Impact of Social Sector Expenditure on Human Resource Development: A Look into the Education and Health Sector of Assam

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ABSTRACT : *Human resource development is the key factor for development. Development of the people, by the people and for the people will lead to the all round development of the society. Human resource affects and is affected by the economic development. The two-way relationship between economic development and human resource suggests that nations may enter either into a virtuous cycle of high growth and large gains in human development, or a vicious cycle of low growth and low rates of human resource development. The financing in human resource and the complexities of issues associated with it have attracted considerable interest, both in academic as well as in administrative circles. Social sector expenditure has a significant effect on the human resource. This paper seeks to explore the impact of increase in the social sector expenditure on crude birth rate (CBR), crude death rate (CDR) and infant mortality rate (IMR). While increasing expenditure on social sector proves to have insignificant impact on IMR, it has significant impact on CBR and CDR. It was found that Assam has less satisfactory performance than the national level standard regarding these statistics. Besides, an attempt is made to know the impact of human development indices on human development rank through multiple regression analysis. In comparison with the education index and GDP index, life expectancy index has better impact on determination of the human development rank. The proposed paper also tries to suggest some policy prescriptions for further improvement of the human resource in this region.*

I. INTRODUCTION:

Human resource development is the key factor for development. Development of the people, by the people and for the people will lead to the all round development of the society. The main theme of 1996 Human Development Report was: "Human development is the end - economic growth a means." The Report argues that economic growth, if not properly managed, can be jobless, voiceless, ruthless, rootless and futureless, and thus detrimental to human development (HDR, 1996). The quality of growth is therefore as important as its quantity; for poverty reduction, human development and sustainability. Again economic growth is not sustainable without human development. There is a two-way relationship between human resource and economic development.

The ultimate objective of planned development is to ensure human well-being. The development of human resources contributes to sustained growth and productive employment. After the UN Millennium Development Summit (2000), the Millennium Development Goals (MDG) became the most widely accepted yardstick of development efforts by Governments. Improvement in human capital requires higher investments in the social sector. The goals (MDGs) relating to the social sector include achieving universal education, attaining gender equality, reducing Infant Mortality Rate (IMR) and under five mortality by two-thirds, reducing Maternal Mortality Rate (MMR) by three quarters and reversing the spread of HIV/AIDs and other communicable diseases.

Revenue expenditure of the government of Assam is under the principal heads of General services, Social and Community services, Economic services and Grants-in-aid. Under these heads expenditure in Social and Community services include Education, Art and Culture, Medical, Family Planning, Public Health and Sanitation and Others. Education and health are the two important components of human resource which will enhance economic development. The financing in human resource and the complexities of issues associated with it have attracted considerable interest, both in academic as well as in administrative circles. Limited amount of scarce resources should be optimally utilised in the development of human resource so that it can lead to the desired targets of economic growth.

II.   REVIEW OF LITERATURE:

The notion of investment in human resource is of recent origin. Human capital or human resource is the term economists often use for education, health, and other human capacities that can raise productivity when increased (Todaro and Smith 2003). Appleton and Teal (1998) confirm that human resource is a broad concept which identifies human characteristics which can be acquired and also increase income.The theoretical models of economic growth have underscored the role of human capital. Jhingan (2005) points out that in the process of economic growth, it is customary to attach more importance to the accumulation of human capital than physical capital. The new endogenous growth theories are significant in the introduction of the active role of human capital in the growth of economies. The literature starts with the seminal paper of Lucas (1988) which shows that growth rate of per capita income depends on the growth rate of human capital that depends on the time allocation of the individuals for acquiring skill. Since then many eminent economists have dealt with the issue of human capital accumulation and growth.

The economic rationale for investing in human resource derives from the belief that human resource plays a key role to economic growth. According to Todaro and Smith (2003), human resource must be given direct attention in its own right, even in economies that are growing rapidly. The importance of human resource centres not on just developing countries that wish to break free of their vicious cycle, but also developed countries that aspire to achieve sustainable growth and development. Many studies have found that a region's growth is influenced by the initial level of human resource. Glaeser et al. (1995) find that level of human capital in 1960 influences growth of the cities during 1960 and 1990. Similarly, Simon et al. (2002) found that cities that have higher level of human resource initially grow faster in the long run. Hence expenditure in the social sector may not have an immediate effect on the economy, but it will have a definite positive impact in the near future.

Human resource development in an integrated sense encompasses education and training, health care, nutrition, population policies and employment (Muqtada and Hildeman 1993). Human resource theory thus focuses on health and education as inputs in economic production. These inputs work together to make the individual more productive. Appleton and Teal (1998), describe health and education as components of human resource which contributes to human welfare. Yet economists do not always recognize the health component of human resource. Schultz (1961) saw human resource as those resources that are inherent in each human being, which can be traded between the users and the owners to improve their respective living conditions. These inherent resources in human beings include knowledge, skills and attitude. No mention regarding health is made in his study. Some studies estimate that a single percentage point increase in the adult survival rate increases labour productivity by as much as 2.8 per cent (Bloom et al, 2002). Empirical evidence also supports a relationship between the average survival rate and economic growth. For example, for the poorest countries, a 1 per cent improvement in the average survival rate has been associated with an approximate increase of 0.05 per cent in the growth rate (Bhargava, 2001).

According to the World Health Organization (WHO), "health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity." The Report of the *National Commission on Macroeconomics and Health* (2005), jointly brought out by the Ministry of Health and Family Welfare and the Ministry of Finance, says that the "prevention of diseases, particularly non-communicable diseases that are expensive to treat, is the most cost-effective strategy for a country facing scarce resources; more so, when the country is striving for a two-digit GDP growth." Yet Per capita government health expenditure in India is one of the lowest in the world – US $7, as against US $2,548 in the United States. The other important component of human resource that contributes for the economic development is education. The empirical analysis of growth for a broad group of countries shows that the school attainment has positive effect on growth (Barro, 1992). Mathur (1993) established that the association becomes stronger at higher levels of education. Here subsidy attracts more people to the education process. Lucas (1990) has mentioned that increased subsidies to schooling have potentially large effects on human capital accumulation and long term growth rate. Again Tilak (1987) and Psacharopoulos (1993) had shown that investment in education yields a higher rate of return than investment in physical capital. This necessitates the concept of human resource and hence the expenditure in the social sector for economic development. Mathur and Mamgain (2002) find the influence of both technical and general education on per capita income to be positive with that of the former being more powerful. In case of agriculture, Chaudhri (1979) finds that primary schooling affects productivity positively, particularly in times of rapid technological change. Moreover, reduced schooling has a direct impact on incomes. One study shows that it lowers hourly earnings by about 17 per cent directly and indirectly (Perri, 1984). Human resource can increase the level of production in an economy.

Education being an important component of human resource has a strong effect on labour productivity. In agriculture, Birdsall (1993) uses data from Malaysia, Ghana and Peru to show that each extra year of a farmer's schooling is associated with an annual increase in 2-5% of output. In addition to its direct effect on productivity, education also affects the rate of innovation and technological improvements. Foster *et al,* (1995) demonstrate that increased education is associated with faster technology adoption during Green Revolution in India. The importance of skilled manpower, of engineers in particular, to Indian software exports is widely recognized (e.g., Lakha, 1994; Arora and Athreye, 2002). In this context several studies have been made to focus the importance social sector expenditure in the development of the human resource and in turn economic development.

III.   CONCEPTUAL FRAMEWORK:

Human resource is a relatively modern term coined in 1960s. The original use of human resource derives from political economy and economics, where it was traditionally called labour, one of four factors of production. Yet, before the introduction of the new endogenous growth theory since the mid of 1980s, human resource could not get proper importance. This theory recognised the importance and externality of human resource for creation of economic development. Along with the physical capital this theory introduced the concept of human resource for economic development. During the past century, progress in human resource was drastic and unprecedented. But despite this impressive progress, massive human deprivation still exists.

Human resource, if not engendered, is endangered. Given this problem, world leaders attending in the United Nations Millennium Summit in September 2000, adopted Millennium Development Goals (MDG) of a set of 8 goals including eradication of poverty and hunger; achieving universal primary education; gender equality; reducing child mortality etc, that establish concrete, time-bounded targets for advancing development by 2015 or earlier.

Human resource affects and is affected by the economic development. The two-way relationship between economic development and human resource suggests that nations may enter either into a virtuous cycle of high growth and large gains in human development, or a vicious cycle of low growth and low rates of human resource improvement. In these states, levels of economic growth and human resource are mutually reinforcing, either leading towards an upward spiral of development, or a poverty trap. Thus human development seems to be a necessary prerequisite for long-term sustainable growth. Human development may, moreover, exhibit threshold effects, in the sense that nations must attain a certain level of human development before future economic growth becomes sustainable.Proper physical and mental set up of the human resource is essential for the development of the economy. Hence education and health are the two important components of human resource. Increasing social sector expenditure can pave the way for accurate development of the human resource. Kothari Commission (1964-66) maintained that the expenditure in the education sector should be at least six percent of the total GDP of the country. The target remains still illusive. Again Indian government had launched National Rural Health Mission (NRHM), an ambitious policy to improve the health status of human resource on 12 April, 2005. It aims to restructure the delivery mechanism for health towards providing universal access to equitable, affordable and quality health care that is accountable and responsive to the people's needs, reducing child and maternal deaths as well as stabilizing population, and ensuring gender and demographic balance. The Mission suggests the government to rise public spending on health from 0.9% of India's gross domestic product (GDP) to 2-3% of GDP. On the other hand higher income, both individual and national, resulting from economic growth also influences health outcomes, as higher income can increase health consumption (demand for health services) and investment (supply of health services). High economic growth also paves the way for private-sector investment in countries that previously discouraged it because health was generally perceived as a public good. This makes the concept of social security system essential.

IV.   OBJECTIVE OF THE STUDY:

The study seeks to
[1]   Analyse the relationship between social sector expenditure and human resource.
[2]   Examine the relationship between human development rank and human development indices.
[3]   Examine the relationship between social sector expenditure and health status.

Data Source and Research Methodology:

Coverage: The present study covers the relationship between social sector expenditure and human resource. The data covers the human development indices data for some selected countries of the world for the year 2007. Again data relating crude birth rate (CBR), crude death rate (CDR), infant mortality rate (IMR) and social sector expenditure in Assam for the period 2003-08 have been taken for analysis.

Data Collection: The study is mainly based on the secondary data. Books, government and non-government reports, journals are accessed from library and also from the internet.

Data Analysis: The methodology adopted is consisted of both qualitative and quantitative analysis. For the analysis of data regression has been used.

V. RESULTS AND FINDINGS:

Concentration on economical growth alone will not ensure human resource development. The pre-requisite of human resource development is the allocation of scarce resources to the appropriate channel. Otherwise economic growth and human resource development will have divergent results. Because of this reason to achieve a superior human resource development social sector expenditure is a highly significant concept than the general economic growth in the country. For example, as per the UNDP Human Development Report (2007) among 182 countries the ranks of China, India and Bangladesh are 92nd, 134th and 140th respectively. China's life expectancy at birth is 73.5 years against ten percent economic growth rate and India's life expectancy at birth is 64.4 years against almost nine percent growth rate. On the other hand a very low growth achiever country Bangladesh's life expectancy at birth is 66.9 years. Again the average schooling years in China, India and Bangladesh are 7.5 years, 4.4 years and 4.6 years respectively. Hence it is evident from the fact that economic growth may not always direct human resource development if the fund is not direct in the priority tracks.

A higher and healthy labour supply, improved skills resulting from increased access to education and training enhances economic growth. Education alone, of course, cannot transform an economy. The quantity and quality of investment, domestic and foreign, together with the choice of technology and overall policy environment, constitute other important determinants of economic performance. Human resource has to be constantly trained in order to be able to develop, apply and use new technologies. Human beings invest in themselves by means of education and training which increases knowledge and skill in them. This increases their productive capacities, which raises their future income by increasing their lifetime earnings. Generally better educated people earn more than a less educated person. In addition to this an educated person can realise the importance of an improved health status. On 1st April, 2010 the government of India declared education as a fundamental right of each and every child. Yet dropout rate in Assam as well as in India is still high; conversely enrolment rate is very low in the mentioned areas. The first Human Development Report (1990) introduced the way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index (HDI). These indicators are adopted to measure HDI till date. The table-1 in the annexure shows the relationship between human resource and economic development.

The result of the multiple regression analysis is shown in the Box-1, 2 and 3 in the annexure. Here the dependent variable is human development rank and independent variables are GDP index, life expectancy index and education index. The impact of these three indices is indicated by the coefficient of determination at 1.000, which implies that hundred percent of the variation in the human development rank can be accounted by an increase in the value of these indices. The regression model predicts the human development rank efficiently as revealed by the F value of 2930000, which is significant at $p < 0.001$. The regression coefficient (b_1) represents to what degree each predictor affects the outcome if the effects of all other predictors are held constant.

Life Expectancy Index (b=0.336): This value indicates that as life expectancy index increases by one unit, human development rank increases by 0.336 units. Therefore, every additional life expectancy index is associated with an extra 0.336 rank of human development. This interpretation is true only if the effects of education and GDP index are held constant.

Education Index (b=0.332): This value indicates that as education index increases by one unit, human development rank increases by 0.332 units. Therefore, every additional education index is associated with an extra 0.332 rank of human development. This interpretation is true only if the effects of life expectancy and GDP index are held constant.

GDP Index (b=0.332): This result interprets that GDP index rated one position higher can expect additional human development rank by 0.332. This interpretation is true only if the effects of life expectancy and education index are held constant.

Hence it can be concluded that among these three indices health is slightly a better indicator of human development rank in comparison with the other two indices of human resource development.

Details of some health indicators:

Birth and death are the two most important factors determining the size of the population and in turn the strength of the human resource development.

Box 5 and 6 depicts the following results:

Crude Birth Rate (CBR): Higher amount of social sector expenditure means less amount of CBR. The impact of social sector expenditure is indicated by the coefficient of determination (r^2) at 0.851, which implies that 85.1 % of the variation in the crude birth rate can be accounted by an increase in the expenditure in the social sector. The regression model predicts the crude birth rate efficiently as revealed by the F value of 22.806, which is significant at $p < 0.01$. The regression coefficient (b_1) representing the gradient of the regression line is estimated at -1.018E-5, implying that expenditure in social sector by 1 lakh will decrease the crude birth rate by more than one (i.e. 1.018). The expenditure in the social sector has a significant impact on the CBR as is evident with *b1* being significant at $p < 0.01$.

Crude Death Rate (CDR): Again higher amount of social sector expenditure means the same impact on crude death rate as is on crude birth rate. The impact of social sector expenditure is indicated by the coefficient of determination (r^2) at 0.839, which implies that 83.9% of the variation in the CDR can be accounted by an increase in the expenditure in the social sector. The regression model predicts the CDR efficiently as revealed by the F value of 20.918, which is significant at $p < 0.01$. The regression coefficient (b_1) representing the gradient of the regression line is estimated at -2.277E-6, implying that increase in expenditure in the social sector by one lakh will reduce CDR by an additional number of 0.2277. Hence the expenditure in the social sector has a significant impact on the reduction of CDR as is evident with *b1* being significant at $p < 0.01$.

Infant Mortality Rate (IMR): IMR is regarded as an important and sensitive indicator of the health status of a community. Compared to other indicators like CBR, CDR, and MMR and under five mortality rates etc, this indicator has always been accorded greater importance by the public health specialists because IMR is the single largest category of mortality. Changes in specific health interventions affects IMR more rapidly and directly and hence it may change more dramatically than CBR in a population. This is clearly demonstrated in a developing country like India. In the 1960s India used to hover around the 100 marks in the country. However due to rapid strides that the country has taken in socio- economic development, health and education; average IMR is currently estimated to be 60/1000 live births/ year (SRS, 2003). Though compared to other developed countries and countries in transition, India's IMR is quite high it is close to the world average 56/1000 (Year 2002). Yet among Indian states Assam is still in the high IMR belt area. Because of this reason the expenditure in the social sector in Assam has no significant effect on the reduction of IMR whether it is in the urban or the rural area.Assam is at a deteriorate condition in case of CBR, CDR, IMR data than the national standard as represented in the table-2. In case of IMR rural Assam is at a worse condition than the urban areas. IMR was almost double in Assam in the year 2003 as compared to the national level data. Although the gap between the rural and the urban areas is showing, a decreasing trend in the subsequent years.

Policy Prescriptions:

[1] In case of health indicators greater care should be given to the IMR in comparison with the other indicators health. Because IMR is the most sensitive indicator than all other elements.
[2] The Kothari Commission, 1964 recommended that the education sector should allocate at least 6% of GDP, while the share of higher education needs to be 1.5%, within the 6%. In case of Assam, budgetary allocation in education was 4.53% in the year 2007-08 which is way below that of recommended rate. Under the circumstances it is recommended that the state should increase allocation in the education sector which is at least comparable to the recommended rates.
[3] All education institutions, especially in the rural areas should be provided with basic amenities like power, toilet, drinking water, desks and benches etc. so that the dignity of the teachers and the students are upheld. This would also significantly increase enrolment and reduce dropouts. Again proper sanitation will enhance children health.

[4] Proper allocation of funds towards appropriate channels will also have no meaning unless and until proper utilisation of the fund is exercised. Hence there should be proper allocation as well as proper utilisation of the allotted funds.

[5] Economic growth should be one of the objectives of our development and not the ultimate objective. The ultimate objective of development should always be the human resource development.

VI.   CONCLUSION:

Now-a-days human resource is the most important component of economic development which also influences the physical capital in the economy. Hence Government should take proper policy to develop the status of health and education level in the society which enriches the human resources. Economic development can be achieved through human resource by proper allocation of public fund towards development of them with the participation of private sector. Again, only sustained level of economic development can ensure development of human resource. It can be concluded that there is a two way nexus relationship between human resource and economic development.

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Appendix:

Table 1: Human Development Report

	HDI Rank	Life Expectancy Index	Education Index	GDP Index	GDP per capita(PPP US $)
VERY HIGH HUMAN DEVELOPMENT					
Norway	0.971	0.925	0.989	1.000	53,433
Australia	0.970	0.940	0.993	0.977	34,923
Iceland	0.969	0.946	0.980	0.981	35,742
Canada	0.966	0.927	0.991	0.982	35,812
Japan	0.960	0.961	0.949	0.971	33,632
HIGH HUMAN DEVELOPMENT					
Poland	0.880	0.842	0.952	0.847	15,987
Mexico	0.854	0.850	0.886	0.826	14,104
Oman	0.846	0.841	0.790	0.906	22,816
Saudi Arabia	0.843	0.794	0.828	0.907	22,935
MEDIUM HUMAN DEVELOPMENT					
China	0.772	0.799	0.851	0.665	5,383
India	0.612	0.639	0.643	0.553	2,753
Bangladesh	0.543	0.678	0.530	0.420	1,241
Ghana	0.526	0.525	0.622	0.432	1,334
LOW HUMAN DEVELOPMENT					
Afghanistan	0.352	0.310	0.354	0.393	1,054
Niger	0.340	0.431	0.282	0.307	627

Source: www.undp.org.in/

Source: SRS Bulletin (Various Years) RGI, Statistical Hand Book, Assam, 2008.

Table :2 Social Sector Expenditure, CBR, CDR and IMR

YEAR	SOCIAL SECTOR EXPENDITURES(Rupees in Lakhs Assam	CBR India	Assam	CDR India	Assam	IMR India	Assam TOTAL	RURAL	URBAN
2003	270162	24.8	26.3	8	9.1	60	67	70	35
2004	289801	24.1	25.1	7.5	8.8	58	66	67	38
2005	336149	23.8	25.0	7.6	8.7	58	68	71	39
2006	426242	23.5	24.6	7.5	8.7	57	67	70	42
2007	398710	23.1	24.3	7.4	8.6	55	66	68	41
2008	447748	22.8	23.9	7.4	8.6	53	64	66	39

Multiple Regression Analysis:
Box-1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000ᵃ	1.000	1.000	.000286

a. Predictors: (Constant), GDP INDEX, LIFE EXPECTANCY INDEX, EDUCATION INDEX

Box-2

ANOVAᵇ

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.719	3	.240	2.930E6	.000ᵃ
	Residual	.000	11	.000		
	Total	.719	14			

a. Predictors: (Constant), GDP INDEX, LIFE EXPECTANCY INDEX, EDUCATION INDEX

b. Dependent Variable: HDI RANK

Box-3

Coefficientsᵃ

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.000	.000		-.751	.468
	LIFE EXPECTANCY INDEX	.336	.001	.300	263.166	.000
	EDUCATION INDEX	.332	.001	.347	281.750	.000
	GDP INDEX	.332	.001	.375	369.612	.000

a. Dependent Variable: HDI RANK

Linear Regression:

Box-4:

Dependent Variable	Independent Variable	R^2	F Value	Sig.
Crude Birth Rate	Social Sector Expenditure	.851	22.806	.009
Crude Death Rate	Social Sector Expenditure	.839	20.918	.010

Box-5:

Dependent Variable	Independent Variable	b_1	t value	Sig.
Crude Birth Rate	Social Sector Expenditure	-1.018E-5	-4.776	.009
Crude Death Rate	Social Sector Expenditure	-2.277E-6	-4.574	.010