Minimum	5.970475	2.959000	9.974120	7.633333
Std. Dev.	0.719259	0.500704	1.005164	1.378002

Test Criteria	df	Value	Probability
t-test	46	19.73333	0.0000
Satterthwaite-Welch t-test*	41.05245	19.73333	0.0000
Anova F-test	(1, 46)	389.4044	0.0000
Welch F-test*	(1, 41.0525)	389.4044	0.0000

*Test allows for unequal cell variances

We also compared basic summary measures for per capita Gross National Income in terms of purchasing power parity dollar value, Life expectancy and HDI rank for India. We would like to see if there is any obvious evidence of a relationship between these variables. We considered log of GNI (PPP) as is the practice often when analyzing GNI as it helps to smoothen the data (technical note on HDI 2014). Most often the time series data can be non- stationary and as such we set to examine if there are unit roots.

TABLE 3
Summary Statistics India for HDI Components Income, Education and Health

	EYS	MYS	GNIPPP	LE	India HDI
Mean	9.360417	3.732167	3045.694	62.61538	119.3750
Median	8.600000	3.697700	2689.436	62.71750	118.0000
Maximum	11.70000	4.430000	5149.812	66.41400	136.0000
Minimum	7.633333	2.959000	1768.839	58.51800	108.0000
Std. Dev.	1.378002	0.500704	1098.946	2.549939	9.430812
Skewness	0.497573	0.060516	0.606170	-0.087694	0.520944
Kurtosis	1.775079	1.651413	2.055220	1.687229	1.953715

The correlogram for log (GNIPPP) in levels and first difference was sticky and only in second difference it declined sharply. Hence we found that second order log (GNIPPP) stationary. This is also true for GNIPPP. We also find that MYS and EYS are also both second order difference stationary. Hence the most appropriate model was a regression model in second order differenced variables.

FIGURE 6
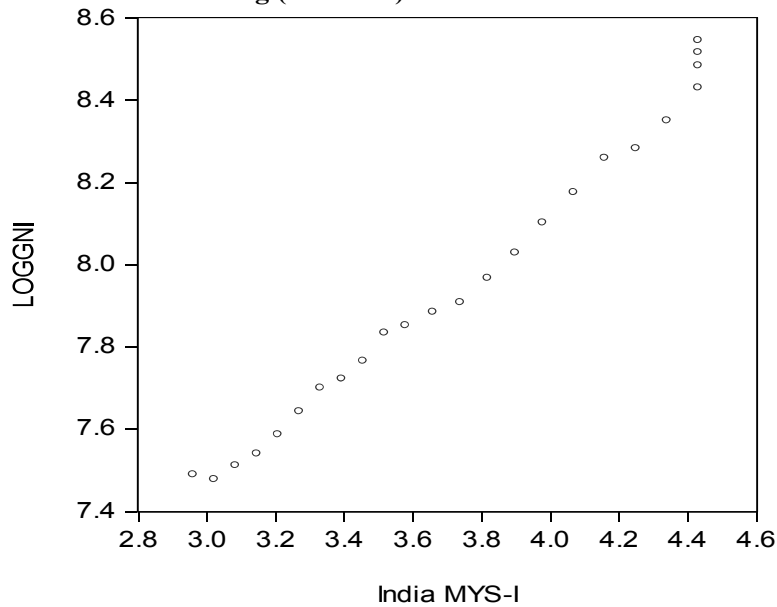**Plot of Log (GNIPPP) and MYS for India**

Figure 6 shows the scatter plot between Log of GNIPPP and MYS (mean years of Schooling) was a clear representation of the strong positive linear relationship between the two variables. Similarly positive linear relationships can be seen between GNIPPP and MYS and Log of GNIPPP and Expected years of Schooling. A simple model shows that years of schooling can add up to 2000 dollars to the GNIPP.

We investigated further and considered the model with log(GNIPPP) as the dependent variable and with MYS-I and EYS-I as the likely factors and carried out exploratory models to see which of these variables are likely to cause GNIPPP and to their likely impact.
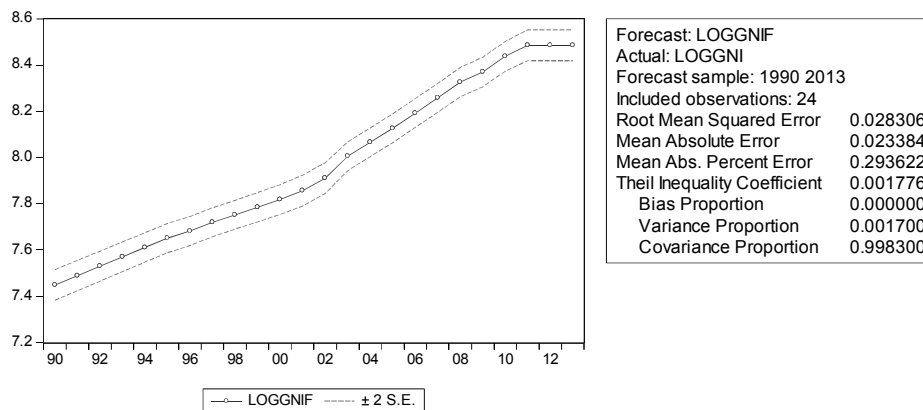
TABLE 4
Regression Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4915.578	414.5473	-11.85770	0.0000
INDIA_MYS_I	2133.150	110.1284	19.36966	0.0000

R-squared	0.944610	Mean dependent var	3045.694
Adjusted R-squared	0.942092	S.D. dependent var	1098.946
S.E. of regression	264.4505	Akaike info criterion	14.07284
Sum squared resid	1538550.	Schwarz criterion	14.17101
Log likelihood	-166.8741	Hannan-Quinn criter.	14.09889
F-statistic	375.1836	Durbin-Watson stat	0.161159
Prob(F-statistic)	0.000000		

The model 2 below was most compelling on the basis of Akaike information criterion and Bayes- Schwarz information criteria. The model was found quite satisfactory in terms of root mean square of the forecast error and Theil Inequality coefficient. The results are given below in support of our claim.

TABLE 5
Regression Model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.408305	0.048935	110.5207	0.0000
INDIA_MYS_I	0.484642	0.053335	9.086835	0.0000
INDIA_EYS_I	0.079522	0.019379	4.103456	0.0005

R-squared	0.993225	Mean dependent var	7.961432
Adjusted R-squared	0.992580	S.D. dependent var	0.351292
S.E. of regression	0.030261	Akaike info criterion	-4.041467
Sum squared resid	0.019230	Schwarz criterion	-3.894210
Log likelihood	51.49761	Hannan-Quinn criter.	-4.002400
F-statistic	1539.307	Durbin-Watson stat	0.688275
Prob(F-statistic)	0.000000		

Forecast: LOGGNIF	
Actual: LOGGNI	
Forecast sample: 1990 2013	
Included observations: 24	
Root Mean Squared Error	0.028306
Mean Absolute Error	0.023384
Mean Abs. Percent Error	0.293622
Theil Inequality Coefficient	0.001776
Bias Proportion	0.000000
Variance Proportion	0.001700
Covariance Proportion	0.998300

The model building exercise can be further extended by testing for unit roots and estimating a co-integrating equation. This analysis will be carried out in future studies.

SUGGESTIONS AND POLICY RECOMMENDATIONS

A detailed analysis of data on educational achievement in India shows that India has made huge strides in making education a key priority since independence. It also shows that India has many challenges along the way to reach its goal of universal education.

This study shows that India has substantially increased getting students to enroll but did not succeed in keeping them in schools. Low female literacy rates and high dropout rates continue to pose serious challenges. The drop-out rates are phenomenal and if these can be brought down, it will improve overall educational achievements. Therefore, India must focus on improving retentions and completion. India must continue with renewed vigor all the policies and schemes undertaken in this direction by increasing efforts towards alternative form of education and through Open and Distance Learning.

Education has a significant impact on the income prospects and hence on the standard of living of the country. The econometric Model based on regression analysis shows that expected number of years of education EYS-I and the average number of years (MYS-I) both have significant impact on economic growth. Substantive economic growth will remain elusive without success in education. India must bridge the gap in education to compete globally since education provides the necessary human capital that has a significant impact on the economic development and on the standard of living of a country.

The study suggests improving community awareness and engagement as this would help dispel all social biases and cultural barriers for females to pursue schooling and higher education. I believe that open national conversations about

the role of education will be greatly helpful. In a recent study Muralidharan (2013) has suggested that interventions that provide better information about education options and outcomes like the returns on investment in education can be quite effective in improving households' decision making regarding education.

In conclusion, I believe that the educational report card for India is a wake-up call for India. If India is serious about economic growth and would like to be a global economic force and to share the same table with other world powers, it is time to make an all-out push for improving access, quality and equality in Education on a massive scale. There are still newer challenges from the point of employment and jobs in this century that call for improving competencies and skill development. Massive efforts are underway by the present Government to bring out a new national policy that would reflect the country's needs. It is being awaited with great expectations and will be carefully examined in coming months and years.

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APPENDIX

The data used in the research paper have been taken from the Ministry of Human Resource Development, Government of India. http://mhrd.gov.in/statist . Below we provide all the data tables that we use in our study.

TABLE A1
Enrolment in Higher Education through Regular & Distance Mode - 2012-13

Mode	Male	Female	Total	% of Total
Regular	14347637	11748655	26096292	88
Distance	1980666	1552064	3532730	12
Total	16328303	13300719	29629022	100

Data source: www.aishe.gov.in

TABLE A2
Pupil Teacher Ratio by Type of Institution

Type of Institution	Pupil Teacher Ratio
Primary	28
Upper Primary	30
Secondary	28
Senior Secondary	40
Higher Education*	23

* Dose not include Stand Alone Institutions;
Data Source: U DISE-2013-14 (Provisional)
For Higher Education AISHE-2012-13 (Provisional)

TABLE A3
Dropout Rates in School Education: All Categories of Students

Year /Classes	Classes (I-V)			Classes (I-VIII)			Classes (I-X)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1960-61	61.7	70.9	64.9	75.0	85.0	78.3	NA	NA	NA
1970-71	64.5	70.9	67.0	74.6	83.4	77.9	NA	NA	NA
1980-81	56.2	62.5	58.7	68.0	79.4	72.7	79.8	86.6	82.5
1990-91	40.1	46.0	42.6	59.1	65.1	60.9	67.5	76.6	71.3
2000-01	39.7	41.9	40.7	50.3	57.7	53.7	66.4	71.5	68.6
2005-06	28.7	21.8	25.7	48.7	49.0	48.8	60.1	63.6	61.6
2006-07	24.6	26.8	25.6	46.4	45.2	45.9	58.6	61.5	59.9
2007-08	25.7	24.4	25.1	43.7	41.3	42.7	56.6	57.3	56.7
2008-09	29.6	25.8	27.8	41.1	36.9	39.3	54.0	54.4	54.2
2009-10	31.8	28.5	30.3	41.1	44.2	42.5	53.3	51.8	52.7
2010-11	29.0	25.4	27.4	40.6	41.2	40.8	50.2	47.7	49.2
2011-12	23.4	21.0	22.3	41.5	40.0	40.8	48.6	52.2	50.3
2012-13(P)	23.0	19.4	21.3	41.8	35.7	39.0	50.4	50.3	50.4
2013-14(P)	21.2	18.3	19.8	39.2	32.9	36.3	48.1	46.7	47.4

P- Provisional, **NA**- Not Available; Data Source: For School Education**:** (i) figures for 1960-61 to 2011-12 taken from the publication Statistics of School Education;*(ii)* figures for 2012-13(P) & 2013-14(P) have been calculated from U-DISE-NUEPA Enrolment Data

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[1] The education rank was calculated from the raw data on two factors that are used to calculate education index, a component of HDI. These are education enrollment in schools (EYS) and average years spent in Schools (MYS). See, Barro and Lee (2010) for more details.

[ii] Some important data tables have been reproduced in the appendix to this paper. More detailed data are available from the author upon request.

[iii] The NPE document modified in 1992 is available on the MHRD.gov and these are part of the executive summary of the Report. See, http://www.ncert.nic.in/oth_anoun/npe86.pdf

[iv] See Table A2 in the appendix with student teacher ratios. The ratios are different for primary and secondary schools and for female and male teachers.