CHAPTER 10
SUMMARY OF FINDINGS, CONCLUSIONS AND POLICY IMPLICATIONS
10.1 INTRODUCTION

This treatise on “Vocational Education as a Strategy for Effective Utilisation of Human Resource-A Case Study of Assam” mulls over the strategic application of vocational education in Assam for facilitating the efficient use of its human resource. In this endeavour, the study seeks to find out the private returns to vocational education accruing to the out-turns of the vocational education system in the state, absorbed in various employment terminals across the state. The objective behind this is to examine the ability of vocational education to encourage and sustain the youth population within its fold. As a part of this study, attempt has also been made to look into the current vocational educational scenario in Assam, referring in particular, to the situation as it exists in Guwahati city. Though the main objective of this research work has been to find out the private returns to vocational education of the present batches of employed vocationally qualified people of the state, yet other additional attributes of this group of people has also been viewed as a part of the work. The employability and utilisation of the vocational education out-turns and the skill gap situations in the state are aspects that have been looked into for the purpose of fulfilling the objectives of this study. The main thrust of this work has been primary data. Consequently, the field work, carried out at three levels, sought to investigate three core areas of vocational education-

- The average private returns to vocational education across diverse categories
- The employability of vocational education manpower
- The nature of utilisation of vocational education manpower employed in various employment terminals scattered across the state

As a background study, the research work also examined the issue of “demographic dividend” in Assam as a precursor to the acceptance and application of vocational education in the state. This chapter is an attempt to put forth the findings generated from the study and draw out conclusions and recommendations based on these findings that would guide decision-making with regard to various aspects associated with the dissemination of vocational education and balancing of the demand and supply of vocational manpower in the state. The chapter, therefore, consists of the following two sections, beside the introduction-
10.2 SUMMARY OF FINDINGS

The mainstay of this work is to delve into the functioning of the three core players of the vocational education system-vocational education providers, vocational education out-turns and employment terminals catering to the products of the vocational education system. Therefore, the presentation of the findings is done here under three sub-groups:

- Vocational Education Providers
- Vocational Education out-turns
- Employment Terminals

As a part of the study, this research work has also glanced into the status of the demographic dividend in the state. With regard to this issue, it observed that the dependency ratios, in the state has declined from 97.41 in 1961, 108.02 in 1971, 84.23 in 1991 to 76.38 in 2001 and 65.37 in 2011. The fall in the dependency ratio has been largely accounted for by a fall in the population 0-14 years and increase in the population 15-59 years. Within the 15-59 years population group, the youth population in the state as belonging to the ages 15-24 years is seen to be increasing. As a percentage to the total population, this group constituted 18.48% in 2001 and 19.16% in 2011 as compared to 16.61% in 1961. The opportunity for capturing the demographic dividend in Assam has emerged where harnessing the growing population of 15-24 years and making them employable is the key to reaping the dividend.

10.2.1 Vocational Education Providers:

The population dynamics of Assam is reflected in the nature and composition of its human resource. On the one hand, a significant industrial base exists. But there is a rural-urban divide in the absorption of the work-force brought about by the urban concentration of the industrial base. However, the tertiary sector has the greatest urban bias because as Madhab (2005) has pointed out, this sector supports those who possess skills and education. The number of people in the live registers of employment exchanges is still large, being 17.29 lakhs in 2011. But, even more alarming, the
percentage of educated job-seekers to total job-seekers has increased from 68% in 2007 to 75% in 2009. The live registers of the employment exchanges also show an increase in the number of educated job-seekers. But, it is seen from the registration of educated job-seekers and those in the live registers that people with a general education feature more in the live registers of the employment exchanges. This is true for educated job-seekers across different levels of general education from matriculates to post-graduates. But the number of educated job-seekers is highest for intermediates followed by matriculates. On a comparative note, the numbers of job-seekers are lesser amongst those with engineering and non-engineering trades of ITIs and diploma in engineering, which are important sources of vocational education.

The base for vocational education in the state, however, is not restricted to the ITIs and Polytechnics. The state vocational education system incorporates higher secondary sections to post-graduate level. Presently all preparations are on to introduce vocational education in the secondary sections in schools through the application of the National Vocational Education Qualification Framework.

The main players in dissemination of vocational education are ITIs, Polytechnics, and private institutes including those collaborating with government vocational education schemes. The higher secondary schools have not made much inroad into the vocational education system in the state. The lacuna in these schools consists of lack of subject diversity and lower student enrolment.

The government collaboration with private vocational education institutes has led to the emergence of public-private partnership in the area of vocational education in the state.

In Assam, there are also vocational courses in the health sector in the form of paramedical and nursing courses.

However, contrary to the Planning Commission emphasis on the role of vocational education in the country, NGOs are not very visible in the sphere of vocational education in Assam.
Non-formal approaches of accessing a vocational education exists in the state through departmental initiatives of SIRD, NSIC, MSME-DI, KVIC, IIE and NEDFI. These are sources of few innovative courses; however they lack modernism in the form of conducting contemporary courses like those on banking, insurance and health care.

The vocational education in Guwahati city, selected as the study area for vocational education in Assam, has seen greater growth during the period 1990-2000. The field survey has pointed towards the predominance of the growth of private sector vocational education institutes in Guwahati. The visibility of the private institutes due to aggressive advertisement by the private players and the inability of government vocational education institutes in meeting current needs are responsible for the private sector bias observed.

With respect to the student clientele of vocational education, it is observed that a higher percentage of students belong to the family income group of Rs 10000-Rs 30000. Even in case of this group of students, the private institutes have been found to have more students. Moreover, students who belonged to the family income group of Rs 60000-Rs 100000 were found only in the private institutes. The field survey amongst vocational education providers has not revealed students in the family income category of Rs 100000 lakh and above. These findings about the economic background of students reflect a stigma attached to vocational education. This is substantiated by the fact that the student composition comprises the lower income groups.

On the other hand, the cost implication of vocational education in the private institutes is higher than that of the government institutes. In spite of this, government institutes have not been able to attract more students. Of course, private institutes offering vocational courses with government collaboration have also contributed to the growth and expansion of the private sector vocational education institutes.

With regard to the eligibility criteria for vocational courses in institutes, it is observed that 36.8% of the institutes visited regard matric as the entry level criteria for the
certificate courses. 36.8% institutes have also denoted intermediate to be the eligibility required for diploma courses. The degree courses on vocational education also require an intermediate.

The existence of placement cells in vocational education institutes has been found to be more in private sector vocational education institutes than in those in the government sector. Of those vocational education providers that did not have placement, 64.3% belonged to the government sector. Amongst those that have placement cells, 66.7% comprised of the private vocational education institutes. Moreover, it is observed that the private vocational education institutes also placed their students in job positions through contacts and acquaintances, if not through placement cells.

To study the campus placement strength of institutes, those that affirmed the presence of campus placement were studied under five categories- Below 10%, 10%-30%, 30%-60%, 60%-90% and 90% and above. The highest percentage representation of institutes has been in the placement category of 60%-90%, followed by 90% and above category. Both these two categories were found to have a greater concentration of private vocational education institutes.

The study looked into the vocational education-industry linkage in terms of six indicators- visiting lectures, internship, workplace visit, apprenticeship, joint curriculum development and scholarship. The institutes surveyed have shown highest linkage in terms of workplace visit (84.2%) followed by visiting lectures (76.3%) and joint curriculum development (68.4%). Internship and apprenticeship each accounted for 57.9% of the linkage. The incidence of scholarship is very less (44.7%). Moreover, it is observed that fees relaxation offered by institutes has also been included within scholarship and is therefore not reflective of an industry linkage.

**10.2.2 Vocational Education Out-turns:**

The field survey has revealed that most of those who did a vocational education are intermediates, followed closely by those who are matriculates. This leads to the observation that mostly, a vocational education is preceded by an intermediate
education. The field study has also shown that of the total number of vocationally qualified employees encountered during the survey, 32.2% were products of ITIs, 32% of private institutes and 15.6% of polytechnics. Government schools accounted for only 3.8% of the total samples of vocational education out-turns. The products of the private vocational education institutes have been found to constitute the highest number of employees in six sectors-Retail Trade and Automobile, Information and Communication, Financial and Insurance Activity, Human Health and Social Work Activity, Hospitality and Other Services Activity sectors. On the other hand, the products of the ITIs are highest in Manufacturing and Construction. It is also observed that the Manufacturing sector exudes dynamism in that it has accommodated products of all types of vocational education institutes.

In order to have an idea about the earnings of the vocational education out-turns absorbed in employment terminals across Assam, the average monthly earnings were calculated and the overall monthly average was observed to be Rs 23670. It is observed that the average monthly salary in the government sector is higher than that in the private sector. Differences also persist in the nine sectors categorised for the purpose of this research work. However, for each sector, the average earnings are observed to be above Rs 10000. But, the vocational education manpower employed in sectors like Manufacturing, Construction and Education that comprise a number of government sector employment terminals are observed to have a higher average monthly salary. The average monthly salary of the male vocational out-turns is also found to be higher than the female vocational education out-turns.

In this study, the Mincerian Earnings Function has been adapted to calculate the private returns to vocational education in Assam under operational conditions. The model comprised of the earnings of vocational education out-turns as the dependent variable and the years of vocational schooling, years of pre-vocational schooling, gender, experience and experience squared as the independent variables. The application of the model gives the value of R as .78, indicating a strong correlation between the dependent variable and its explanatory variables. The value of $R^2$ is estimated at .60, indicating that 60% of the variation in earnings has been explained by the predictor variables.
value of the F-statistic estimated at 193.164 and significant at 1%, denoted efficiency of
the model in predicting the factors that affect the earnings of the vocational education
out-turns. The years of vocational schooling, years of prevocational schooling and years
of experience are found to be significant at 1% while gender is found to be significant at
5%. But, experience squared is observed to be a non-significant predictor of earnings of
vocational education out-turns. Overall, it is observed that an extra year of vocational
education increased earnings of the vocational education out-turns by 13.7%; an extra
year of pre-vocational education increased earnings by 9.4%; an extra year of
experience increased earnings by 8.2%. There is also a difference in earnings between
male and female vocational education out-turns and earnings significantly decrease
when the predictor variable G changes from male to female. It is thus observed from the
application of the model that years of vocational schooling has had the maximum
impact on the earnings.

One of the main objectives of this research work is to estimate the private returns to
vocational education. Therefore the study looked into the private returns to vocational
education accruing to vocational education out-turns, stratified according to different
criteria and denoted by the \( b \) coefficient of the years of vocational schooling. With
respect to the different base education groups, it is observed that the application of the
extended Mincerian model has yielded values of F-statistic, significant at 1%. Therefore,
in case of all the four base education groups, the model has efficiently
predicted the factors that affect earnings. For all the groups, it is seen that an additional
year of vocational education has significantly increased their earnings. In case of those
with a base education qualification of Class VIII pass, earnings increased by 81.1%, for
the matriculates, it increased by 18.5%, for the intermediates, it increased by 15.4% and
for the graduates, it increased by 11.2%.

When vocational education out-turns are stratified according to the nine sectors used for
the purpose of this study, it is observed that in each sector the application of the model
has yielded values of F-statistic that are significant at 1% level of significance.
However, the \( b \) coefficient of the years of vocational schooling have been found to be
significant predictor of earnings in the Manufacturing, Construction, Finance and
Insurance Activity, Human Health and Social Work Activity, Hospitality and Other Service Activity sectors. The years of vocational education is observed to have increased the earnings of the vocational education out-turns in the Manufacturing, Construction, Health and Social Work Activity and Hospitality sectors. In the Financial and Insurance Activity and Other Service Activity sectors, the years of vocational education is found to have a negative impact on the earnings of the vocational education out-turns. However, in the Retail Trade and Automobile, Information and Communication and Education sectors, the years of vocational education are found to be insignificant predictors of earnings. Therefore, the variation in earnings in these sectors may be due to chance.

The application of the extended Mincerian model in the government and private sector employment terminals shows that in both the sectors the model has been efficient in predicting the factors that affects earnings. This is substantiated by the fact that the application of the model in both the sectors gives values of the F-statistic that are significant at 1%. However, in the government sector, the years of vocational education are an insignificant predictor of earnings and hence, the variation in earning in this sector may be purely due to chance. But, in case of the private sector, it is seen that the years of vocational education, significant at 1%, increases the earnings by 11% with an additional year of vocational education.

The study attempted a gender perspective of the returns to vocational education. The results arrived at through the application of the model to the data of both male and female out-turns of vocational education has shown that the model has been efficient in predicting the factors that affect their earnings. In case of the male respondents, the years of vocational schooling, significant at 1%, has increased the earnings of the respondents by 13.3%. On the other hand, in case of the female respondents, it is observed that the years of vocational education, significant at 5%, has increased earnings by 14.6%.

In order to fulfil an objective of this research work and to test a pre-determined hypothesis, the study looked into the employability of vocational education out-turns.
The study looked into the employability of the vocational education out-turns by categorising the respondents into four groups, based on their waiting period calculated in years. The High Employability group (75.94%) denoted a waiting period of 0-1 year; the Moderate Employability group (10.78%) denoted a waiting period of 1-2 years; the Low Employability group (10.16%) denoted a waiting period of 2-5 years and the Very Low Employability group (3.12%) denoted a waiting period of 5 years & above. It is observed that the High Employability group comprised the highest percentage of samples of vocational education out-turns. The sectoral analysis of employability of vocational education also shows that the High Employability group has the highest representation of samples in each of the nine sectors. The percentage representation of this group within these sectors has been as Manufacturing (60.8%), Construction (60.0%), Retail Trade and Automobiles (97.8%), Information and Communication (70%), Financial and Insurance Activities(100%), Education (89.5%), Human Health and Social Work Activity( 86.8%), Hospitality(98.1%) and Other Service Activities (96.9%). Moreover, it is also observed that high Employability Group has the greatest representation of samples in both the government(59.6%) as well as the private (84.8%) sectors. On observing the male and female employability groups, it is seen that the High Employability group comprises 75.9% of the samples in each case of both male and female vocational education out-turns.

The High Employability group was further categorised into four groups, based on their waiting period of 0-1 year as-Zero days, 1-90 days, 90-180 days and 180 days& above. Within this classification also, it is observed that the “zero days” category constituted the highest representation of samples. 281 out-turns of vocational education or 57.8% reported that they found employment without waiting for a single day after completion of their vocational education. In case of the government and private sector samples also, it is seen that the “zero days” category constituted the highest representation of samples for the government (46.3%) as well as the private (62.2%) sectors. When disaggregated into the nine sectors, it is seen that except the Financial and Insurance Activity and Education sectors, in all other sectors, this group has the highest concentration of samples. The percentage representation of this group in the seven sectors is as Manufacturing(56.3%), Construction (35.7%), Retail Trade and Automobile (60%),
Information and communication (71.4%), Human Health and Social Work Activity (69.6%), Hospitality (72.5%) and Other Service Activity (74.2%). The percentage representation of male and female vocational education out-turns within the four groups has also shown that males (57.4%) as well as females (59.2%) has the highest representation within this category.

The main criteria used, in this research work, to view employability of vocational education out-turns was the waiting period of the out-turns after completion of their vocational education and the attainment of their first job. In this regard, a multiple regression model was used to look into the employability of vocational education out-turns that incorporated the years of vocational schooling, years of pre-vocational schooling and gender as the independent variables and waiting period as the dependent variable. However, the F-test of the model was not significant implying that the model could not efficiently predict the factors that determine the waiting period of the vocational education out-turns. This leads to the acceptance of the Null Hypothesis that vocational education does not impact the employability of labour, defined in terms of the waiting period of the employees before being absorbed in employment.

Employability of the vocational education out-turns was looked into from two other aspects—any job change done and overall years of experience in employment. These two aspects of employability have been based on the concepts of “ability to find new employment if required” and “ability to maintain employment” incorporated within the employability definition of Hillage and Pollard (1998) upheld by McGrath (2013). Employability, in terms of job change done, shows that 51.4% had a job change after being absorbed in employment. The primary reasons attributed to the job change were more financial benefit and greater application of skills.

With regard to the employability of the vocational education out-turns in terms of “maintaining employment”, it is observed that the average years of experience is found to be 10.91 years. For the government and private sectors, it is observed to be 18.29 years and 6.29 years respectively. Disaggregated into the nine sectors, the average years of experience of the vocational education out-turns encountered during the survey is
observed to be Manufacturing (13.79 years), Construction (16.11) years, Retail Trade and Automobiles (3.90 years), Information and Communication (6.33 years), Financial and Insurance Activity (2.84 year), Education (11.82 years), Human Health and Social Activity (9.63 years), Hospitality (7.37 years) and Other Service Activity (7.55 years). The average years of experience of the male out-turns of vocational education is found to be 12.2 years as against that of female average years of experience of 7.0 years.

This research work attempted to fulfil the pre-determined objective of analysing the impact of vocational education on the effective utilisation of human resource as well as test the Null Hypothesis that vocational education does not have an impact on the effective utilisation of human resource. The utilisation of vocational education was categorised into three groups according to the level of skill utilisation indicated by the workers- Highly Efficient Utilisation (HEU), Moderately Efficient Utilisation (MEU) and Inefficient Utilisation (IU). Of this, the HEU group, comprising of workers whose vocational skills commensurate their vocational skills, constituted 92.5% of the respondents. The MEU, comprising of workers whose work was somewhat related to the vocational skill comprised 3.9%. The IU group comprising workers whose work was totally different from the skills acquired constituted only 3.6% of the respondents. Within the government and private sector employment terminals, across the nine identified sectors and in case of the male and female vocational education out-turns, the HEU category is observed to comprise more than 90% of the vocational education out-turns. Only in the Human Health and Social Work Activity sector, this group comprises 83% of the respondents. For the different base education qualification groups also, it is observed that except for the below matric group (88.2%), the HEU category comprised more than 90% representation for the matriculates (91.9%), intermediates (92.9%) and graduates (93.0%). However, it is seen that across all categories, the HEU and MEU groups together have accounted for 92% and above respondents. On the other hand, the IU group has been observed to have lower percentage representations in all categories brought under study. These findings with regard to the utilisation of vocational education out-turns in employment terminals reflects that mostly, the out-turns are effectively utilised.
A binary logistic regression was conducted to test the Null Hypothesis that vocational education does not impact the effective utilisation of human resource. The model used “Effective Utilisation” of the vocationally qualified manpower as the dependent variable and the “Years of Vocational education” as the independent variable. To facilitate the application of the logistic regression model, the three groups of utilisation, discussed in the preceding paragraph, were categorised into two groups-Efficient Utilisation comprising the workers who indicated being highly and moderately efficiently utilised and Inefficient Utilisation incorporating those that indicated being inefficiently utilised. The significance of the model $\chi^2$ at 5 % indicates that the model predicts the effective utilisation of human resource better than chance. The logistic regression results have also revealed that an increase of vocational education by 1 unit increases the log odds of being effectively utilised by 1.596. Therefore, the null hypothesis is rejected and it is accepted that vocational education impacts the effective utilisation of human resource.

### 10.2.3 Employment Terminals

In order to fulfil a pre-determined objective, the study attempted a look into the skill status of operational firms in the state. The responses of the employment terminals that constituted the study group revealed that there was need for both technical and non-technical vocational skills in employment positions. Moreover, it is observed that except Financial and Insurance Activity and Hospitality sectors, employment terminals in all the other sectors have expressed the need for technical vocational skills. But across sectors, the highest requirement of technical skills was observed to be in the Manufacturing sector.

However, viewed from the employers’ perspectives, doubts have been raised about the employability of vocational education out-turns churned out of the vocational education institutes. This is on account of the fact that 51.5% of employment terminal have cited inadequate/low skills and 24.2% have regarded skill up-gradation as the reasons for facilitating on-the-job training to the products of the vocational education system employed in these terminals. It has also been perceived from the interaction with employment terminals that these on-the-job trainings translate into financial burden for the employment terminals.
33.3% employment terminals have been found to experience the skill gap as against 66.7% that did not. But more employment terminals in the government sector have been found to experience skill gap. However, the study reveals the total absence of skill gap in Construction, Financial and Insurance Activity, Education and Hospitality sectors. But, in the Manufacturing and Human Health and Social Work Activity sectors, a greater percentage of employment terminals experienced a skill gap. On the other hand, in the Retail Trade and Automobile and Other Service Activity sectors, there is a greater representation from employment terminals in the category of those that did not experience a skill gap. The Information and Communication sector has shown equality between affirmative and negative responses on the issue of existence of skill gap.

However, on-the-job training (62.1%), new recruitment (30.3%) and a combination of both (7.6%) are observed to be the measures that are used by employment terminals to remove the skill gap. The study looked into the issue of sharing information with vocational education providers by employment terminals about skills needed in the market. Only 31.8% were found to share information as against 68.2% that did not. The lack of information sharing was observed to be more in case of employment terminals in the government sector than those in the private sector. In case of the nine sectors, information sharing with vocational education providers is found to be totally lacking in the Construction, Education and Hospitality sectors. At the other end of the spectrum, the Financial and Insurance sector is found to indulge in total sharing of information with vocational education providers.

The study also looked into the issue of forging tie-up between employment terminals and vocational education providers on three core areas-Campus recruitment of employees from institutes, Internship programme tie-up and Request for specific skills. With respect to the recruitment of employees from vocational education providers, only 28.8% responded in the affirmative. On a comparative note, more employment terminals in the private sector gave an affirmative reply than those in the government sector. On the issue of Internship programme tie-ups, 34.8% employment terminals maintained that they have internship tie-ups against 65.2% that did not. Regarding the request for skills, it is found that only 13.6% of employment terminals requested for any
specific skills from the vocational education providers. In case of both the government and private sector employment terminals, it is seen that lesser percentage of employment terminals within the sector requested for any specific skills. The picture of forging tie-ups by employment terminals with vocational education providers as derived from the field survey data does not, therefore, indicate a strong tie-up between employment terminals and vocational education providers.

10.3 CONCLUSIONS AND POLICY IMPLICATIONS

Vocational Education and “Reaping the Demographic Dividend”

The registration and numbers in the live registers of employment exchanges in Assam points out that unemployment still looms large in the state. An alarming situation put forward by these registers is that the percentage of educated job-seekers is increasing. Moreover, the number of job-seekers is more for those with a general education. The fact of the matter is that the higher education institutions are found to be churning out graduates in huge numbers, often at a pace faster than economic growth (Barua, 2000). At the same time, there is incompatibility in skill requirement of the economy and the skills possessed by these out-turn. With the current situation of “jobless growth” in the country and the mismatch in the demand-supply mechanism of skills, the unemployment situation has become aggravated. On the other hand, the population dynamics in the state, as reflected in the present study, points to the fact that the ground has been set for the opening of the demographic “window of opportunity” in the state. The demographic profile of the state has pointed to a growing increase in the youth population comprising the ages 15-24 years. However, with significant numbers waiting to find employment, the issue of reaping the “demographic dividend” becomes debatable. This raises the issue of taking up some pragmatic policies in the area of education. The literature review done for this research work has revealed that many countries across the world have accessed the demographic window of opportunity with suitable policies in the direction of vocational education and training which equipped their youth population with skills education that helped in their transition into the labour force. In this backdrop, the promotion of vocational education may be seen as one of the measures that would veer the youth population of Assam towards gainful employment and facilitate the reaping of the demographic dividend.
The vocational education scenario in Assam, as reflected in the present study, points to the existence of a credible vocational education and training system in the state. The system that manifests itself through the award of various credentials like certificates, diplomas, advanced diplomas etc, can be seen as a way of empowering the youth population with skills education demanded by a contemporary employment market. Moreover, the vocational education and training available in the state through skills education programmes conducted by various governmental departments can go a long way in equipping the labour force with an education that would enable them to be economically empowered.

To support the current need of reaping the demographic dividend in the state and in the face of persisting drop-out rates and existing unemployment situation, therefore, compulsory vocational subjects need to be imparted parallel to general academic subjects in all secondary schools too. This would aid in career related decision making of the students and facilitate the entry of those without an academic leaning into the labour force. With the implementation of the National Vocational Education Qualification Framework (NVEQF), under public-private–partnership, the stage is set in the state to incorporate vocational education programme in secondary sections in schools also. Therefore, the vocational education system, as is seen to exist in Assam, is commendable from the perspective of reaping the “demographic dividend” in the state.

However, it is observed from the present study that mainly students from lower income households opt for vocational education. The onus of reaping the demographic dividend, therefore, lies on the vocational educational system’s ability to attract more students, even those from higher economic groups into its folds. The issue is largely about changing social perception about vocational education and breaking the stigma attached to it. It also calls for qualitative changes in the vocational education initiatives. In this regard, the following steps may be initiated at the governmental level:

- Changing the nomenclatures associated with vocational education can help to enhance the importance given to vocational education by the society. The negativity surrounding vocational education in the society and hence, the stigma attached to it may be countered with generation of positive public opinion about vocational education.
through the electronic, print and social media. On this aspect, reference may be made to the success of the promotional campaigns of the government health departments in India on various public health issues. Giving publicity to the positive returns to vocational education could also be one way of attracting students to its fold.

- In order to generate interest and enhance focus of the students, the vocational education providers should strive to introduce new and innovative courses, relevant to the current employment market. The field study revealed courses along similar territories imparted by different vocational education providers. The introduction of subject diversity in the vocational education system of Assam especially in the realm of government vocational education sector is the need of the hour, if attracting student inflow into the system is desired. The vocational education providers may study the market requirements for specific vocational educational manpower and accordingly adapt and initiate courses and recruit quality and relevant faculty that would enable them to meet such requirements of the market.

- Despite imposing a financial liability on the students and guardians, high student enrolment has been observed in areas like aviation, hospitality and banking and insurance which are perceived to have certain amount of glamour, better work and remuneration opportunities and greater social acceptability. It is surprising that government sector has not ventured much into these sectors. The government may either directly make a foray into these sectors or can establish collaborations with private campuses, so that students can access these courses at a lower cost and reduced financial liabilities.

- An important issue of vocational education in Assam, as reflected by the interaction with informed sources in employment terminals, is the quality of the products processed by the vocational education system. The government intervention by giving directives on quality faculty recruitment and government funding of the vocational education system, may help to close the gaps that exist in churning out quality vocational education products. The government initiatives in these two areas
would have positive repercussions by facilitating adaptation to modern courses and technology and thereby, generating a more competent workforce.

- Moreover, the existence of campus placement cells may be made a core requirement for the vocational education providers so as to ensure the absorption of their products in employment. Assurance of placement may be viewed as essential for ensuring student enrolment in these courses. This may be seen as an essential recommendation for the government higher secondary schools in Assam which currently suffer from acute shortage of students in their vocational streams.

Education is a merit good and has an opportunity cost attached to it. For the students and their family to invest in merit goods like a vocational education, they need to be apprised of the versatility of such an education in terms of their application in varied sectors. The returns to investing in a vocational education also need to be upheld so as to guide such investments. The societal interest in vocational education can be awakened by focusing on the positive returns generated out of investing in such education. Under such conditions, methodological tools that estimate the returns to vocational education may be used to guide decision-making regarding choice of investment in specific vocational courses.

Vocational education and Returns
The estimation of the returns to vocational education, in this study, with the help of the Mincerian Earnings Function has reflected that overall, there has been a significant return to vocational education at 13.7%. This is relatively high and comparable to international standards in rates of returns to schooling. When the vocational education manpower are categorised according to their pre-vocational education qualification there has been significant positive increase in their earnings with an extra year of vocational education. But, the returns to the vocational education decreased as the pre-vocational qualification increased. Thus it is evident that if a student enters the world of work earlier their earnings were high. Given this backdrop, vocational education can be seen as a tool to accommodate those with greater aptitude in practical skills into the labour-force. The diversion of this group of people towards a vocational and skills
education has positive economic implications in that it will lead to less wastage of both human and financial resources in the state. It also has social and psychological connotations in that the trauma faced due to failure of finding employment on account of skills incompatibility is avoided. Therefore-

*Policy reforms aiming at bifurcation of education at the lower level can be initiated by which people with a disinterest in generic skills and a greater aptitude in practical skills have the option of continuing an education in practical skills instead of going after a general education from which they soon dissociate.*

However, the decision about the stage of diversion of students to the area of vocational education is a very important one. Many providers of vocational education have maintained that provision of vocational education should begin at the post-secondary level. This is on account of the difficulties in imbibing the theoretical aspects of the vocational course. Therefore, apart from the returns to vocational education accruing to the different pre-vocational education groups, the stage of actual diversion of students towards vocational courses should also take into account the recommendations put forward by providers of vocational education.

The study has revealed insignificant returns to vocational education in the government sector which may be attributed to the fact that in this sector, experience of the vocational education out-turns have had a greater impact on their earnings, thus rendering the years of vocational education insignificant. In the Retail Trade and Automobiles, Information and Communication and Education sectors also, the non-significance of years of vocational education as a predictor of earnings could be traced to a common cause, which is a higher impact of experience in these sectors. The negative returns to vocational education as has been observed in Finance and Insurance Activity and the Other Service Activity sectors could be due to the shorter duration of vocational education courses that predominate over these sectors. But, in Manufacturing, Construction, Human Health and Social Work Activity and Hospitality sectors, the years of vocational schooling have been strong predictors of earnings, with an additional year of vocational schooling causing significant increase in earnings. The
research finding of a significant positive return to vocational education in the private sector can help to make a significant contribution in breaking the predilection for government jobs. While initiating policy measures in the sphere of vocational education the picture of returns arrived at may be taken into account. The average private returns to vocational education may be used as a direction indicator for investment in vocational education.

**Employability in vocational education**

The study has indicated high employability of the vocational education manpower. This is substantiated by the fact that the vocational educational education out-turns encountered during the field survey mostly entered into employment within a waiting period of 0-1 year. The higher percentage representation within the “High Employability” group across all types of classifications endorses the fact that failure of absorption and consequent trauma has not been experienced by them. This also speaks about the employability of vocational education out-turns and their use in the employment market. The highest percentage representation of vocational education out-turns in the “zero days” category within the “High Employability” group has also reflected the high employability status of these out-turns. Across the government and private sectors, across gender and across seven of the nine sectoral classification, majority of vocational education out-turns have found work without waiting for a single day, for which this category is highly represented. Only in the Financial and Insurance Activity and Education sectors, majority of the samples found employment between 1 and 90 days. But, taking into account the non-significance of the F-test of the regression model used to study the employability of vocational education out-turns, this research work has accepted that vocational education does not impact employability, defined in terms of waiting period.

The picture of “job change” done by the vocational education out-turns speak of their ability to find jobs “when required” as has been upheld in the definition of employability by Hillage and Pollard(1998) and put forward by McGrath(2013). Along the lines of this definition, which also looks into employability from the point of view of ability to “maintain employment”, it can be said that the overall years of experience in
employment of slightly over a decade reflects the ability of the out-turns of the vocational education to sustain their occupational status. The differences that persist between different sectors are on account of certain identified factors. The high average years of experience in employment in government sector employment terminals, can be attributed to the stability and “job-security” associated with government jobs. The considerably low average years of experience in Retail Trade and Automobile, Information and Communication and Financial and Insurance Activity sector could be attributed to the fact that these sectors have many young entrants and earlier entrants did not possess certified skills.

However, from employers’ perspectives, it appears that the vocational education manpower employed in the employment terminals do suffer from inadequacy and irrelevancy of skills. This raises doubts about the employability of vocational education manpower churned out in the state. Of course, often this may result from wrong choice of vocational subjects and consequent disinterest in the subject as well as wrong choice of employment terminals. Therefore-

As a policy measure, central career guidance cells may be in place that would guide entrants to the vocational education system into the right choice of subjects and guide the products hence turned out into the right employment terminals. Such career guidance cells should base their judgement on employment market information as well as trends of returns to vocational education.

Active placement cells in vocational education campuses can also work towards raising employability levels by ensuring easy absorption of the products in the employment market and lowering the waiting period. During the course of this work it is observed that internship and apprenticeship are weak areas in the linkage between vocational education providers and employment terminals. There is, therefore, need to develop these areas as it will acquaint the students with the practical requirements of the employment market and make for a more easy transition from education to work. This would have positive repercussions on employability and lead to a more effective utilisation of the vocational education manpower.
Vocational Education and Skill Utilisation

This research work has presented a picture of effective utilisation of the vocational education out-turns. Efficiency is defined in terms of the relevance of skill and the type of work being done. The respondents have been found to be working according to their skills, thus indicating convergence of skill acquisition and skill applicability. This has been found to be true across all sectors and also for the male and female vocational education out-turns, with most respondents being either highly or moderately efficiently utilised. On a comparative note, the employment terminals within the private sector have indicated more encouraging trends in the effective utilisation of vocational education out-turns than those in the government sector. This could be attributed to the recruitment and human resource management policies observed to be adopted by the private sector which is induced by greater onus of responsibility of the recruiters and the Human Resource Management operating in the private sector.

Therefore, for reasons of greater employability and effective utilisation of labour too, the vocational education manpower may be encouraged to navigate towards private sector employment positions and do away with their predilection for government jobs. This would help in raising employability and efficiency and obliterating existing skill gaps, if any.

Mitigating the skill gap on-the-job

In spite of the picture of employability of vocational education out-turns derived from the study, employers have experienced the presence of skill gap. The problem of inadequate and irrelevant skills of vocational education out-turns has been attributed by employers to a lack of synchronisation between vocational education imparted and the actual work skills demanded by the employment market and to the lack of modernisation of vocational education courses. On their own, the employing organisations are taking up steps to obliterare the skill gap. While the government sector mostly relies on new recruitment to close the skill gap, the private sector has been resorting to on-the-job training. Very few employment terminals actually follow an aggressive policy of combining both these two methods in tackling the skill gap
problem. Partnerships with education hubs is seen by Freifield (2013) as a way of removing skill deficit in firms. Therefore, the skill gap can be closed to a large extent if employment terminals forge tie-ups with the vocational education providers. In Assam, as this study has reflected there does not exist a very strong connection between employment terminals and vocational education providers on the matter of forging tie-ups on the three core areas i.e. campus recruitment by employment terminals from vocational education and training providers, internship programme tie-ups and request for specific skills. Maintaining that connect will, on the one hand, help to close the skill gap and on the other, help to secure employment for the products churned out by those vocational educational institutes. Such tie-ups would help students by acquainting them with the practical world of work and enabling their easy transition from education to work. It would help an employment terminal during employee selection thus mitigating their skill gap.

In Assam, most vocational education providers are found to be registered with the DECT. The employment terminals, in the absence of direct linkage with vocational education providers, may specify their vocational manpower requirements to the DECT which can prepare the ground work for meeting the needs of the employers through selection of education providers, joint curriculum development, faculty recruitment, and student enrolment.

With changing technology and innovations in workplace across sectors in the economy, labour tends to become obsolete. This could affect employability of labour and lead to their ineffective utilisation. Against such a backdrop, the right policy to update the existing work-force would be for employment terminals to complement their on-the-job training programmes with collaborative ventures with vocational education and training providers. Such collaborations may be made with institutes having a strong infrastructural base for the conduct of diverse vocational courses that would support employment terminals across different sectors. The field survey has reflected the presence of a sufficiently strong infrastructure in case of many of the government vocational education and training providers visited that may be approached for such collaborations.
The employment terminals may encourage workplace visits from vocational education providers and teaching faculty in order to enable them to keep abreast of changing technology and apprise themselves of new innovations in the sphere of vocational education. This would aid in vocational curriculum development and knowledge dissemination so as to facilitate the deliverance of manpower according to the requirements of a contemporary employment market.

Vocational education and entrepreneurship

It is perceived from this research work that all the stakeholders of vocational education in Assam have a monumental task in their hands in terms of attracting students, giving them the right skills and working towards retaining their employability and efficiency. But, in the backdrop of the current “jobless growth” in the country as a whole and persisting unemployment in the state, the vocational education system in the state has also to foster the spirit of entrepreneurship in its vocational education manpower. It has been observed during the field study of this work that various government organisations under the initiative of MSME and institutes like IIE and SIRD have successfully ventured out into areas of vocational education and training that promotes entrepreneurship. It would help if more institutional endeavours are taken in this area. The ITIs and polytechnics can especially stride forward in this respect due to their visibility and accessibility in the state vocational education scenario.

Moreover, out-turns of the system may be provided a “big push” with credit support either by the institute directly or by forging links with the financial institutions so as to enable them to venture into the entrepreneurial scene. Presently institutes and departments like IIE, SIRD, and MSME are seen to provide such kind of support. A wider network of institutes may be encouraged to take up such schemes; this would encourage student enrolment too. To boost entrepreneurship amongst the vocational education manpower -

- The government should intervene to compulsorily integrate elements of entrepreneurship in vocational education curriculum.
• *The government should also promote enterprise among vocational education out-turns by bringing them under the umbrella of priority lending units in the banking sector.*

The present study has unveiled a number of findings with regard to the state vocational education scenario, the returns accruing to the vocationally qualified manpower due to their vocational education and their employability and level of utilisation in employment terminals. It has put forward the current demographic picture of the state too. Moreover, it also gives insight into the skill status of operational firms. Based on these findings of the study and conclusions gathered thereof, this research has put forward certain policy implications that may be considered from the point of view of espousing the case of vocational education in the state.

The research work had set out with some pre-determined objectives for undergoing the study. The pursuance and fulfilment of these objectives has given insight into the core issues that would justify the cause for vocational education in Assam. Vocational education is a work skill generating education that can ensure profitable returns to the education for those that go through its processes. Though, sectoral differences persist, yet it is seen that the overall average private rate of returns to vocational education is positive. The Mincerian Earnings Function may provide suggestions about profitable vocational education courses and profitable sectors for vocational education out-turns to venture into for employment after acquisition of the education and training. The average private returns to vocational education can also serve as a beacon for securing funds for this education sector and guide funding towards courses that stands to gain in most sectors of the economy.

As is seen from this research work, this kind of education has seen success in ensuring employability for its out-turns in terms of a lower waiting period before being absorbed in employment. Their utilisation in the work-place is mostly effective, given that they are endowed with work-skills that support some specific forms of employment. On the other hand, the employers’ deliberations about vocational skills status in Assam has
given insight into the fact that the state does have a formidable task of closing the skills gap in its employment terminals.

Therefore, vocational education may be a strategy that would ensure the utilisation of the state’s human resource. But the first step in this direction would be to change the current social mindset in Assam pertaining to vocational education. The dissatisfaction and frustration of even that handful of vocational education out-turns who perceived that they were not “at the right place, at the right time, doing the right work” first need to be addressed if more young people are to be brought within the purview of vocational education. This would require an all comprehensive plan that would rely on government cooperation and encompass all the stakeholders which includes, among others, the vocational educational providers, the vocational education pursuers and the employers within its fold. This would enable the strategic use of vocational education in utilising the state’s human resource.