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An Analytical Study on the Relationship between Education and Economic Growth in Northeast India

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Abstract

The positive association between education and growth has been witnessed worldwide; the highest contribution of education to economic growth is in India. This paper tries to identify the nexus between education and growth in Northeast India. The paper concludes that education is neutral to economic growth for Northeast India. The main reason for neutrality of education towards economic growth is lack of skills.

Keyword: Growth, Education, Correlation coefficients, Level of confidence, Skill development.

1. Introduction: There has been a revival of interest in the concept of investment in human capital which developed in the United States and the United Kingdom in the late 1950's and early 1960's that resulted into tremendous growth of research and publications concerning the question of the relationship between education and the economy. Denison (1962) who concluded his analysis that, increases in the level of education of the labour force accounted for as much as 23 percent of the annual rate of growth of GNP in the United States between 1930 and 1960. Russian economist Strumillin (1925) estimated that, education at primary and elementary level resulted in as much as 79 percent increase in the output and wage of labourers in the erstwhile Soviet Union. Schultz (1961) analysed the contribution of education to growth in national income in the United States from 1900 to 1956 and came to the conclusion that, investment in education contributed 3.5 times more to the increase in gross national income than investment in physical capital. A World Bank Study of 192 countries concluded that, "only 16 percent of the growth is explained by physical capital (machinery, buildings and physical infrastructure), while 20 percent comes from natural capital. But not less than 64 percent can be attributed to human and social capital (HDR, 1966). Thus, Blaug (1972) rightly observed that, "The universality of this positive association between education and earnings is one of the most striking findings of modern social science. It is indeed one of the few safe generalisations that one can make about labour markets in all countries whether capitalist or communist"

2. Literacy, PCI & GDP growth: The annexure 1 to 4 depicts the comparative picture of literacy, per capita income and GDP growth rate among various economies

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of the world at the outset of the twenty first century. There are four groups of economies classified according to the per capita income in US Dollars. These groups are- low income countries (LIC) withPCI $875 or less, lower middle income countries (LMC) with PCI between $876–3,465, upper middle income countries (UMC) with PCI between $3,466–10,725 and high income countries with PCI $10,726 or more. It is evident from these tables that there is a wide disparity in literacy level, PCI and economic growth among the various groups. The high income countries with very high per capita income and high literacy rate ie 99 percent (annexure 1) shows low GDP growth rate. The developed economies are required to maintain their high growth but latest data (2008-09) reveals the negative growth rate. This may be partly due to the recent global economic recession faced by the world economy. The upper middle income countries shows low literacy rate of around 90 percent (annexure 2) as compared to the lower middle income countries with literacy rate above 90 percent (annexure 3) while the third world countries of ours with very meager income has literacy rate around 50 percent has smooth growth rate (annexure 4)

3. Objectives of the study:

1)To identify the link between education represented by literacy, and growth, represented by per capita Net State Domestic Product (NSDP)for India in general and the northeast in particular.

2)To identify the plausible cause of the neutrality of education towards economic growth in Northeast.

3)To arrive at a feasible policy prescriptions.

4. Tools and limitations: Karl Pearson's correlation coefficient(r) using SPSS package, student's t- test etcare employed with confidence level 95%. The data are secondary in nature.

5. Contribution of education to economic growth: Estimates of the contribution of education to economic growth in various regions and countries can be seen from table 1.

Table 1: Contribution of Education to Economic growth

Country/Region	Growth rate explained by Education
Country	
Canada	25
Ghana	23.3
India	27

Argentina	16.5
Nigeria	16
United states	15
Belgium	14
Kenya	12.4
Region	
Africa	17.2
Asia	11.1
North America & Europe	8.6
Latin America	5.1

Source: Mahbubul Haq and Khadija Haq (1998)

It may be noted from the table that the highest contribution of education to economic growth is in India. As to the Indian experience, a positive correlation between education and earnings was brought out by VKRB. Rao (1966), in his socio-economic survey of Delhi came to the conclusion that income differentials are found to exist between people with different levels of education. Such differentials are also found in the level of earnings of technical and non-technical personnel.

6. Indian Scenario: As stated earlier the highest contribution of education to economic growth is in India. The linkage of education (represented by literacy rate) and economic growth (per capita Net state Domestic Product) are presented in table 2. The Correlation coefficients are 0.588, 0.592 and 0.547 for all persons, male and female respectively which are all significant at 1%. The linkage is more robust in male (0.592) than female (0.547).

Table 2 (Linkage between Education and growth in India for 2011 census)

Correlations					
		Per Capita NSDP	Overall Literacy rate	Female Literacy rate	Male Literacy rate
Per Capita NSDP	Pearson Correlation	1	.588**	.592**	.547**
	Sig. (2-tailed)		0	0	0.001
	N	32	32	32	32
Overall Literacy rate	Pearson Correlation	.588**	1	.953**	.981**
	Sig. (2-tailed)	0		0	0
	N	32	32	32	32

Female Literacy rate	Pearson Correlation	.592**	.953**	1	.878**
	Sig. (2-tailed)	0	0		0
	N	32	32	32	32
Male Literacy rate	Pearson Correlation	.547**	.981**	.878**	1
	Sig. (2-tailed)	0.001	0	0	
	N	32	32	32	32
** Correlation is significant at the 0.01 level (2-tailed).					

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7. Northeast India Scenario: Northeast India primarily comprises ofAssam, Arunachal Pradesh, Nagaland, Manipur, Mizoram and Tripura, and Sikkim is included of late. This paper also includes Sikkim in the analysis. Table 3 depicts the nexus between education and economic growth for the Northeast India. Surprisingly it was found that no relation exist between the two variables. The Correlation coefficients for all persons, male and female are close to 0. This illustrates that education is neutral to economic growth in Northeast India.

Table 3 (Education and growth in Northeast India for 2011 census)

Correlations					
		Per Capita NSDP	Overall Literacy rate	Female Literacy rate	Male Literacy rate
Per Capita NSDP	Pearson Correlation	1	0.075	0.075	0.045
	Sig. (2-tailed)		0.859	0.861	0.915
	N	8	8	8	8
Overall Literacy rate	Pearson Correlation	0.075	1	.971**	.981**
	Sig. (2-tailed)	0.859		0	0
	N	8	8	8	8
Female Literacy rate	Pearson Correlation	0.075	.971**	1	.907**
	Sig. (2-tailed)	0.861	0		0.002
	N	8	8	8	8
Male Literacy rate	Pearson Correlation	0.045	.981**	.907**	1
	Sig. (2-tailed)	0.915	0	0.002	
	N	8	8	8	8
**Correlation is significant at the 0.01 level (2-tailed).					

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8. India without her Northeast: Correlation coefficients for India excluding the 8 northeast states are presented in table 4. The result shows that the relation for India excluding the 8 northeast states is stronger than including the 8 states for all persons, male and female. It is 0.747, 0.739 and 0.727 for all persons, male and female respectively, which are all significant as seen in the table.

Table 4 (Education and growth in India excluding Northeast India for 2011 census)

Correlations					
		Per Capita NSDP	Overall Literacy rate	Female Literacy rate	Male Literacy rate
Per Capita NSDP	Pearson Correlation	1	.747**	.739**	.727**
	Sig. (2-tailed)		0	0	0
	N	24	24	24	24
Overall Literacy rate	Pearson Correlation	.747**	1	.973**	.991**
	Sig. (2-tailed)	0		0	0
	N	24	24	24	24
Female Literacy rate	Pearson Correlation	.739**	.973**	1	.933**
	Sig. (2-tailed)	0	0		0
	N	24	24	24	24
Male Literacy rate	Pearson Correlation	.727**	.991**	.933**	1
	Sig. (2-tailed)	0	0	0	
	N	24	24	24	24
**Correlation is significant at the 0.01 level (2-tailed).					

Generated by SPSS 16.0 version

9. The once upon a time 'blooming Northeastern region': During the British regime, the Northeastern region was prospered economically. The Assam per capita income was the 5th highest all over British- India, there was tea industry in 1833,one of the firsts in the country; Coal was discovered in Assam in 1825 and Coal industry was established, there was a Water way (Brahmaputra) in 1847, timber were exported in 1850's, there was a train route by 1860's to China etc, Oil was discovered in 1825 and the first oil refinery in Asia was set up in 1901 at Digboi. Apart from these, the crop productivity of northeast was higher than the national average, the region was famous for handloom & handy crafts and silk was exported to Burma, UK etc. However, such prosperity has become history now. The once upon a time's 'blooming region' has become one of the most undermanaged regions of the country.

10. Findings and suggestions: From the analysis of the two variables, it was found that:

1) For all India, education and economic growth are positively correlated. The correlation coefficients are statistically significant. They are 0.588, 0.592 and 0.547 respectively for all persons, male and female.

2) The same is true for all India when northeast India is excluded. The relationship is stronger when Northeastern states are excluded from all India data. The correlation coefficients are 0.747, 0.739 and 0.727 respectively for all persons, male and female.

3) The correlation coefficients between the two variables for Northeastern states are insignificant. They are respectively 0.075, 0.075 and 0.045 for all persons, male and female. This proves that there is no linkage between education and growth in Northeast India. In other words, education has no role in raising income in the Northeastern states.

4) The main reason for this neutrality is lack of skills.

From the result derived at, the following suggestions are made for the region to recuperate her lost fortune.

1) It calls for immediate education reforms to translate education into benefiting returns

2) Proper taming of human resources through Skill development is a pre-condition along with adequate economic overhead

3) Encouragement of HV-SV (High in value - small in quantity) commodities is now the feasible option to increase the region's income.

4) More Polytechnics, technical and management institutions may be opened.

5) Adapt PPP models in education

Discard the conventional subjects and encourage vocationalisation of education.

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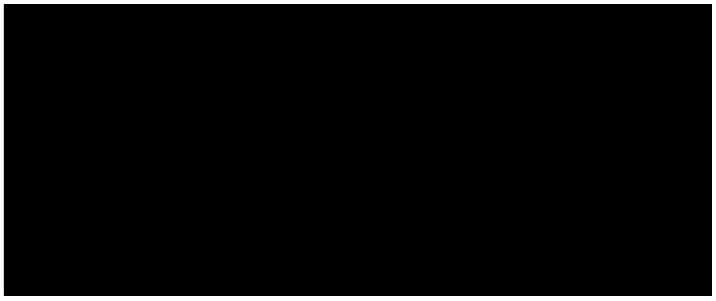
Annexure 1 : (Literacy, PCI & GDP growth of High income countries)



Source: World Development Report, 2007. # CIA World fact book, 2009

Annexure 2: (Literacy, PCI & GDP growthof Upper middle income countries)

Sl. No	Countries	Literacy rate (in %)	PCI (in US $)	GDP Growth rate (in %)	
		2004-05	2004-05	2004-05	2008-09#
1	Malaysia	89	4,960	3.4	-2.8
2	Mexico	91	7,310	1.9	-7.1
3	Lebanon	89	6,180	0	3
4	Russia	99	4,460	6.9	-7.9
5	South Africa	82	4,960	5.6	-1.9

Source: World Development Report, 2007. # CIA World fact book, 2009

Annexure 3: (Literacy, PCI & GDP growth of Lower middle income countries)

Sl. no	Countries	Literacy rate (in %)	PCI (in US $)	GDP Growth rate	
		2004-05	2004-05	2004-05	2008-09#
1	China	91	1,740	9.2	8.7
2	Indonesia	90	1,280	4.2	4.4
3	Maldives	96	2,390	-6	-4
4	Sri Lanka	91	1,160	4.4	3.9
5	Thailand	93	2,750	3.6	-3.5

Source: World Development Report, 2007. # CIA World fact book, 2009

Annexure 4: (Literacy, PCI & GDP growth of Lower income countries)

Sl. No	Countries	Literacy rate (in %)	PCI (in US $)	GDP Growth rate	
		2004-05	2004-05	2004-05	2008-09#
1	Bangladesh	47.5	470	3.5	5.7
2	Bhutan	47	870	3.3	5
3	India	61	720	7.1	6.1
4	Nepal	49	270	0.3	4.7
5	Pakistan	50	690	5.2	2.7

Source: World Development Report, 2007. # CIA World fact book, 2009

Annexure 5: Per Capita Net State Domestic Product for 2010-11 at Current Prices (2004-05 Series)and Literacy rate (2011)

Sl. No	States/UTs	Per Capita NSDP (in Rs)	Overall Literacy rate	Male Literacy	Female Literacy
1	Andaman & Nicobar Islands	80558	86.30%	90.10%	81.84%
2	Andra Pradesh	62148	67.66%	75.56%	59.74%
3	Arunachal Pradesh	60935	66.95%	73.69%	59.57%
4	Assam	33087	73.18%	78.81%	67.27%
5	Bihar	19111	63.81%	73.39%	53.33%
6	Chandigarh	126651	86.43%	90.54%	81.38%
7	Chhattisgarh	41165	71.04%	81.45%	60.59%
8	Delhi	145129	86.34%	91.03%	80.93%
9	Goa	168024	87.40%	92.81%	81.84%
10	Gujarat	77485	79.31%	87.23%	70.73%
11	Haryana	93852	76.64%	85.38%	66.77%
12	Himachal Pradesh	68297	83.78%	90.83%	76.60%
13	Jammu & Kashmir	40089	68.74%	78.26%	58.01%
14	Jharkhand	34721	67.63%	78.45%	56.21%
15	Karnataka	62251	75.60%	82.85%	68.03%
16	Kerala	67652	93.91%	96.02%	91.98%
17	Madhya Pradesh	32453	70.63%	80.53%	60.02%
18	Maharashtra	84858	82.91%	89.82%	75.48%
19	Manipur	28931	79.85%	86.49%	73.48%
20	Meghalaya	49261	75.48%	77.17%	73.78%
21	Mizoram	50956	91.58%	93.72%	89.40%
22	Nagaland	55582	80.11%	83.29%	76.69%
23	Odisha	39537	73.45%	82.40%	64.36%
24	Puducherry	101072	86.55%	92.12%	81.22%
25	Punjab	69582	76.68%	81.48%	71.34%
26	Rajasthan	44644	67.06%	80.51%	52.66%
27	Sikkim	108972	82.20%	87.29%	76.43%
28	Tamil Nadu	78473	80.33%	86.81%	73.86%
29	Tripura	46050	87.75%	92.18%	83.15%
30	Uttar Pradesh	26698	69.72%	79.24%	59.26%
31	Uttarakhand	73819	79.63%	88.33%	70.70%
32	West Bengal	47245	77.08%	82.67%	71.16%

Source: Statistical Handbook Mizoram 2012 and Central Statistics Office.