



AN EMPIRICAL ANALYSIS OF GROWTH AND DEVELOPMENT OF HIGHER EDUCATION IN SIKKIM

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Abstract: Education is one of the most crucial indices of socio-economic development. In India, higher education is of vital importance to build a knowledge based society of the 21st century. It is the quality of higher education that decides the quality of human resources of the country. Higher education is a very important sector for long term economic growth and development of human resources which leads to the social, economic and scientific development of the country. Sikkim is currently at the stage of an increasing number of enrollments in higher education and the population of young people entering the labour force continues to expand. This young and large growing youth should be educated for the betterment of the nation, state and society. The government has given the required thrust to increase higher education in the state by establishing the number of colleges and universities. Around 20 percent of the budget is being spent on education in Sikkim; the highest among the country for the growth and development of the education system and to bring quality education. The present study attempted to analyse the current status and trends in higher education in Sikkim. The study is solely based on secondary data which is collected from different secondary sources. The results were analysed by using various statistical tools including pie charts, bar diagrams, time series analysis etc. The present study found the growth of higher educational institutes and enrollment in Sikkim. Enrolment in higher education produces skillfulness and competitiveness which are necessary for economic growth and development.

JEL Codes: I20, I21, I25, C01, C13

Keywords: Higher education, growth and development, enrollment

INTRODUCTION

Education' includes 'literacy', but it is not confined to literacy alone. It comprehends much more: It is the acquiring of knowledge or learning, together with the equipment, which provides the skill and the inclination

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for making profitable use of that knowledge. Since the acquiring of knowledge and improvement of the skill for its application are parts of a dynamic process, education is a lifelong exercise. Higher education is, therefore, never complete in a continuously evolving dynamic personality. Sir Asutosh Mookerjee had aptly described the meaning and purpose of higher education in his Convocation Address (1922) at the Calcutta University. According to him, the university is the great storehouse of learning, a great bureau of standards, a great workshop of knowledge, and a great laboratory for the training as well of men of thought as of men of action. The University is thus the instrument of the State for the conservation of knowledge, for the discovery of knowledge, for the distribution of knowledge, and above all, for the creation of knowledge-makers."

Education is one of the most important indicators of socio-cultural, economic and human development. Education is essential for enhancing productivity, eradicating poverty, activating demographic transition and achieving overall human development. On the other hand, lack of education, wisdom and illiteracy leads to hampers socio-economic and political maturity. More importantly, it is a critical instrument for bringing about social, economic and political inclusion and durable integration of people. Thus, the process of educational attainment has an impact on all aspects of life and is the best social investment. Literacy ratios, the regional spread of educational institutions and associated infrastructure, enrollments and dropouts of the children, higher, professional and technical institutes, becomes imperative while assessing the development paradigm of any particular region. Higher education is an important form of investment in human capital development. In fact, it can be regarded as a high level or a specialized form of human capital, the contribution of which to economic development is very significant. It is rightly regarded as the "engine of development in the new world economy (Ozsoy, 2008). Higher education is of vital importance to build the knowledge-based society of the 21st century. It is the quality of higher education that decides the quality of human resources of the country. Higher education is a very important sector for long term economic growth and development of human resources which leads to the social, economic and scientific development of the country.

The contribution of higher education to development can be varied: it helps in the rapid industrialization of the economy, by providing manpower with professional, technical and managerial skills. In the present context of the transformation of nations into knowledge economies and knowledge societies, higher education provides not just educated workers, but knowledge workers to the growth of the economy. It creates attitudes and makes possible attitudinal changes necessary for the socialization of the

individuals and the modernization and overall transformation of the societies. Most importantly, higher education helps, through teaching and research in the creation, absorption and dissemination of knowledge. Higher education also helps in the formation of a strong nation-state and at the same time helps in globalization. It allows people to enjoy an enhanced 'life of mind' offering the wider society both cultural and political benefits (Tilak, 2003). Higher education contributes to economic growth through the "production of knowledge" and that is largely takes place within the major universities through faculty members' and their advanced students' research and creative activities. It is generally acknowledged that colleges and universities contribute to national growth through the "diffusion of knowledge", which result from the external may serve activities of their faculty, staff, and students. Furthermore, it is universally accepted that postsecondary institutions contribute to the "transmission of knowledge" through extensive and varied teaching activities. Economists have focused their attention on this latter set of activities as measured by enrollments, man years of postsecondary education completed, and the number of graduates, graduation rates, expenditures, and changes in student earnings (Becker & Lewis, 1992).

Higher Education in Sikkim

It is true that before 1975 there was not a single college operational in Sikkim. Records of history shed lights on three institutions (college level/tertiary level) namely Namgyal Institute of Tibetology (1957) was established to promote research on the religion, history, language, art and culture of the people of Tibetan culture area including Sikkim, Sikkim Institute of Higher Nyingma Studies (1963), and Sir Thudob Namgyal College (established in 1972) which have proven their worth. Sikkim Government College, Tadong was the first and only one college of Sikkim which was established in 1977 after merging with the Union of India to offer undergraduate courses in arts, commerce and science. Subsequently, Sikkim Government Law College, at Gangtok was established on 24th September 1980 to cater to the requirement of legal education in Sikkim which is fully state-funded. In the 1990s, the state could establish only 10 colleges that were mainly due to the contribution of private investors as well as government efforts. The colleges build during the 1990s were Himalayan Pharmacy Institute established in 1990 with the idea of exploring the possibility of utilizing the abundant resources of rare medicinal plants available in the Himalayan region, Institute of Hotel Management was set up in 1990 at Gangtok as a food craft institute by Ministry of Tourism, Govt. of India and Govt. of Sikkim to provide job oriented and professional education. During the year

2000, it was upgraded to a full-fledged Institute of Hotel Management. Advanced Technical Training Centre (ATTC), Bardang is the government polytechnic college for which the Government of Sikkim had taken major initiative for the development of technical education in the state, Damber Singh College (in 1994), Loyala College of Education, Namchi (in 1993) which is the 1st college of higher learning in South Sikkim and 1st higher education center of Teacher Education in the state, Namchi Government College, Kamrang (in 1995), Government Sanskrit Mahavidhyala (in 1997) which is affiliated to Sampurnanand Sanskrit University, Varanasi for the learning of Sanskrit in the state. The 21st century witnessed a few pioneering efforts in the form of colleges namely Harka Maya College of Education (in 2003), Pakim Palatine College (in 2004), Sikkim Government College Rhenock (in 2005), College of Agricultural Engineering and Post Harvest Technology (in 2006), Sikkim Government B. Ed. College (in 2009), Sikkim Government College, Gyalshing (2011), Sikkim Government College, Burtuk (2012), Sikkim Government Science College, Chakung (in 2015), Sikkim Government College, Mangshilla (2016) which is the first and only one college of North Sikkim established in 2017, Women Arts College, Khamdong (2016) only one woman college situated in the rural area of the state but it is not functioning due to the lack of students. Government Vocational College, Dentam was also established in 2016 for the development of skilled manpower in the state especially in wake of new industrial policy and to combat ever increasing problems of unemployment.

The first and foremost university known as Sikkim Manipal University (SMU) was established in Sikkim followed by the ICFAI University (2004), the EIILM University (2006), the Vinayak Mission (2008), National Institute of Technology (2009), and the SRM University (2013). Although colleges, technical training institutions, and universities are showing an upward trend, yet these could hardly accommodate all those who have a desire for tertiary level education. Sikkim did not have its own university before the establishment of Sikkim University though very few private universities exist. The colleges of Sikkim were affiliated to the North Bengal University (NBU) located in the district of Darjeeling, West Bengal. However, the state has passed Sikkim University Bill, 2003 with a view to established academic and research-intensive universities in the state. The union government had passed a bill in the parliament providing a Central University to Sikkim. Finally, Sikkim University was established by an act of Parliament of India in 2007.

REVIEW OF LITERATURE

Studies on women and economics of education, a substantial amount of work have been carried out at the international, as well as, national level

on women's education. Cohen (1971), Gwartney (1972), Gadgil (1965), McNully (1967), Sheddy (1983) *et al.* provided significant insight into the different and varied economic benefits of women's education in a society, not only in terms of income generation and increasing welfare but also in terms of developing a better quality of new generation. Sending kids to school today affects the cognitive achievements of children and grandchildren. Individuals benefit culturally and physically from increased access to health and welfare resources. Society at large benefits because of the diminishing costs of diffusing information, the potential acceptance of family planning and other social changes. If such benefits could be expressed in quantitative terms, the measure of overall benefits would increase many times at no additional cost, reinforcing the importance of women's education in society.

Suresha & Mylarappa (2012) revealed that since independence, the growth of Indian higher education has been very impressive; the number of universities has increased by 18-times, the number of colleges by 35 times and enrolment more than 10 times. India has the largest number of higher education institutions in the world, with more than 550 universities. However, the Gross Enrolment Ratio is low as compared to other countries, including developing countries. At present, India has more than 18067 colleges and just fewer than 10 million students. Increased need to universalize elementary education has resulted in a serious focus on elementary education and at the same time rather total neglect of higher education. Conversely, Menon *et al* (2014) found that India has an average level of the existing infrastructure of higher education and also the fact that majority of the education standard in India is behind that of developed nations. The results of the study indicate that higher education did not meet the expected standard and revision of syllabus and implementation of pedagogy is needed to bring it up to par with western education. Rawat (2014) attempted to study the spatial and temporal analysis of the availability and enrollment in higher education for females across the Indian states. Analysis of the paper reveals that there is a very high male-female disparity in gross enrollment ratio among the Indian states. Northern states especially, BIMARU states are most backward in higher education for females. There is an increasing trend of inequality between male-female in higher education despite the several governmental efforts for women empowerment. Barro and Martin (1995) found that male educational attainment, particularly secondary and higher education had significant positive growth effects. An increase in average male secondary schooling of 0.68 years raises annual GDP growth by 1.1 percentage points, while an increase in higher education of 0.09 years raises annual growth by 0.5 percentage points. They find an

interaction between initial GDP and human capital (broadly defined, including health and education), so that countries that lag behind tend to grow faster if they have high levels of human capital.

Jenkins (1995) looked at an index of total factor productivity and its relationship to different levels of educational attainment with time series analysis. The study found that when higher education qualifications (including undergraduate, postgraduate, and other university graduate stock) increased by 1 percent, annual output grew between 0.42 and 0.63 percent. Lin (2004) showed that higher education played a strong role in the country's economic growth. It found that a 1 percent rise in higher education stock (as defined by those who had completed higher education, including junior college, college, university, or graduate school) led to a 0.35 per cent rise in industrial output and that a 1 percent increase in the number of graduates from engineering or natural sciences led to a 0.15 percent increase in agricultural output. This work examined the effects of concentration in different disciplines and concluded that the study of the natural sciences and engineering had the largest effect on output.

The role of education has been acknowledged widely by economists and policy makers (Gilead, 2012). The utilization of infrastructure and technology requires a leading role of the higher education system in regional economic development (Schlottmann, 2010). Economists believe that investment in education or human capital increases output and labor productivity. Investment in human capital is crucial in the future because the economy is turning into knowledge-based from post-industrial economy (Dickens et al., 2006). Teles and Andrade (2004) estimated the relationship between government spending on basic education and economic growth. Results revealed that the economic decision makings of an agent are affected by his/her educational level. Jorgenson and Fraumeni (1992) estimated the impact of investment in education on U.S. economic growth. They used data from 1948 to 1969. Results revealed that an appropriate value of the investment in education was given by its impact on the lifetime labor income of an individual. Barrow (2001) found that investment in education and health services are the major factors for human capital development and the subsequent impact on economic growth. However, economic growth is also the main source of human capital development. Ranis et al. (2000) estimated the effects of economic growth as the result of human capital development and the effects of human capital development as the result of economic growth. Results showed that economic growth had a positive and strong impact on human capital development. Results also showed that significant and strong GDP per capita income growth leads to higher human capital development.

OBJECTIVES

The major objective of this study is to know the current status of higher education in the Indian states of Sikkim. However, following are the some of the specific objectives of the study.

1. To analyse the trend in growth and development of higher education in Sikkim in terms of availability of higher educational institution, gross enrollment ratio, gender parity index, pupil-teacher ratio etc.
2. To know the distribution of higher educational institutes in Sikkim.
3. To analyses the relationship between economic growth and higher education in Sikkim.
4. To examine the level of government investment in the education sector in Sikkim.

DATA AND METHODOLOGY

The study is solely based on secondary sources. The data and information are collected from the different secondary sources such as the All-India Survey of Higher Education (AISHE), Ministry of Human Resource Development, GOI (Government of India), Directorate of Higher Education, HRDD, GOS (Government of Sikkim), Registrar General & Census Commissioner, Ministry of Home Affairs, GOI. Time series data have been collected for the present study. Data on the availability of higher educational institutes in Sikkim was collected from 1975- 1980 to 2010-2015. The literacy rate has been collected for the five decades 1981 to 2011. Data for enrollment, gross enrollment ratio, gender parity index, teacher-pupil ratio were taken for 2006-2007 to 2015-2016. The ordinary Least Square Method (OLSM) is used to analysed the relationship between economic growth and education for the period 1996-97 to 2015-2016. Gross State Domestic Product (GSDP) is taken as an indicator of economic growth and enrollment in higher education is used proxy variable for education. We know that almost all the secondary data are non stationary. When the time series data are not in stationary, we cannot run any types of regression. To check whether the time series data are stationary or not we need to conduct some tests of stationarity. In the present study to check the stationarity of GSDP and enrollment in higher education autocorrelation function (ACF) and unit root (Augmented Dickey-Fuller) test has been carried out.

To see the relationship between economic growth and education, the following simple linear regression model is used and the method is OLSM

$$\text{GSDP}_t = \alpha + \beta \text{EN}_t + u_t \quad (i)$$

After conducting ACF and unit root test the above equation can be written as

$$\Delta^2 \text{GSDP}_t = \alpha + \beta \Delta \text{EN}_t + u_t \quad (2)$$

Where, GSDP is Gross State Domestic Products which is taken to measure economic growth and EN is the enrollment in higher education proxy variable for education.

α is the coefficient and $\hat{\alpha}$ is the slope coefficient of gross enrollment ratio. u_t is a random disturbance term.

The growth of higher educational institutes is calculated with the following formula

$$g_t = \frac{y_t - y_{t-1}}{y_{t-1}} \quad (3)$$

Where g_t = Growth rate,

y_t = value in the current period t

y_{t-1} = value in previous period t-1

RESULTS AND DISCUSSIONS

Literacy is traditionally meant as the ability to read, write and use of arithmetic. The modern term's meaning has been expanded to include the ability to use language, numbers, images, computers, and other basic means to understand, communicate, gain useful knowledge and use the dominant symbol systems of a culture (UNESCO). The literacy rate in Sikkim stands at 82.2%, which is relatively good in comparison to other states of India. The figure includes 87.30% of males and 76.04% of females (Census of India, 2011). There are a large of schools and colleges available in Sikkim for the people. Government schools and colleges are also available in large numbers as compared with private institutions. The government of Sikkim has started several steps to improve education systems in the state.

Table 1: Sex wise literacy rate in Sikkim" 1981-2011

Year	State	Male	Female	% of Gender Gap
1981	34.05	43.95	22.20	21.75
1991	59.94	65.70	46.76	19.94
2001	68.81	76.04	60.41	15.63
2011	82.20	87.30	76.43	10.87

Source: Census of India, 2011, GOI.

Table 1 shows the total percentage of literacy of the state from 1981 to 2011. Over the decades, literacy rates in Sikkim are increasing, in 1981 only

34.05 percent of the total population were literate out of which percentage of male were 43.95 and that of female was 22.20 respectively. The total literacy rates increased to 59.94 percent in 1991, 68.81 percent in 2001 and 82.20 in 2011. There is an improvement in literacy rates for both males and females in these five decades. The maximum gap between male and female literacy was 21.75% in 1981 which makes the total percentage of 34.05% literacy in the state. When the people of Sikkim understood the importance of education then the only the state achieved an increase in female literacy. The establishment of girls' schools and reservation for them in the administrative sectors has been able to promote girl's education in Sikkim. The gender gap based on literacy according to the census in Sikkim in 1981, 1991, 2001 and 2011 was 21.75 %, 19.94%, 15.63% and 10.87% respectively which shows the declining trends. The gap between the male and females in terms of literacy has been decreasing in Sikkim.

Table 2: Rural-urban literacy of the state by sex, 2011

<i>Rural</i>		<i>Urban</i>	
<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
85.42	73.42	92.94	85.19

Source: Census of India, 2011, GOI.

In Sikkim out of 2, 13,840 rural populations of females, 73.42% of them are literate and on the state wide rural male population of 2, 42, 122, 85.42% are literate. In the urban area, the 92.94% of males and 85.19 of the females are literate, the total male, the female population of the urban area is 79539 and 72187 respectively. The overall literacy rate in the state is 82.20% with a gap of 9.44% between the rural and urban literacy rates of the state. The

Table 3: Growth and Development of Higher Education in Sikkim

<i>Year</i>	<i>No. of Colleges/ Institutions</i>	<i>Growth Rate (%)</i>	<i>Universities</i>	<i>Growth Rate (%)</i>
1975-1980	1	-	00	-
1980-1985	2	100	00	00
1985-1990	2	0	00	00
1990—1995	6	200	01	00
1995- 2000	10	66.67	01	00
2000-2005	12	20	02	100
2005-2010	15	25	04	100
2010-2015	17	33.33	06	50
2015- 2020	21	23.53	07	16.67

Source: Directorate of Higher Education, HRDD, GOS.

high rate of urbanization and infrastructural development has led to an increase in the number of schools in urban areas which further leads to the increase in the rate of literacy. The next factor for the high rate of literacy in the urban sector is the immigration of literate people from different parts of the state and from outside in search of jobs in various sectors.

From the above table, it is clear that in Sikkim the higher educational institutes such as colleges, universities and other technical institutes are increasing over the years. The government of Sikkim is giving big efforts to increase the educational institutes in the state from primary to a higher level. Many colleges have been built in rural areas of Sikkim to provide educational opportunities to all the poor people as well. In 1975-1980 there was only one higher educational institute in the state which was built in Gangtok named Sikkim Government College, Tadong. After that, the number of colleges in Sikkim increased to 2 in 1985 to 1990, 10 in 1995-2000, 15 in 2005-2010, 17 in 2010-2015 and 21 in 2015. There was no private or government university in the state till 1990. But in 1994, the Sikkim Manipal University of Health, Medical and Technological Sciences (now known as Sikkim Manipal University) came into existence. It is a funded, co-educational, public-private university located in Gangtok. The aim was to impart exemplary educational opportunities and health care services in the State of Sikkim and elsewhere. In the 21st century, much more private and government universities came into existence including one Central

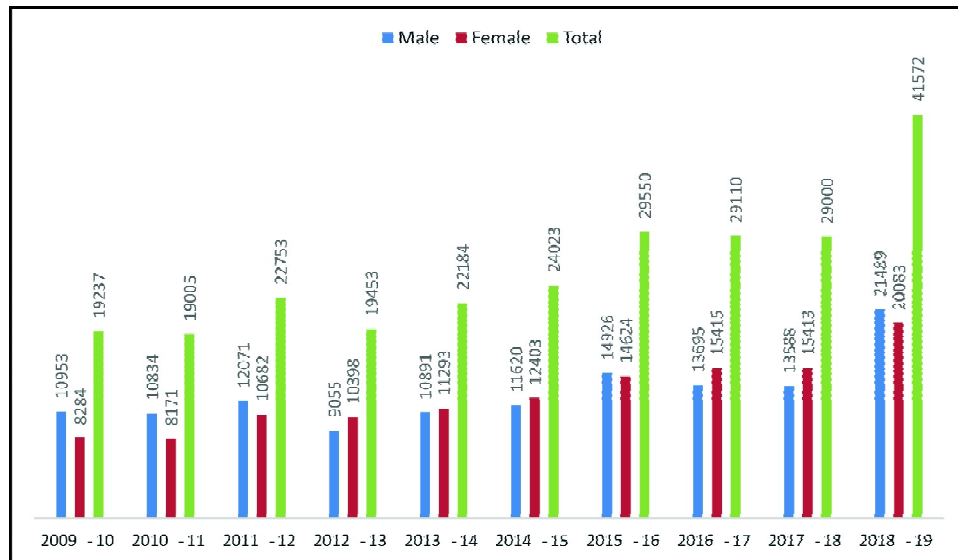


Figure 1: Total Enrollment in Higher Education in Sikkim (Males and Females)

Source: All India Survey on Higher Education (AISHE), HRDD, GOI.

University and National Institutes of Technology each. As of 2015-2020, Sikkim has 7 universities mostly located in the east district.

From the above results, it is clear that there is a growth of enrollment in higher education in Sikkim for both males and females showing positive trends. The total enrollment of students in higher education is rapidly increased from 2009-10 to 2018-19 but enrollment of males is relatively higher than female. This is due to the increase of the youth population in the age groups of 18-25 years and the availability of higher education in the state. The growth of enrollment is a good indication of the economic development of a country or a state. The growth of enrollment means the growth of human capital that leads to the progress and development of a state.

Table 4: Gross Enrollment Ratio (GER), Gender Parity Index (GPI), Teacher Pupil Ratio (TPR) in Sikkim

Year	Gross Enrollment Ratio (GER)			Gender Parity Index (GPI)	Teacher Pupil Ratio (TPR)
	Male	Female	Total		
2009-10	26.6	22.8	24.8	0.86	34
2010-11	26	22.2	24.2	0.85	28
2011-12	28.9	27.4	28.2	0.95	20
2012-13	21.8	26.9	24.3	1.23	14
2013-14	26.4	29.3	27.8	1.11	17
2014-15	28.4	32.4	30.3	1.14	17
2015-16	36.7	38.5	37.6	1.05	21
2016-17	33.9	40.8	37.3	1.20	22
2017-18	33.9	41.8	37.4	1.21	20
2018-19	54.0	53.9	53.9	1.00	27

Source: All India Survey on Higher Education (AISHE), HRDD, GOI.

Gross Enrolment Ratio (GER) in higher education in India is calculated for 18-23 years of age group. Total enrolment in higher education, regardless of age, expressed as a percentage of the eligible official population (18-23 years) in a given school year. The GER is widely used to show the general level of participation in and capacity of higher education. Data includes details on gender wise gross enrolment ratio in higher education for all categories. GER for all categories including both male and female in Sikkim in 2006-07 was 13.49 and it was increased to 37.7 in 2015-16. Although there were little fluctuations in GER in Sikkim, it is showing a positive trend over the period. If we observed the GER for males and females separately, it is increasing for both the cases but it is higher in males up to 2011-12 then after 2013-14 to 2015-16 is high in case of female. This inferred that

enrollment of students in higher education in Sikkim is increasing and the female enrolment is greater than male in the current scenario.

Gender Parity Index (GPI) in higher education is calculated for 18-23 years of age group. The ratio of the female to male in higher education measures progresses towards gender equity and the level of learning opportunities available for women in relation to those available to men. It serves also as a significant indicator of the empowerment of women in society. It is calculated by dividing the female value for the indicator by the male value. GPI equal to 1 indicates parity between females and males. In general, a value less than 1 indicates disparity in favor of males and a value greater than 1 indicates disparity in favor of females. During 2006-07 to 2011-12, GPI in higher education in Sikkim is less than 1 indicating disparity was in favour of males whereas, after 2012- 2013 to 2015-16, it is greater than 1 which means that there is a disparity in favour of females.

A teacher-pupil ratio in higher education expresses the relationship between the number of teachers employed and the number of students enrolled in an institution. In Sikkim, TPR in higher education during 2006-07 was 42: 1 indicating that there was 1 teacher for every 42 students and in 2015-15 there is 1 teacher for every 20 students. Although there are slight changes in TPR over the years there is an improvement of TPR in Sikkim.

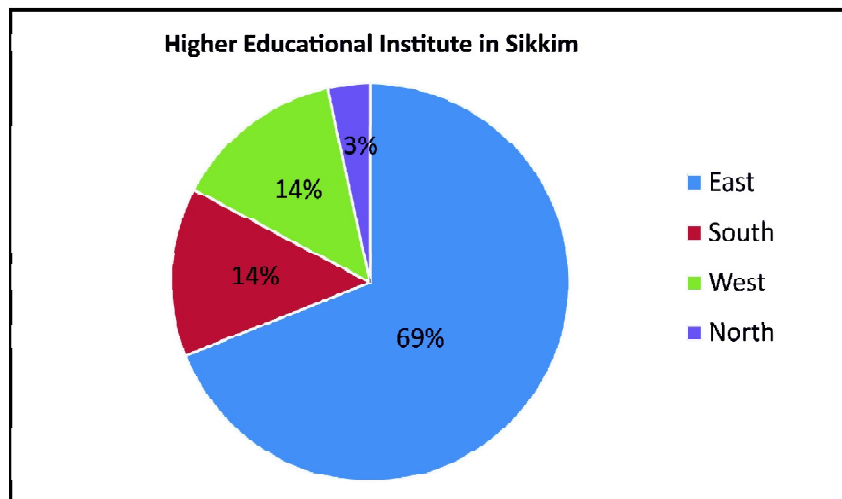


Figure 2: Distribution of Higher Education in each district of Sikkim

The above pie diagram illustrates the number or percentage of higher educational institutes located in all four districts of Sikkim. East district is the major hub of higher education in the state where most of the universities

and colleges are located because it is the most populous and densely populated district where there are all the administrative offices. This is the most urbanized district of the state. The 69 percent of higher educational institutes are set up in the east district where 60 percent are run and owned by the government and the remaining 40 per are owned by the private sector. South and West districts have 14 percent each of higher educational institutes in the state. In South Sikkim, higher educational institutes have been started since the 1990s and Loyala College of Education was the first higher institute of the district which was built in 1993 owned by the private sector. There are only 4 higher educational institutes in south Sikkim out of which 3 are under Government. Higher education in the west district of Sikkim has been started in 2009 under the first college Sikkim Government Bed College which is located in Soreng. This college is basically started for a professional course to provide training to the graduate and post graduate teachers. This is the only Government Bed College in the state. In 2011, Sikkim Government College, Gyalshing was built to provide a bachelor degree in humanities. In 2015 and 2016, Government Science College at Chakung and Government Vocational College, at Dentam respectively were started in West Sikkim. West Sikkim also has four higher educational institutes and all these are managed and controlled by the government. There is only one college named Sikkim Government College, Mangshilla in North Sikkim which is recently established in 2017.

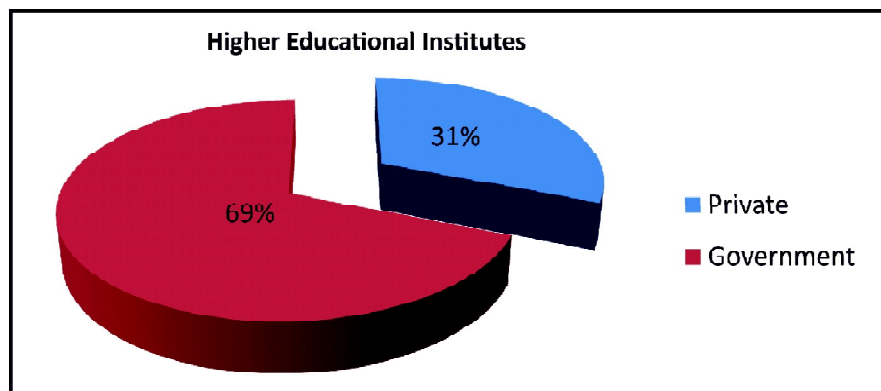


Figure 3: No. of Private and Government Higher Educational Institutes in Sikkim

69 percent of the higher educational institutes such as universities, colleges and other state institutes are owned and run by the government in Sikkim whereas only 31 percent are owned and run by the private capitalist. From this result, we can infer that the government is giving top most priority in the education sector. Side by side private colleges is also growing rapidly.

Analysis of Relationship between the Economic Growth (GSDP) and Education (Enrollment in Higher Education)

The relationship between education and economic growth was first developed by Adam Smith, followed by Marshall, Schultz, Bowman and others (Pradhan, 2009). Empirical estimation of the relationship dated back to 1957 when Robert Solow estimated the contribution of labor, capital and technological change to economic growth in the United States over the period 1909-1949 (Chaudhary et al., 2009; Matsushita et al., 2006). Different theories and models have been used to examine the relationship between education and economic growth (Romer, 1990; Chakraborty, 2005). Most of them concentrated on human capital accumulation as a source of acceleration in economic growth. Some of them used human capital as an engine of economic growth to technological change. Individuals and society gained economic benefits because of higher education gained by individuals (Krueger and Lingahl, 2001). It benefits to society both on micro and macro level.

Table 5: Results of Relationships between Economic Growth and Higher Education (1990-2015)

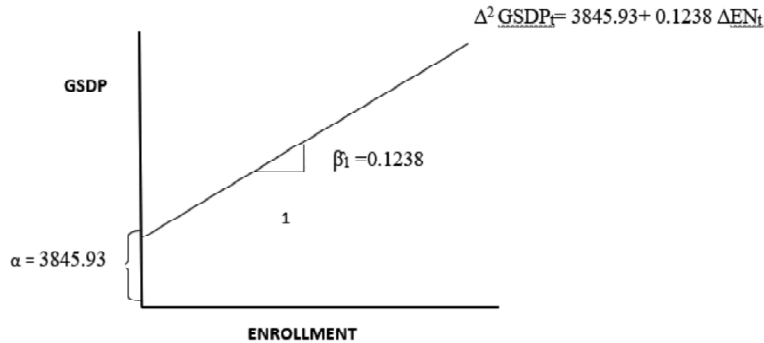
<i>Dependent Variable: GSDP</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-statistic</i>	<i>Prob.</i>
Enrollment in Higher Education	0.1238	2.4145	8.6301	0.0000
Constant	3845.932	34214.81	0.1124	0.0519

No. of Obs.= 25, $R^2 = 0.8892$, F- Statistics= 128.4157, Prob (F- Statistic) = 0.0000, Durbin-Watson stat = 0.6074

The value of $\hat{\alpha}$ is 3845.93, which is the intercept of the line, indicates the average level of annual GSDP when the annual enrollment in higher education is zero. The β_1 is the slope coefficient of higher education which is found to be significant at 1 % level of significance suggesting a positive relationship between gross state domestic product (GSDP) and enrollment in higher education. We get $\hat{\beta}=0.1238$ which implies that on an average one percent increase in enrollment in higher education increases GSDP by 12 percent. The R^2 is the coefficient of determination that measures the 'goodness of fit' of the fitted regression line to a set of data. The value of R^2 of 0.8892 means the about 88% variation in the GSDP is explained by enrollment in higher education. The F- Statistic gives the overall level of significance is also significant at 1 % level of significance.

Plan Investment in the Education Sector in Sikkim

The Government of Sikkim has given importance to the education sector through various plans in different periods. After the implementation of



five years plan in Sikkim with the help of the Government of India the demand for educational institutions in Sikkim was increased due to the increasing number of students. The investment on the education sector in various plans in different period has shown wide fluctuation. In the state the total expenditure on education has increased rapidly over the years because lots of new schools and colleges have been built, existing schools and colleges have been up gradated, the government introduced different types of fellowships and scholarships to encourage and motivate the students and to provide financial assistants to poor and needy. The state government is putting its big efforts to bring quality education among the masses.

At the beginning of the first five-year plan, the government could spend a sum of Rs 24 lakh in education sectors, increased to 79 lakhs in the second five-year plan and so on. In the tenth plan, the government spent Rs 21,855 for the development of the education sector in Sikkim. If we observed the % share expenditure on education, in the first plan period 7.4% of the total outlay was invested in the education sector, similarly, in the second plan it

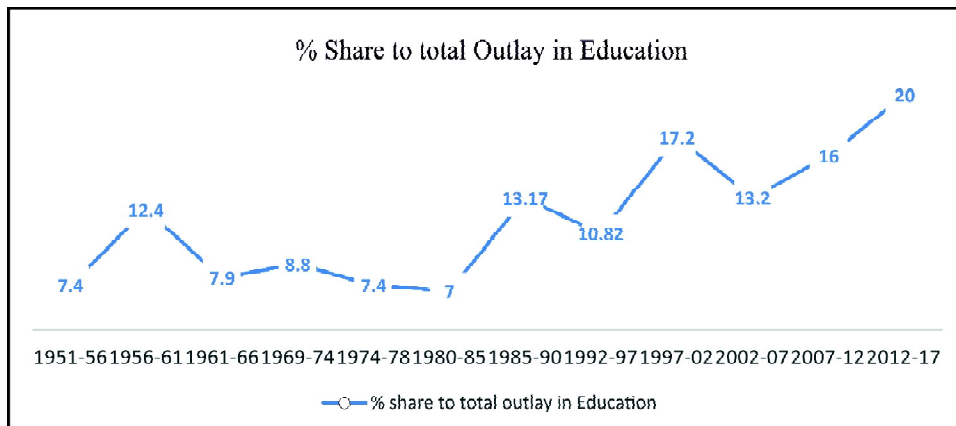


Figure 4: Plan Investment in the Education Sector in Sikkim

was 12.4% and in fourth and fifth plan .8% and 7.4% of the total outlay was invested respectively. In the Tenth five years it was 13.2%. So, the government is continuously

CONCLUSION

It is observed that there is a growing trend of higher education in the state although the number of higher institutes is less and started lately as compared to other Indian states. The results stated that the gross enrollment ratio for both males and females has been increasing; there is an improvement in the teacher-pupil ratio in the state. The government of Sikkim has given top most priority to the education sector and currently being spending 20 percent of the total state budget on education which is one of the highest allocations of the state budget in the country. The number of public institutions is higher than the private from pre-primary, elementary to higher level. Economic growth and education are positively interrelated to each other; an increase in the enrolment in higher education is leading towards economic growth. Investment in higher education will enable the creation of human resources in the forms of knowledge and skills that lead to the creation of job opportunities and finally the development of the state. Thus, education is the major tool that brings progress and development at the village level to big cities.

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