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POST-ELEMENTARY EDUCATION, POVERTY AND DEVELOPMENT IN INDIA

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Post-Elementary Education, Poverty and Development in India[1]

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Abstract: There is a general presumption among many policy makers that secondary and higher education is not necessary for economic growth and development. On the other hand, it is literacy and primary education that is argued to be important. Estimates on internal rate of return also contributed to strengthening of such a presumption. Accordingly, secondary and higher education do not figure on the poverty reduction agenda of many poor countries and of the international aid organisations. Indian experience also testifies to all this. Secondary and more strikingly higher education has been subject to neglect by the government. Using most recent statistics, it is attempted here to show that the general presumption on the weak or negligible role of secondary and higher education in development is not valid and that post elementary education is important for reduction in poverty, in improving infant mortality and life expectancy, and for economic growth.

1. Introduction:

A substantial part of the available research seemed to have concentrated on analysing the positive effects of literacy and primary education on poverty and other aspects of social and human development like infant mortality, life expectancy, etc., and firmly concluded that literacy and primary education have significant effects on poverty reduction. Studies on rates of return to education have also found that primary education yields higher returns than secondary and higher education. Accordingly, the

[1] The paper draws from a wider study prepared as a part of a Six-Country Study entitled BEYOND THE BASICS: EDUCATION AND POVERTY -- The Contribution of Post-Basic Education and Training (PBET) to Poverty Reduction: Evidence from South Asia and Sub - Saharan Africa (Centre of African Studies, University of Edinburgh), funded by the British Department for International Development. The other country studies cover Ghana, Kenya, Rwanda, South Africa and Tanzania. For details, see: http://www.cas.ed.ac.uk/PBET.html. The views expressed in this paper are those of the author and are not to be attributed to the DFID, or the University of Edinburgh, or the National Institute that the author is associated with. The comments and suggestions of Madan Jha, other members of the project team and the participants of the Mid-Term Review Workshop held in April 2005 in Edinburgh on an earlier draft of the paper are gratefully acknowledged. An earlier draft was also presented in the All-India Conference on Modeling Economic Behaviour and Policy, held at the Sri Sathya Sai Institute of Higher Learning, Prashanti Nilayam (August 2005).

development efforts of the national governments, non-governmental organizations (e.g., OXFAM, 2000), and even international development community including the United Nations, UNESCO, UNDP, and UNICEF, bilateral aid organisations and international financial institutions like the World Bank are confined in the area of education to primary education as an instrument of poverty alleviation. For example, the Millennium Development Goals of the United Nations that aim at poverty alleviation or the Poverty Reduction Strategy Papers (PRSPs), recommended by the World Bank refer only to primary education, and education of girls. Many researchers on poverty have also not turned their attention to secondary or higher education, though some have analysed the contribution of secondary and higher education to economic growth. It is widely held that secondary and higher education is less poverty alleviating, and is not important for social development, income distribution, equity and development.

But while primary education gives the basic three r's, rarely does it provide skills necessary for employment – self employment or otherwise that can ensure a reasonable level of wages and economic living. More over, most of the literacy and primary education programmes are also found to be not imparting literacy that is sustainable, in such a way that children do not relapse into illiteracy. Secondly, primary education rarely serves as a meaningful terminal level of education. Thirdly, even if primary education imparts some valuable attributes, in terms of attitudes and skills they are not sufficient; and if primary education is able to take the people from below the poverty line to above the poverty line, it is possible that this could be *just above* the poverty line, but not much above; and more importantly the danger of their falling below poverty line at any time could be high. On the other hand, it is secondary and higher education that consolidates the gains received from primary education; it is secondary and higher education that provides skills that could be useful in the labour market; it is secondary and higher education that can keep the people above poverty line without such a danger of falling back into poverty trap -- educational poverty or income poverty; and in fact, it is secondary and higher education that can take people to much above poverty line, by increasing the social, occupational and economic levels of the households. In all, it can be argued that it is secondary and higher education that forms a 'human capability' and 'human freedom' those Amartya Sen (1999) champions, a freedom that helps in attaining other 'freedoms'.

The present paper aims at an examination of the relationship between post-elementary[2] education and development, particularly poverty and other aspects of social and human development in India. While education is also influenced by poverty (see Tilak, 2002; also Bhatty, 1988), the question examined here is how poverty and development influence higher education and development. Section 2 presents a brief overview of the literature on this aspect. Based on inter-state data, an analysis of the contribution of post-elementary education to poverty reduction and improvement in related dimensions of development such as infant mortality rate, and life expectancy is attempted in Section 3. The paper ends with a few concluding observations in Section 4.

2. **A Review of Earlier Research**

Very few studies have exclusively focused on the role of secondary and higher education in development. Those few researchers who analysed the relationship between post primary education and development, did, however, find significant impact of education on economic growth (e.g., Barro, 1991, 1999**;** Barro and Salai-i-Martin, 1995; Lucas, 1988, Mankiw et al 1992; Barro and Lee 1993; Benhabib and Spiegel, 1994; Petrakis and Stamatakis, 2002). For instance, Barro (1999) found in his cross-country regressions on 100 countries that economic growth between 1960 and 1995 is positively related to the base level (1960) secondary and higher levels of education attainment of adult population, and more over the growth is not significantly related to primary education.

Tilak (2003) has gone beyond economic growth, and analysed the relationship between higher education and several development indicators, including poverty and human development. Estimates based on production functions on a cross section of 49 countries in Asia (Tilak, 2003) indicated a strong effect of higher education on development. Higher education -- measured in terms of the gross enrolment ratios or in terms of higher education attainment, i.e., proportion of population with higher education -- is found to have a positive effect on the level of economic development.

[2] Elementary education in India refers to primary and upper primary education, which together constitute 'compulsory' education and the Constitutional Directive. This can also be broadly equated to the concept of basic education, internally used, though the concept of basic education has a different connotation in India, attributable to Gandhi's philosophy of education.

Higher education is also positively related to several human development indicators, in addition to economic development: it is significantly related to the human development index and also to the gender development index. Higher the level of higher education in a society, whether in stock or flow forms, the higher can be the level of human development, through its influence on two main components of human development index, viz., the life expectancy, and GDP per capita. It is not only life expectancy that is significantly related to higher education, but also infant mortality, another measure of health, is significantly related to higher education. Similarly, the effect of higher education on fertility rates can also be two-folded: higher education may bring in attitudinal changes on the need to reduce fertility rates for development on the one hand, and secondly, prolonged education, i.e., enrolment in higher education may delay marriages, and lead to reduction in fertility rates.

Poverty is also found to be inversely related to the level of higher education in the Asian countries. The relationship between poverty and gross enrolment ratio in higher education is negative and the coefficient is statistically significant. In general, one can argue that while basic education may take people out of poverty, this can be sustained well by secondary and higher education, which helps in upward mobility and offer better economic opportunities. Thus, Tilak (2003) found that higher education has a very significant role in the development of the societies – in terms of economic development, human development, gender-based development, improvement in health, life expectancy, and reduction in fertility, infant mortality and poverty.

Thus the available research evidence shows that the general presumption that post basic education is not necessary for economic growth and development, particularly in developing countries and on the other hand, it is literacy and primary education that is important, is not a correct presumption.

Most of the research specifically on India has also concentrated on the contribution of education and of various levels of education to economic development. In one of the earliest attempts to estimate the contribution of education to increase in the productivity, quality of the labour force and to economic growth in India, the relative contribution of education to increase in productivity per person was estimated to be as high as 14.01 per cent during

1948-49 to 1968-69; and 0.36 per cent of improvement in the quality of labour force was attributable to education (Dholakia, 1974). According to later studies, these estimates were found to be underestimates. The contribution of education to economic growth in India was asserted to be as high as 34.4 per cent (Psacharopoulos, 1973). But Loh (1995) using 1971-81 data estimated the corresponding ratio to be 27 per cent. In a recent study Sivasubramonian (2004) estimated the sources of economic growth in India between 1950-51 and 1999-2000 and found that education, along with land, labour and physical capital contributes significantly to economic growth.

It has been noted very clearly that investment in education in India is "economic" (Heyneman, 1980). Individual wage earnings systematically increase significantly by increasing levels of education (Blaug *et al*., 1969; Kothari, 1970; Tilak, 1987; Mehta, 1990). This is found to be true both in national and micro level surveys and is also true for total and subgroups of population. For example, based on a micro level household survey, Tilak (1990) reported that while earnings of male workers get nearly doubled if they have higher education, compared to secondary education, the same would increase by 80 per cent in case of women. In the case of both men and women, the earnings systematically increase by increasing levels of education.

As the estimates given in Table 1 show, education has a strong effect on individual wages, the effect being higher in case of regular workers, compared to causal workers, and the effect increases systematically by increasing levels of education, the effect being the highest in case of those who have higher education. There is a significant jump in the coefficient between secondary and higher education, suggesting that secondary education may be a threshold level for education to influence the earnings.

Table 1: **Regression Coefficients of Education in Wage Regressions for Regular and Casual Workers**

	Regular Wage Workers			Casual Wage Workers		
	1983	1993	1999	1983	1993	1999
Completed Primary School	0.0658***	0.0426***	0.0485***	0.0088	0.0108*	0.0227***
Completed Middle School	0.1361***	0.0933***	0.1090***	-0.0065	-0.0079	0.0165*
Completed Secondary School	0.3486***	0.2640***	0.2945***	-0.0085	-0.0348*	0.0117
Completed Graduate School	0.6192***	0.5385***	0.6025***	-0.0043	-0.0693*	0.018

Note: *** significant at 1% level; ** significant at 5% level; * significant a 10% level
Source: Vasudeva-Dutta (2004 ?)

The economic returns to education in India are also estimated to be reasonably high; they are comparable to rates of return to investment in physical capital on the one hand, and to rates of return to education in other developing and developed countries of the world, and moreover they are found to be increasing. For example, in almost first of its kind in India, Harberger (1965) and Nalla Gounden (1967) estimated high rates of return to education in India. The estimates by Harberger (1965) given in Table 2 show that both secondary and higher education yielded a rate of return at least above 10 per cent.

Table 2: **Rates of Return to Education in India, 1961**

	Assumption I	Assumption II
Graduate/Post Graduate compared with Primary	15.0	14.1
Secondary compared with Primary	11.9	10.0
Graduate/Post Graduate compared with Secondary	16.9	16.3

Source: Harberger (1965, p. 27)

According to Blaug, Layard and Woodhall (1969), compared to the social rate of return of 20 per cent and 17 per cent in 1961 to primary and secondary education respectively, the estimated returns in 1978 were 23 per cent and 18 per cent respectively, and it was 11 per cent for higher education.[3] Despite some of the severe limitations that the estimates on rates of return, particularly social rates of return, carry with, these estimates are strongly believed to be a good indicator of the economic contribution of education.

Estimates of rates of return based on earnings function also indicate substantial and increasing returns to education.

Table 3: **Average Private Rate of Return to Education, by Levels (%)**

	Regular Wage Workers			Casual Wage Workers		
	1983	1993	1999	1983	1993	1999
Primary School	1.32***	0.85***	0.97***	0.18	0.22*	0.45***
Middle School	2.35***	1.69***	2.02***	-0.51***	-0.63***	-0.2
Secondary School	5.31***	4.27***	4.64***	-0.05	-0.67*	0.12
Graduate School	9.02***	9.15***	10.26***	0.14	-1.15*	0.21

Note: *** significant at 1% level; ** significant at 5% level; * significant a 10% level
Source: Vasudeva-Dutta (2004?)

[3] There are a series of studies on rates of return to education in India, most of which found positive and reasonably high rates of return to secondary and higher education. Tilak (1987; 1994) reviewed some of these studies.

Private rates of return estimated using wage functions by Vasudeva-Dutta (2004?), given in Table 3 show that returns increase by increasing levels of education, the rates of return being the highest for higher education for regular workers, about ten per cent. But the returns are not high for casual workers. Self and Grabowski (2004) found significant impact of secondary education on economic growth and the relationship is causal and statistically significant when secondary education is measured in terms of enrolments or in the form of stock of human capital.

Using recent data Mathur and Mamgain (2004) also found significantly increasing effects of education on economic development (NSDP per capita) by increasing levels of education. Some of the results are given in Table 4.

Table 4: **Regression Coefficients of per capita NSDP**

	ß
Illiterate	-190.99***
Just Literate	-245.81
Primary	594.85***
Middle	190.75
Secondary	730.99***
Higher Secondary	2879.07***
General Graduate	4870.12***

Other levels of education are not included here.
*** significant at 1% level.
Source: Mathur and Mamgain (2004)

It is important to note that the regression coefficients for not only illiteracy but also for just literacy are negative; highest effects are found of higher education, followed by higher secondary and secondary education.

Tilak (2004) has examined the relationship between higher education and economic development in India and it was found to be significant. A simple coefficient of correlation between state domestic product per capita (SDP/pc) (1999-2000) and percent of population with higher education (HEA) (1995-96) in various states and union territories was high and statistically significant. The value of the coefficient was 0.686. Tilak (2004) also found strong relationship between higher education and poverty in India. The coefficient of correlation between poverty (1999-2000) and percent of population with higher education was also significant, and the coefficient was

negative in value, it is: -0.37.[4]

It may be argued that these figures highlight the nature of association, between higher education and development, and not the cause and effect relationships. Nevertheless, despite some such familiar limitations associated with these statistical measures, these results, that used time lag for education to have an effect on poverty and economic development, do show that higher education is positively related to economic growth and inversely to poverty; and it is likely that higher education influences positively economic growth.

It should be noted that these returns are in addition to several kinds of externalities associated with investment in human capital. The effect of education on agricultural development was also found to be quite high (see Tilak, 1994). It was also found by earlier researchers (Raza and Ramachandran, 1989) that the threshold level for education to influence agricultural development in rural areas increases from primary to secondary education.

On the whole, the contribution of education to economic growth in India has been significant. It is generally felt that the returns to investment in human capital could be higher, had (a) the quality of education received serious attention of educational planners, and (b) educational planning is well integrated with economic planning, emphasizing poverty reduction, income distribution and economic growth. For example, Behrman and Schneider (1992) argued that India did not reap much gain from investments in human capital in terms of economic growth and poverty alleviation, and that there might be substantial potential gains to be reaped in the future from India's human capital.

With respect to other aspects of development and the relationship of education with them, often the researchers (World Bank, 1997; Dasgupta, 1990: Tilak, 1991, 1994; Bhatty, 1998; Watt, 2000) confined to estimating coefficients of correlation between literacy or primary education and the corresponding development indicators such as life expectancy, infant morality, fertility, birth rate, population growth, health status etc. The role of secondary and higher education in improving social development indicators has been rarely examined. Even with respect to economic development, some important research has exclusively focused on primary education (Drèze and Saran, 1993).

[4] The number of observations in both cases is 28 (states/union territories in India); if all union territories are also considered, (n = 32), the coefficient of correlation between higher education and poverty increases marginally to –0.38.

3. **Further Analysis**

Based on most recent statistics available, it is attempted here to provide some further evidence on the role of secondary and higher education in development in India. Using the state-wise data, a variety of indicators on poverty and development are regressed on stock of adult population with secondary and higher education.

At the very outset, it would be interesting to note that while literacy has a positive impact on poverty reduction and development, mere literacy does not. Literates include all people who are mere literate and also all educated people. Rarely mere literacy rate is examined in relation to development. The simple coefficients of correlation between various levels of education (percent of population with different levels of education in 1995-96 and poverty ratio in 1999-2000) in 32 states and union territories in India, given in Table 5 reveal some interesting aspects.

Table 5: **Coefficient of Correlation between Education and Poverty**

Coefficient of Correlation between Poverty Ratio (1999-00) with		
% of Population (1995-96) having		*r*
	Illiteracy	0.212
	Literacy	0.486
	Primary	0.051
	Middle/Upper Primary	-0.358
	Secondary and above	-0.560

Illiteracy and poverty go together; this is not surprising; this is most widely confirmed. But more importantly, literacy (mere literacy) and primary education are also positively related to poverty ratio. It is only when people have at least completed middle/upper primary level of education, the relationship between education and poverty becomes negative and important; and the negative relationship becomes stronger when the level of education is raised to secondary (and above). Thus middle level education may serve as a threshold level for education to influence poverty. [5]

The stock of adult population with secondary and higher levels of

[5] Mathur (1990) also reported similar increasing coefficients of correlation by increasing levels of education between education and overall development on the district-wise data in 1971. He found highest coefficient with secondary (matriculation) education, followed by higher education.

education (SHEA) is an important indicator of the level of development of secondary and higher education. This stock indicator represents the cumulative efforts of a country in the development of secondary and higher education over the years. The larger the stock of population with secondary and higher education, higher could be the economic growth. Focusing more on poverty and other aspects of development, and using SHEA as the education variable, a series of regression equations are estimated on cross-section inter-state data and the results are given in the following tables. In all equations time lag is allowed, i.e., influence of the SHEA in 1995-96 on development indicators of a later period, mostly in 1999-2000. Secondly, in all cases a semi-log regression equation is used. The results are as follows:

a) Poverty ratios are estimated in India considering the levels of consumption expenditure of the households. Datta and Sharma (1995) found a strong negative relationship between consumption expenditure and poverty in rural India. Ravillion and Datt (1994) have explained a large proportion of variation in poverty with the help of per capita consumption expenditure. So it may be in order to examine the relationship between per capita consumption expenditure of the households and education. Per capita consumption expenditure is regressed on SHEA and the results given in Table 6 show that the expenditure level is considerably influenced by the SHEA. Higher the level of SHEA, the higher will be the expenditure and it is true in rural as well as urban areas with positive and statistically significant coefficients.

Table 6: **Regression of *ln* Per Capita Consumption Expenditure on SHEA (Secondary and Higher Education)**

	Intercept	Regression Coefficient	Adjusted R-Square	F-Value	Degrees of Freedom
Rural	6.1087	0.0205*** (3.826)	0.306	14.642	31
Urban	6.493	0.0087** (2.263)	0.117	5.123	31
Rural Plus Urban	2.6604	0.0091*** (5.418)	0.478	29.36	31

Note: *** significant at 1% level; ** significant at 5%level.

Education explains a larger proportion of variation in consumption expenditure in various states in rural India than in urban India, though in

both cases the results are statistically significant. When we examined the rural plus urban levels of consumption expenditure, the results improved further, with the adjusted coefficient of determination being nearly 0.5.

b) Similar equations on poverty also yield very meaningful results as shown in Table 7. The regression coefficient of SHEA is negative and statistically significant at 99 per cent level of confidence, showing clearly that higher the percentage of population in a state with secondary and above education the lower would be the poverty ratio in the state. While this relationship holds both in rural and urban areas, the value of the coefficient and the level of significance suggests that the effect of education on rural poverty is higher than in urban areas.

Table 7: **Regression of *ln* Poverty Ratio (1999-2000) on Secondary and Higher Education (1995-96)**

	Intercept	Regression Coefficient	Adjusted R-Square	F-Value	Degrees of Freedom
Rural	4.1267	-0.0983*** (-4.791)	0.415	22.952	30
Urban	3.7928	-0.0332** (-2.645)	0.189	6.998	30
Rural Plus Urban	3.7294	-0.0426*** (-3.804)	0.303	14.469	30

Note: *** significant at 1% level; ** significant at 5%level.

c) As mentioned earlier, much of the literature on human development also concentrated on the role of literacy and primary education on infant mortality and life expectancy, and the role of secondary or higher education was not analysed, assuming that secondary and higher education has no role at all in improving life expectancy or reducing mortality rate among the children. We find here that this is not true. Secondary and higher education have a very significant effect on reducing infant mortality rate. Higher levels of education help a lot in reducing infant mortality rates, as people with higher education would be more aware of the need for preventive healthcare measures and also would be aware of the availability of general healthcare facilities, leading to sound decision making within households regarding healthcare. Higher education can influence health of the population in a different way as well, through provision of skilled quality medical manpower to the society.

The regression coefficients in Table 8 are negative and are statistically significant. Further, since the variable on education refers to adult population with secondary and higher education, and as the adults can adopt necessary measures immediately without any time, the effect of education on infant mortality could be almost instantaneous. This is clear, when we examine the regression equation that has not allowed for much time lag, and the mortality rate in 2001 is regressed on the education of the population in 1999-2000.

Table 8: **Secondary and Higher Education and Infant Mortality**

	Intercept	Regression Coefficient	Adjusted R-Square	F-Value	Degrees of freedom
Regression of Ln Infant Mortality Rate (2001) on Secondary and Higher Education (1995-96)					
Rural	1.9383	-0.0182*** (-2.909)	0.278	8.465	22
Urban	1.4787	0.0079 (0.085)	-0.045	0.007	22
Regression of Ln Infant Mortality Rate (2001) on Secondary and Higher Education (1999-2000)					
Rural	1.9877	-0.0277*** (-4.944)	0.439	24.44	29
Urban	1.7388	-0.0099 (-1.502)	0.039	2.27	30
Note: *** significant at 1% level; ** significant at 5%level.					

However, we find that the effect of secondary and higher education on infant mortality is confined to rural areas. In case of urban areas, the regression coefficients have expected signs, but they are not statistically significant (at 10 per cent level).

d) In case of life expectancy, another important measure of health conditions, also, the effect of secondary and higher education is significant in rural areas, but not in urban areas, though in all cases, the sign of the regression coefficient is positive. In case of both male and female life expectancy, the influence of education is statistically significant, increasing the life expectancy considerably. The regression coefficient of urban education in 1999-2000 on female life expectancy is statistically significant at 10 per cent level. The effect is also higher when the time lag is reduced. Life expectancy estimated for 2001-06 is more influenced by the education in 1999-

2000 than education in 1995-96. In all cases, the number of observations is small, due to non-availability of data on life expectancy; but the results are robust.

Table 9: **Regression of *ln* Life Expectancy at Birth (2001-06) on Secondary and Higher Education**

	Intercept	Regression Coefficient	Adjusted R-square	F-Value	Degrees of freedom
Dependent Variable: ln Male Life Expectancy					
Rural Education (1999-2000)	1.764 (154.90)	0.0046*** (4.009)	0.53	16.8	13
Rural Education (1995-96)	1.768 (136.67)	0.0033*** (3.302)	0.414	10.904	13
Urban Education (1999-2000)	1.761 (33.11)	0.0017 (0.882)	-0.016	0.778	13
Urban Education (1995-96)	1.774 (29.98)	0.0009 (0.559)	-0.052	0.312	13
Dependent Variable: ln Female Life Expectancy					
Rural Education (1999-2000)	1.76 (132.65)	0.0062*** (4.763)	0.608	22.691	13
Rural Education (1995-96)	1.768 (107.03)	0.0042*** (3.289)	0.412	10.819	13
Urban Education (1999-2000)	1.708 (27.29)	0.0041* (1.785)	0.135	3.184	13
Urban Education (1995-96)	1.743 (23.76)	0.0021 (1.040)	0.077	1.081	13

Note: *** significant at 1% level; ** significant at 5%level.

It may be argued that simple regression equations of development indicators on education suggest only correlation between the two, and not necessarily cause and effect relationship. Such a criticism is partly pre-empted here, by allowing a time lag for higher education to cause development. Secondly, the variable on secondary and higher education considered is a stock variable – cumulated stock of adult population with secondary and higher levels of education. Such a stock would be least influenced by development indicators that too relating to a few years ahead. After all, we also find very few states with high levels of higher education being underdeveloped, while all the economically rich states have not necessarily advanced in the development and spread of higher education.

To sum up, secondary higher education has a very significant role in the development of the societies – in terms of economic development, poverty reduction, life expectancy and infant mortality. Though in general it is true that there exists a two-way relationship between higher education and development, the way and the facets of development are analysed here, highlight the likely contribution of secondary and higher education to development. For instance, it may be okay to ague that current national income may influence the educational levels of population in future; but educational levels of population 5-6 years ago cannot be argued to be influenced by the current levels of development, or by other current indicators of development, particularly in modern times when socioeconomic development takes place rapidly. In short, though the statistical analysis used is very simple, the group of states used in the regression analysis is highly heterogeneous, and that there can be several factors influencing economic growth, poverty and other facets of development in addition to secondary and higher education, nevertheless, the analysis indicates a strong and positive relationship – secondary and higher education influencing development.

4. **Summary and Concluding Observations**

The contribution of basic education to development is widely recognised. But very rarely the linkages between post elementary education and development have been analysed. This paper is a modest attempt to examine whether at all post-elementary education has any role in development in India, using some of the recent statistics available. The analysis of secondary data clearly leads us to conclude that post elementary education plays a significant role in development. Based on state-wise data on stock of the population with secondary and higher education in 1995-96 and development indicators relating to mostly around 1999-2000, and simple regression equations, the relationship between post elementary education and development is analysed. Despite some of the limitations of such exercises as they may indicate more of inter-relationship than causal relationship, it may not be wrong to conclude from the analysis the following:

a) Secondary and higher education enhances earnings of the individuals and contributes to economic development.

b) Post-elementary education makes a significant contribution to

reduction in absolute as well as relative poverty.

c) It also influences negatively infant mortality.

d) Life expectancy is also positively related to post-elementary education.

The implications of the empirical results are clear and straight forward: given the importance of post-elementary education along with literacy and elementary education, it is necessary that attention is paid to development of sound and comprehensive education policies. Though the contribution of secondary and higher education to development is quite significant, India, like many other developing countries could not pay adequate attention to it. In fact, there has been a strong tendency to neglect secondary and higher education and to focus, rather exclusively on elementary, more particularly primary education. Public policy has to clearly recognise the critical importance of secondary and higher education in development, in poverty reduction, human development and economic growth. Coherent long term policies for the development of education, including secondary and higher education, for development of the economy are needed.

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