

# **The Impact Of Technical Vocational Education And Training (TVET) On Employment Among Youth In Pakistan: A Counterfactual Analysis**



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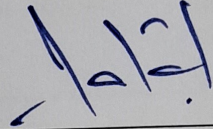
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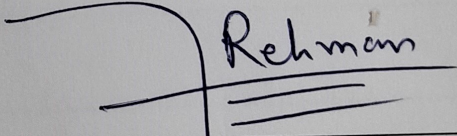
CERTIFICATE

This is to certify that this thesis entitled: "*The Impact of Technical Vocational Education and Training (TVET) on Employment among youth in Pakistan: A Counterfactual Analysis*" submitted by Mr. Raja Ahmed Yar Khan accepted in its present form by the School of Public Policy, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Public Policy.

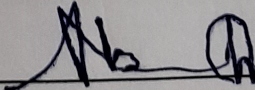
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## **Abstract**

The purpose of this study is to explore the role of TVET (Technical Vocational Education and training) on employment among youth in Pakistan. By adopting quantitative method, this study will assist in comparing the level of employment among those who get technical education (treatment group) with those who did not get technical education (control group) from any technical institution. This study has also used different factors influence on the decision of getting technical skills like male gender, low dependency ratio, medium dependency ratio, province (Khyber Pakhtunkhwa, Sindh, Baluchistan), intermediate but below degree, matric but below intermediate, middle but below matric, literate head of household, age of head of household, employed head of household, region (rural/urban). Employment is analyzed by using different indicators: total hours weekly earning, wages, employment level, paid employees, employer, self-employed.

The result of the analysis proposed that youth who get technical training are significantly more secure in getting employment than those who did not get any technical training. Likewise, the effect of technical education on each indicator of employment produced similar statistically significant result. The measure of average treatment effect expressed that if technically trained youth have had not got technical skills then what would have the condition of employment. Fortunately, this measure is indicating that technically trained youth are better off than non-trainees even if they had not getting any training they would still have relatively more benefit than actual non-trainees in the population. This research suggested that soft skills should be added in the curriculum of technical training. Moreover, public private partnership in the provision of technical training is effective to gain the desire result of training.

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## Dedication

I beg to dedicate this thesis to:

Hazrat Muhammad Mustafa (Peace Be Upon Him)

Hazrat Syedna Imam Hussain Ibn-e-Ali (Alayhi As-Salaam)

Hazrat Syedna Sheikh Abdul Qadir Jeelani (Rehmat-ullah Alai)

Aala Hazrat Imam Ahmad Raza Khan ((Rehmat-ullah Alai)

Abu Bilal Muhammad Ilyar Attar Qadri ((Rehmat-ullah Alai)

کیوں رضا گوشتے ہو پتے اٹھو  
جب وہ غفار ہے کیا ہوتا ہے

امام احمد رضا خان  
علیہ الرحمۃ

# Chapter 1

## Introduction

### 1.1. Background

Youth constituted to be 16% of the global population— 1.2 billion young people often considered as “Youth Bulge”—falls in the age cohort of 15 to 24. Youth that are often referred as leaders of tomorrow, can play a significant role in transforming the economic situation of a country UNDP (2018). The UN report on youth participation also revealed manufacturer’s motivation on engaging youth in productive role of manufacturing process. This production process is also attributed from soft skills. The factors of letting youth to get employment, Technical Vocational Education and Training (TVET) has been appeared as significant determinants Deebom (2019). Training in vocational education institutes is also very important for developing countries in transforming economic situation Chipfakacha (2019).

According to United Nations Educational, Scientific and Cultural Organization (UNESCO), TVET is taken as a broader term involving an extension of general education, the knowledge of technology and sciences. Moreover, it is covering skills and attitudes, and acquiring knowledge related to occupation in social and economic life. According Khirotdin, Ali, Nordin, and Mustaffa (2019), TVET is preparing the youth with those skill and knowledge that are required for the world of work by including formal, informal and non-formal learning.

Global evidences unleash that youth is acquiring technical skills at different levels of education. According to International Center for Technical and Vocational Education and Training (UNEVOC) in 2019, in Philippines, out of 20 million youth population, 6.5 million

youth is given technical education which reduces their unemployment among youth. It is estimated up to 2.6% which is quite lower than before extending technical education. These entire students got TVET education started from upper secondary education to tertiary education. Like Philippine, the success stories of TVET for other developing countries can be found such as Malaysia, India, and Bangladesh etc. There is a list of other countries showing their concern to enable youth to get technical skills. Their efforts can be judged from the strategies and policy measures they have taken to build TVET structures and the countries discussed above are conscious about targeting unemployment through this intervention UNEVOC (2019).

TVET is an important element to generate the employment. The rigorous studies showed a positive image in transforming the economic situation of skilled worker. Eichhorst et al (2015) evaluate that vocational training is a transformation towards employment outcome, improving the income level and a better opportunity for youth with low skilled and low ability. The study also designated that the preferences for technical training is given at school level due to earlier accessing the labor market. Moreover, Caves et al (2019) analyzed that the linkage of employment and education in TVET programs tends to create better outcome for labor market.. Likewise, Khirotdin et al (2019) explored that 86.7% trainees that are graduated after TVET training in Manpower department, were employed. The quality intervention of TVET programs yields positive results for the individual who are interested to get employed. The different studies have also tried to converge the focus of Govt toward training activities. Their contribution in arrange such technical training activities are very important to engage youth in productive earning opportunities.

The intervention to implement TVET program can be very crucial to access positive labor market outcomes. As a matter of fact, the implementation of such training programs is facing

some operational issue. Caves et al, (2019) said that developing countries are so suppressed in producing the strong TVET system against the fact those employers demanding more for the interventions. The important factor of implementing TVET program is the recognition of concerned skills to train the students. Despite of the interventions, the system of TVET is yet to be explored against the demanding job skills. (Khan & Ahmed, 2018) criticized the traditional TVET system where lower skills level, weak coordination among TVET departments, insurgencies along with low level socio economic indicators put limit on yielding desired benefits in China-Pak Economic Corridor (CPEC). So, identification of related skills is more important than only producing the overall training activity. Moreover, the limitations of producing the relevant skill are not the only factor but the geographical territory of concerned activity. Like the case of Baluchistan -Pakistan- where providing individuals with lower technical and educational skills give an unfair distribution of shares among common people. Likewise, NAVTTC, (2018) reported 6% of the technically skilled labor working in CPEC project. The ratio is highlighting the lower supply of labor force against the demand and could be of more confounded for upcoming projects.

There are needs to import effective criteria for making TVET programs compatible to market outcomes. The rising ratio of youth unemployment is very alarming and if they are not wisely utilized and trained, they will face acrimonious challenges include family instability, indiscipline and immoral behavior, disease, smoking, alcoholism and drug abuse, incessant strikes, apathy towards education and rising unemployment rate, and frustration among them (Oyekan, 2015).

Many studies portray a positive image of technical education on generating employment opportunities keeping in view the idea of returns on education. The standard Mincer (1974) model argued that employment is influenced by returns on education. Many studied then

modified the mincer model to include different level of education and its return on generating the employment like (Nazar & Chaudhry, 2017); (Houcine and Zouheyr, 2019). According to these models, more year of schooling and experience at work resulted in more earning opportunities. Some other modification in mincer model was also done by the researchers. ( Suaza et al, 2019); (Kashif and Raheel, 2017) incorporated the technical education in the model to explore its effects on employment. The space where youth employment is prime concern of the argument at global level, different studies have constructed a pathway to aware the govt about occupying the loopholes. Shikalepo (2019) focused on the exposure of an entrepreneur according to demand of the market. The trainees asked a question that where he is going to employ after training. The question will only be qualifies when the curriculam of the trainig is contemporary to allow trainee to seek business opportunities.

## **1.2. The Case of Pakistan**

Among other developing countries, the role of Pakistan in targeting youth cannot be undermined. According to population bureau reference (2018), around 4% of population is 65 years and older whereas virtually 36% population is lying below 15 years of age. Surprisingly, 60% of the population lied between the age of 15-65. According to UNEVOC (2013), vocational training at both secondary and tertiary level would help to tackle 3.7 million youth. Moreover, National vocational and technical training commission (NAVTTTC) did a comparative analysis of technical education in Pakistan in 2018. The report suggested that taking the capacity of 0.314 million students, the enrollment ratio is 0.232 million every year. The gap of 82,366 can be equated by enhancing the institutional capacity of technical training spaces.

Unemployment rate among youth has been found fluctuating trends over the time. Although there was a decreasing trend since 2005 at 11.75% to 4.169% in 2014, but after that it again

starts increasing and reached at 7.945 during 2018 World Bank (2018). Government of Pakistan has initiated some programs to tackle the unemployment among youth. Economic Survey (2017) produced a list of initiative undertaken by the Pakistan Govt like Prime Minister's Youth Business Loan Scheme, Prime Minister's interest free loan scheme, Prime Minister's Youth Skill Development Program, Prime Minister's Laptop Scheme, Prime Minister's Fee Reimbursement Scheme, Prime Minister's Youth Training Scheme; however, still unemployment is rising.

Globally, studies have explored different reasons of unemployment in spite of people getting trained under any technical training. (Nkechi et al, 2012) indicated that outdated curriculum of school and dispossessing employable skills required by the employer to employ any Nigerian graduate; economy is not having the enough capacity to employ graduates because of closing down of several factories. Similarly, Ajaegbu (2012) suggested that prioritizing the certificate earned at university level and ignoring the training necessary for skill acquisition is one of the reasons to get unemployed. Concluding the global findings, several factors are explored by researchers. These include excessive supply of labor, school's outdated curricula, skill mismatching, and lack of focus in training activity are the leading factors. Likewise, Pakistan is also facing the same causes that are manipulating the youth employment opportunities at global level.

(Faisal et al, 2019) found that causes prevailing in Pakistan are: lacking in skills, discrimination among provinces and region in job opportunities, sectoral unbalancing, and lacking in the level of education, and difference in the demographics of rural and urban areas. Further studies regarding Pakistan such as Farooq (2015); Qadeer and Fatima (2017) explored that skill mismatching is also a source of generating unemployment among youth. Vocational training is considered to be an important factor that not only allowed youngsters to explore their

skills to transform it to some monetary benefits but provide them opportunity to get employed. Despite the fact of intervention, rising trend of employment among youth is leaving training with some limitations that need to address.

### **1.3. Problem Statement**

Technical skill acquisition is considered to be an important factor to engage youth in earning the substantial livelihood. Theories of human capital suggest that the technical education resultantly improve the opportunities and employment level. Unlikely, different Studies have also explored reasons that put limits on improving the level of employment despite of the interventions to address the issue. The enlisted hurdles include outdated curriculum of school, dispossessing employable skills, not having enough capacity to adjust the graduate, prioritizing the technical certificate earned at university level, ignoring the skill acquisition during training activity, excess supply of labor, skill mismatching etc.,

The unemployment rate in Pakistan is continuously increasing World Bank (2017). Meanwhile, the population of youth in the country is also increasing. Although there is increase in number of graduates each year, but they are also confronting the issues despite of training under technical education platforms. If youth is not wisely utilized with flawless technical training, they will face acrimonious challenges like studies expresses family instability, indiscipline and immoral behavior, disease, smoking, alcoholism and drug abuse, incessant strikes, apathy towards education. To make the situation less bad, one possible solution is to not only making the training effectiveness but also by giving youth productive skills through which they can get some way out to earn. This study is going to analyze the role and importance of technical education with respect to its impact on employment.

#### **1.4. Objectives of the Study**

Primarily, this study intends to investigate the impacts of technical education on employment level among youth in Pakistan. Following are the key objectives of the study:

- 1- To evaluate the comparison between the employment level of youth who get technical skill (treatment group) and those who did not get any technical skills (control group)
- 2- To investigate wage differentials among who get technical skill (treatment group) and those who did not get any technical skills (control group)
- 3- To explore the effectiveness of training among public or private institutions

#### **1.5. Significance of the study**

Existence literature regarding Pakistan has explored the returns on education in Pakistan Farooq *et al*, (2015); Maigida *et al*. (2013); Nasir and Nazli (2010).

(Kazi *et al*, 2014) have indicated a positive effect of technical education on skill development and on its returns among youth. However, there is need to look into updated data and such technique which provides unbiased causal effect.

Despite the fact of indicating technical education return, previous studies did not conduct any counterfactual analysis This study will perform a counterfactual analysis where status of employment will be judged for the technical equipped educated youth if they were not having any technical education. The other important thing is the observation of technical skills on not only its return but also on employment and wage differential among youth. This study is also analyzing the status of employment with most updated data of labor force survey.

This study will use the data of LFS 2017-18 while previous data was conducted in 2014-15. Analyzing the status of employment with this data will give updated information of the

indicators according to current dynamics of the economy. Moreover, this study would also be based on quasi-experimental design where a specific age group is going to be analyzed by comparing the youth who get technical skill with the youth who did not get technical skill. Likewise, analysis will also explore the impact among the graduates who get technical skill from public institute with those who get technical skill from private institute.

The most important contribution of the study is upon the youth-15 to 29 years of age-. On one hand, this era is equipped with advanced technology and innovative technical equipment. On the other hand, youth is more converge towards using technologies in different ways. Joshi et al, 2019 reported that a huge amount of youth is engaging with technology through mobile apps, texting and sharing, video games and video sharing platforms. So, this study will be focusing on emphasizing the role of technology to generate the employment in terms of youth employment. If youth is being trained under the umbrella of TVET then the technology they are already using will yield some productive outcomes. None of the study has focused on exploring the impact of technical education on employment of youth. This study will analyze the impact by keeping in view the trainees who get technical education with those who did not get technical education.

The findings of the study are much important for Government to implement some strategies to enhance TVET programs. Govt of Pakistan is facing many issues regarding TVET programs. Like demand and supply gap by the industry and youth trainees, lower investment in program, limited space capacity for youth bulge, less participation of women etc. So, this study will be helpful in emphasizing the role of TVET in accommodating unemployed youth bulge. The results will not only allow Govt to find solutions to cover the loopholes of technical training activities but also to formulate some policy measures to improve it.

## **1.6. Motivation of the study**

The list of problems explored by Pakistan economic survey 2018-19 undermined the interventions to address the problems. Lead by the discussion of overpopulation, the rate was growing with 2.4% in 2017 census. In response, a suo moto was taken by Supreme court of Pakistan in 2018 to retaliate against the rising trend and a task force was designed to set the contraceptive prevalence rate at 55% from 34.2%, taking down the population rate trend to 1.5% from 2.4% and fertility rate to 2.1 from 3.6. For this purpose, a list of intervention to counter the severe trend were approved by Council of common interest in advises with the ministry of national health services regulation and coordination.

On the other hand, unemployment trend among each age group is also very alarming. The highest ratio of unemployment 15.7% for females and 10.5% for males in the youth age between 20-24 and overall unemployment trend which is 5.79%. While youth unemployment is also tending to be critical comparing with average unemployment rate where unemployed youth was reported 10.44% in the age of 15 and travelled to highest ratio of 15.14% in the age of 24. The situation of Pakistan among regional countries is also critical except of Iran (12.0). An average of 5.79% unemployment rate in Pakistan, India Stood at 2.6%, Bangladesh at 4.3%, Sri Lanka at 4.4%. In occupying employment status, the contribution of formal and informal sector is very important. Informal employment which is not been regulated through labor laws or in a state protection showing a decreasing rate of 72.0 % in 2017-18 lead by 72.6% in 2014-15. The occupational categories set by Pakistan to show the profession wise skill arrangement includes highly qualified, highly skilled, skilled, semi-skilled and unskilled. In 2018 survey, trend shows a decreasing rate in highly skilled, skilled, semi-skilled, unskilled except highly qualified. These statistics are very critical and need an immediate solution to address the deteriorated skill

arrangement. Literature in this study have emphasized on the importance of TVET. In this concern, Government of Pakistan has introduced first five-year phase of technical and vocational education training 2011-16 and second phase was being initiated in 2017 for further five years. The idea was to equip young men and women with employable skill (TVET reforms in Pakistan, 2011-2016).

### **1.6.1. Private vs Public provision of technical education**

The concern over Technical vocational educational and training, data depicts a strong relation of TVET with human condition like Sheikh, Sheikh, and Koreshi (2019):Alam (2015):. These studies take TVET as a significant factor in the capacity development of mind where different ways can be explored to do the things better. On the other hand, severity of the people out of the labor force participation signaling weak institutional intervention. This argument questioned over whether Govt or any private institute are more reluctant in providing technical training. Pakistan economic survey of 2017-18 reported 3700 technical training govt institute with 18,200 teachers. Total of 4,33,200 students were enrolled in the institutes that makes 25.7% increase as compared to previous year. The enrollment is further expected to increase with 8.7% during 2018-19. Leaving the target on govt to adjust the youth bulge will not be a party to deal with. For adjusting youth bulge and provisioning productive skills, consulting private institute could be a burden free option. Surprisingly, the question also emerges as whether the productivity of private institutes will support the burden free state or not.

Borah (2014)found that teachers of technical education in India prefer private institutes as more productive in technical skill provisioning. They believe that private institutes perform better in infrastructure support, better financial efficiency and proper administration. Studies have also claimed weak contribution of the voucher program financed by govt. According to the

analysis, there is no impact of these programs on employment and wage because participant of the training engaged in non-routine task Görlitz and Tamm (2016). This analysis also looks familiar in case of Pakistan where studies criticized over TVET intervention.

In case of Pakistan, NAVTTC, (2017) reported total of 3,581 public and private institutions in which 934 are providing technical skills and 2,647 are providing vocational skills. In these institutions, 3,14,176 students were being supplied as a skilled labor force. It has also been noted that the number of private institutions are much higher than public institutions. Surprisingly, private institutions are more inclined towards vocational training of 55% in producing skilled labor force while 11% in providing technical skills. TVET in Pakistan in confronting the issue of standardized technical education, teacher training material and curriculum. The criteria of skill learning process do not match with national and international standards. A higher number of private institutes does not cater minimum standard of skill learning process. Resultantly, imbalances occur in the supply of skilled work force.

When comparing to public sector, private institution shows an improved efficiency in the contribution of labor market supply. In province wise comparison, Punjab is contributing 43%, Sindh 44%, KPK 94%. The only problem occurs where number of private institutions are not under the control of provincial technical and vocational institute of govt called as TEVTA. The more concentration of private institute is following less academic standards set by govt institutions. So, skilled labor force face imbalances occur according to market structure. In this situation, public private partnership can be very influential in providing market based skill labor supply. Govt of Pakistan has reformed the system of TVET where a joint effort between public and private institutions has been outlined.

### **1.6.2. Importance of formal and technical education**

Formal education plays an important role in transforming technical skills. Surprisingly, institutions are lacking in utilizing this path of improvement. Many studies expressed a weak contribution of formal institution in providing technical skills to students like (Adewale et al 2014);Abdullah (2020); Taib (2012). According to a study, 99% of students were not entertained in business counselling, technological support, or any kind of entrepreneur guidance from the institutions. They are lacking to convey the process of training for being self-employed. The studies have also emphasized on making technical education as a part of universal basic education system. Likewise, govt of Malaysia has set a principle goals by 2020 in which higher education and entrepreneurial development program are taken as a complimentary part to equip student with dual process of professional engagements. On the other hand, technical education are preferred over formal education because the returns for training activity is more than spending time at formal schooling Konings and Vanormelingen (2015);.

The reason for this difference is justified by the fact that work motivated training are more converge towards productivity than general education attainment. Moreover, general education is designed to increase the general knowledge of the subject matter but it doesn't have anything to do with professional career building.

### **1.6.3. Wage effectiveness in “On job training and before job training”**

Organization in the world realized the benefits of Human resource strategies on employee's performance. The research is questioning over this practice as it has a very positive impact on the performance of the organization as well. Training is taken as a compulsory element to enhance individual knowledge about the subject matters and specified skill to be tackle in an organizational environment. On the job training is not only important for the

organization performance but it also assist individual to get benefit from the organization incentive.

On job training is compulsory for equating the gap of actual and desired performance of employees Swart, Mann, Brown, and Price (2012); Chiaburu and Tekleab (2005); Pfau (2005). These training programs take any form like on job training or off job training. The motivation is to help employees to work in comfortable environment. On job training is also very conducive for wage returns. Result of an analysis suggest that workers of on-job-training observe higher wage returns regardless of some specific job characteristics Albert, GARCÍA-SERRANO, and Hernanz (2010).

The debate also relates the argument with the situation of before job trainings. The impact of before job training on wages is suffering from least topic of discussion. A list of studies has explored the important of on job training. In either way, the status of wages would behave differently Almeida and Faria (2014). In empowering on job training, employees will be paid less amount of wages but the cost will have covered with the contribution of firm. After training sessions, workers will be paid according to their level of productivity. While, the cost of without job training will be occupied by workers themselves. There is also a little evidence that unleashes the impact of without job training in comparing on job training benefits. The literature has individually support TVET as an important element for generating employment.

Both activities of on job training and before job training claim their attributes for skill acquisition. On the other hand, these interventions also take some loopholes with them. On job training only care for a specific skill to deal with. Employees will only be able to enhance their skill knowledge that is aligned with the organizational benefit. Unlikely, before job training allows individual to access various opportunity to work with. Problems occur where content of

before job training is not compatible with the market requirements. Studies exposed different drawbacks of having a weak intervention like demand and supply gap, unaligned curriculum, missing soft skills provisioning etc.

## Chapter 2

### Literature Review

Literature review in section 2.1 is highlighting the issue of unemployment among youth. While section 2.2 expressed a positive role of vocational education in addressing youth unemployment. This section also discusses the limitation of technical training to provide technical skills to youth. Moreover, in response of global countries in decreasing unemployment through technical skills, the contribution of Pakistan is discussed. Therefore, literature will highlight the importance of technical skills where transformation towards skill enhancement is a dominant concern at global level.

#### 2.1. Unemployed Youth

Economies at global level are confronting the issue of over-population and labor shortage , but the recent crisis hindered the economic growth further due to up surging of poverty, unemployment, low job creation, immigration restrictive policies to create an environment for local jobs etc. Cerna (2018). The policies reforms for educating youth is not sufficient in modern development of human capital theories. There is need to upgrade the skill enhancing techniques for current work force<sup>1</sup>. These severe challenges steered the researcher to reclaim the status of modern skill to help govt to tackle youth unemployment.

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<sup>1</sup> ECT, Abu Dhabi, UAE

International Labor Organization (ILO) exposed the concept of youth unemployment as “a person is an unemployed if he/she was without work, willing to work and actively looking for a job during the reference period”. Despite of considering the importance of contribution, youth development initiatives are suffering from severe challenges. International organizations have emphasized on youth development initiatives influenced by devastating facts and figures. ILO, 2017 reported 13.1% unemployment rate in which 70.9 million are looking for job. According to global youth index, Country wise ranking showed Germany at first position in ranking and Central African Republic at the lowest rank of 183th. Among common wealth countries, Australia, UK, New Zealand, Canada, Malta, Barbados, Brunei, Sri Lanka, Malaysia and Cyprus are ten highest ranked in youth development index. While Rwanda, Sierra Leone, Pakistan, Namibia, Malawi, Cameroon, Tanzania, Lesotho, Zambia and Mozambique fall under lower ranked countries.

Job limitations among youth are often caused by less market oriented skills, inadequate work experience, asymmetric information about job, less knowledge for the process of job searching, limited capital to be a self-employed Kluve et al. (2019). Moreover, the severity of the issue differs according to the dynamics of economies like macroeconomic structure, educational and labor policies etc. (Banerji et al, 2014). To overcome the increasing gap of employment among youth, TVET is a targeted solution of international institutions like OECD Lopez-Fogues (2018).

TVET plays an important role in generating the level of employment. Regrettably, the reforms over TVET initiation proved ineffective for overcoming the skill development issues. Despite of the intervention, youth is unable to deviate from social exclusion and skill development problems Fleckenstein and Lee (2018); (Vandekinderen, 2018). These reasons are fair enough to keep the unemployment at stagnant state.

## **2.2. Vocational education and training**

Beginning with the word of Becker (2019), theory of human capital expresses vocational education as a way of enhancing human capital of young blood workers and resultantly improve their employment and earning opportunities. Moreover, employees are more reluctant towards vocational training in order to increase the productivity level. The debate at global level converged the attention of international organizations to utilize technical training to equip youth with technical skills.

United Nations had planned to target youth for providing technical and vocational education to make them employed or to be an entrepreneur by 2030 UNGA (2015). International teamwork has also helped the economies to expand the system of vocational training due to emerging challenges like the immigration of citizen from Africa to Europe (Annual report of GOVET 2017). Likewise, Govt of Germany is also expanding vocational and education system in order to make their dual system of educational training effective (Zinn et al, 2019). In case of Nigeria, Govt took TVET programs as a potential education campaign to equip youth with the skill which can enabled them to maintain their livelihood Maigida et al. (2013).

The interventions through TVET at global level signifies the motion to transform the adverse situation of youth. Researcher also analyzed the role of TVET very conducive for the economy to increases the employability for not only creating self-employment -includes SMEs- but also the opportunity of paid employment Shikalepo (2019). A survey conducted in Kenya from secondary school graduates (SSG) between Bungoma and Mombasa depicted a positive role of the skills like business planning skill, book keeping skill, marketing skill, pricing and costing skill, public relation skill, time management skill etc. in self-employment (Kikechi et al, 2013).

According to the Dimoska (2019), in order to make graduates employable in the industries, employment outcomes and employability are two most important factors to train them. Zimmermann et al. (2013) have suggested three general principles to follow a successful training: first, an understanding of those skill consistent with the economic perspective and pros and cons of existing structure of training; Secondly, quality in the provision of training and response of public-private partnership to meet the market demand; third, active labor market policies (ALMP) must complement in not only targeting the unemployment but youth at risk. They have also explored that the skill training on the job and certification helped youth to get a way out of the unemployment. According to Okoye and Okwelle (2014), internship or apprenticeship skill trainings must be compulsory for tertiary education graduates and university graduates, workers must be classified in accordance with the individual interest for a particular skill but not on the basis of academics degree. According to (Sheikh et al, 2019), access to TVET will not only create new jobs but will also increase national GDP and per capita income.

The point where studies designate TVET as a source of employment generation, the criticism also take charge to compete the motion. The problem for not maintaining the desired outcome differs according to countries dynamics. Federal Government of Nigeria observed that the idea of generating wealth is not targeting the desire objective due to lack of occupational and employable skills Ayonmike (2016). The other reason is the dropout ratio of the students joining TVET institute due to low achievements, least preparedness for a subject, continuing the training offset the cost. Surprisingly, Education and migration status of mother tends to increase the dropout ratio more rather the status of fathers. Moreover, dropout ratio of the children belong to wealthier family is more as compared to financially deprived ones as their enrollment ratio is less Yi et al. (2015). Skills mismatching is also creating hurdle to worse off the desired outcome. The

reason is the structural gap in the curriculum that is inconsistent with occupational standards utilized by the Governments against the requirement of the industries (Nganwa et al, 2015). They have also discussed that the gaps in demand and supply of job skills is putting limits on the effectiveness of training. The demand factor includes the ability of generating employment against the required skill while supply side includes the matching of skills against the market requirement. As a matter of fact, market demand and supply is imbalanced due to the issues in demand of an employee with relevant skill and the supply of employee with under or over qualified skills.

According to Farooq (2015) skill mismatch among 31-37% graduate is due to over-qualification or under qualification. Similarly, one-fourth ratio of the graduates are mismatched due to over-skilled or under skilled. According to Qadeer and Fatima (2017), mismatching between job and education or an irrelevant job is due to family force, distance between work and place, family force, advertisements and family responsibility. Surprisingly, the mismatching factor is targeting more of female employees than male.

### **2.3. Skill development and Employment: A theoretical perspective**

The interaction of state with TVET is better address by the previous studies that set a theoretical foundation of providing any technical education. Enabling workers to enter in a labor market environment and career building depends on educational led programs that emphasize on job skills but career development as well. This is also signifying a cognitive thinking, situation learning process, problem solving techniques and a coordinated work environment. Led by the discussion, different theories like behaviorism, constructivism etc had an inference about the compatibility of TVET and career building Marques (2016); Doolittle, (2013).

One of the theoretical doctrine” social efficiency” is adopted by US. According to this doctrine, individual of the society can be prosperous and self-fulfilled by its social efficiency. Technical education enriches the doctrine by participating in this social efficiency. Prosser and snedde expresses six theories that can also be applied to technical education and career building. It includes: socioeconomic stratification, probable destiny, psychometrical instrument, social control theory, pedagogy, behaviorism.

Behaviorism, specifically, emphasize on social connected class where each member get benefit from healthier society and economy. Resultantly, there is more humane workplace to deal with. Career building and technical education must not be a part of pre-determined skill demonstrated by the industry skill Ren, (2009). It allows student not to build an internal knowledge but an imposed knowledge of skill. At local level, career building and technical education is more attributed industrial needs. The performance thus converges towards a pre-determined objective to rely on. Traditional system of transmitting the imposed skills among the student, attention is need to include sociology, psychometric and abstract reasoning to guide student towards their supreme priority of education Molnar, (2010).

The aforementioned theories of career building and technical education came from the development in 1900s. Recently, there exist some emerging theories of constructivism. According to this theory, learners develop their own interest in experiencing the knowledge for a particular skill. This concept is subjugated by the core of philosophy where reality and experience are separated to each other. Reality is discovered through experience and it became a personal reality. Thus, the theory of constructivism expresses the active role of learner in the creation of personal knowledge. The importance of the experience in this knowledge creation process will allow the degree of the knowledge to be varied depict the actual representation of

the reality. As a matter of fact, this principle may behave differently in the process of constructivism. Therefore, there is division in three categories: cognitive constructivism, social constructivism and radical constructivism.

Among all this theoretical perspective, studies signify that employer demand for the workers with appropriate social behavior. Employer more care about character, attitude of the employee. They have more retaliated reaction over negative behave at work, lacking self-discipline, adoption inability and absenteeism. For this concern, US commission for achieving necessary skills circulated a Performa for skilled worker. The theory of constructivism supports this argument by indicating a public system of skill acquisition. this includes: skill upgrading, on-job training and worker's retraining program. Coupling career building and technical education with the theory of constructivism, student will develop a new dimension of interest.

Theories have so far suggested a valuable framework for career building and maintaining an effective technical education environment. Teaching must begin and end career building and technical education with the appreciation of student engagement. Student of technical education must be exposed against the fundamental understanding of current skill and knowledge structure. Student must have been exposed to the skill that are necessary to learn. Skill must be following a value of understanding where insights, new discoveries and adaptation are easy to interact. Self-regulation, self-awareness and self-mediation must be produced occupationally.

## Chapter 3

### Data, Variables and Methodology

This chapter is furnished with discussion on data, and variable construction, and methodological framework. This chapter contains four sections: Section 3.1 weaves up description of theoretical framework while specification of econometric model is discussed in section 3.2. Likewise, data source and its description is given in section 3.3 whereas construction of variables used is presented in section 3.4.

#### 3.1. Theoretical framework

Heaps of literature is supporting Mincer model to find out impacts of education on returns. Basically, Mincer model helps to estimate the returns on education and many studies have measured the return of education on earning like (Choi et al, 2019). This study is aiming at finding the impacts of vocational education and its returns. The studies explored that city of Hanoi in Vietnam give extra reward to those with extra year of schooling whereas in Ho Chi Minh, people with more experience get extra benefit. Likewise, Nazar & Chaudhry (2017) have also conducted an in-depth analysis of return on investing education by keeping in view the quality and quantity of education. Both of the studies used standard mincer model containing years of schooling and experience. The aim of observing the returns on education the equations is specified as follows.

$$\text{LnW} = \alpha_0 + \beta S_i + \beta_1 X_i + \beta_2 X_i^2 + \varepsilon \quad (1)$$

Above equation indicates that W is log of wage rate, S is representing years of education, and X indicates experience of worker. Likewise,  $\varepsilon$  is error term which included the unobserved factor determining the wage but cannot be measured. However, researchers have also modified the mincer equation in order to analyze the return in different level of education. Like Nazar (2017); Houcine and Zouheyer (2019).

The specification of modified non-linear mincer model is given as follows.

$$\text{LnY} = \alpha_0 + \beta_1 \text{Primary} + \beta_2 \text{Secondary} + \beta_3 \text{Higher secondary} + \beta_4 \text{Graduation} + \beta_5 \text{University} + \beta_6 X_i + \beta_7 X_i^2 + \mu \quad (2)$$

In above equation, researcher captures the impact of different level of education and experience on income level. Unlikely, some previous studies use the standard Mincer model by including technical education as well. Suaza et al (2014) modified the mincer model to include the following equation.

$$\begin{aligned} \text{Ln} ( w_i ) = & \beta_0 + \beta_1 \text{Age}_i + \beta_2 \text{Age}_i^2 + \beta_3 g_i + \beta_4 \ln(h_i) + \pi_1 \delta_1 \text{prim} + \pi_2 \delta_1 \text{sec} + \pi_3 \delta_1 \text{tech} + \pi_4 \delta_1 \text{colg} \\ & + \pi_5 \delta_1 \text{pos} + \gamma_1 \text{Age}_i \delta_1 \text{Prim} + \gamma_2 \text{Age}_i \delta_1 \text{Sec} + \gamma_3 \text{Age}_i \delta_1 \text{Tech} + \gamma_4 \text{Age}_i \delta_1 \text{Col} + \gamma_5 \text{Age}_i \delta_1 \text{Pos} + \\ & \varepsilon_i \dots \dots \dots \end{aligned} \quad (3)$$

In this equation,  $\delta_{ij}$  includes the spline variable of different education level (Primary, Secondary, High school,). Moreover, it also used college, postgraduate and technical training as well.

Kashif and Raheel (2017) have also modified the mincer model to include gender, foreign language proficiency, family background index and the sector where respondent have completed secondary school education. Among all of these variables computer literacy and local/Foreign training were also the part of modified model.

The modified model for education, training and age is as follows:

$$\begin{aligned} \text{Ln}Y_i = & \beta_0 + \beta_1 \text{Edu}_i + \beta_2 \text{Exp}_i + \beta_3 \text{Exp}_i^2 + \beta_4 \text{Comp}_i + \beta_5 \text{Train}_i + \beta_6 \text{SSC}_i + \\ & \beta_7 \text{Gend}_i + \beta_8 \text{Flang}_i + \beta_9 \text{FBI}_i + \beta_{10} \text{FSI}_i + \mu_1 \end{aligned} \quad (4)$$

This study is going to analyze the impact of technical education on employment among youth. So, the modified mincer model for the study is as follows;

$$\text{Ln}(Y) = \alpha_0 + \beta_1 \text{Tech} + \beta_2 \sum Z + \epsilon \quad (5)$$

Where Y includes the employment of youth,  $\alpha_0$  expresses the status of employment regardless of technical education and other factor factors that can effect employment, Tech representing the technical education,  $\sum Z$  include all other variables like age, gender, head of household's education, area, employment status, migration status, tech training duration etc.

The study will be focusing on expressing the status of employment by comparing the control group (who did not get any technical skills) and treatment group (who get technical skills). The comparison will have made for the people with same characteristics like age group, education level, the place where they worked and the district where they belong.

### 3.2. Econometric model

After setting the theoretical model, the study estimates equation (5) by using Treatment Effect Model (TEM) which is considered as the Heckman model. Treatment effect model is used to observe the effect of a treatment on outcome of interest. In our analysis, we are interested to observe the impact of training on employment keeping in view the youth who get training against those who did not get any training. The reason to apply this model is to capture selection bias which emerges due to the decision to get technical skill or not (Madala, (1981); (Heckman et al (2003). In order to avoid complications of decision to get technical skills, treatment effect model can be very effective. This further provides us to find out the counterfactual analysis as (Ahmad et al, 2015) have done to investigate the impacts of adaptation to climate change on food security. Treatment effect model follows two models as the standard Heckman model: treatment equation, and outcome equation. The specification is given as follows.

#### *Equation-1: Treatment model*

This model is same as Probit model where dependent variable or treatment variable whether household member have gained the technical education or not. The variable takes value 1 if takes technical education, 0 otherwise.

$$T_i = \alpha_0 + \beta_2 \sum Z + U_i \quad (5)$$

In above equation, T is treatment variable, whereas Z is vector of socioeconomic factors which determine the decision to get technical education such as gender of individual, current enrollment status, education of head of household, family size, dependency ratio, marital status, employment status, province.

### *Equation-2: Outcome model*

Outcome model will be comprising of employment outcomes which may be in different forms. This model is our main concern wherein we would be able to investigate the impacts of technical education on outcome variables. The general form of the equation is given as follows.

$$Y_0 = \beta_2 \sum X + \epsilon \quad t=0 \quad (6)$$

$$Y_i = \beta_2 \sum X + \epsilon \quad t=1 \quad (7)$$

In above model,  $Y_0$  is outcome variable which is employment opportunities such as employment in private sector or government sector in the case non-trainee's youth. Similarly,  $Y_1$  is outcome variable which is employment opportunities such as employment in private sector or government sector. This study would use returns or log of wage rate as outcome variable as well. Moreover,  $X$  is indicating for vectors of socioeconomic variables which also affect outcome variables in addition to technical education. These variables include gender, gender of head of household, age of head of household, migration status, duration tech education, region (rural/urban), training provider.

### **3.3. Data Sources and description**

Data in the study have been taken from Labor force survey 2017-18. Pakistan bureau of statistics is responsible for conducting labor force survey since 1963. This survey is used by researchers, Government and many other users. This report has a detailed information even at quarterly representative results of the characteristics of labor force for 43,361 household containing disaggregated estimates at national and provincial level with rural or urban

breakdowns. The total sample size of the data is further distributed into four sub samples enumerated against a given quarter.

As already discussed that Labor force survey 2017-18 will be used to analyze the impact of technical education. The number of sample is included in Labor force survey are 43,361 households. The collected data is based on the information of those youth who get any technical skill and those who did not get any technical skill.

Moreover, data also contain province wise information of not only youth but also the individual regardless of the age. This study includes the survey of 191,240 individuals regardless of age to know the ratio of people who get training and the people who did not get the training. In this ratio, 1, 66,222 individuals were not trained and 25,018 were trained. By including youth in the study, 60,292 young people did not get the training while 10,616 get the training.

*TABLE 3.1: SAMPLE*

Province	Total Sample			Youth (15-29 Years) Sample		
	Overall	Training	No	Overall	Training	No training
Punjab	86,775	14,265	72,510	32,348	5,878	26,470
Kpk	38,120	7,559	30,561	15,069	3,363	11,706
Sindh	41,040	2,367	38,673	14,938	1,055	13,883
Baluchistan	22,595	618	21,977	7,517	244	7,273
Islamabad	2,710	209	2,501	1,036	76	960
Total	191,240	25,018	166,222	70,908	10,616	60,292

## **Chapter 4**

### **Results and discussion**

#### **4.1. Results of the study**

The purpose of the study is to explore the impact of TVET on employment. In order to find the objective, STATA 13 used the command “teffects IPWRA” to estimate the model given in equation (5) and (6). “teffect IPWRA” command gives not only the exact measure of impact but also its counterfactual. In order to investigate the effect of technical education on employment, three measures would be studied. Potential Outcomes Means (POM), Average Treatment Effect for Treated (ATET) and Average Treatment Effect (ATE) are estimated. These measures will help to check the impact of technical education on employment and its counterfactual. The said procedure will also assist in finding the determinant of employment and the decision to get technical education. Employment is an outcome variable as mentioned in equation (6). The covariates in the outcome equation includes gender, gender of head of household, age of head of household, migration status, duration tech education, region (rural/urban), training provider. The covariates of treatment equation contain some variables from outcome model and includes gender of individual, current enrollment status, education of head of household, family size, dependency ratio, Marital status, employment status, province.

##### **4.1.1. Measures of Average Treatment Effect, Average Treatment Effect for Treatment and Potential Outcome Mean**

The analysis of how technical skills are important as a return of education depends on the employment level. This study is using following dependent variables as an indicators of

employment level to explore the impact: Total hours' weekly return, Wage returns, Dummy employment, Employment status 1 (paid employee), Employment status 2(employer), Employment status 3 (self-employed).

#### **4.1.1.1 Total Hours Weekly Returns**

The result produced in table 4.1 suggested that potential outcomes mean of youth who get training is higher than those who did not get any technical skills. The measures of potential outcome mean for training is 1.22 and seems to be statistically significant whereas potential outcome mean for no training is 0.76. These different but significant results in potential outcome mean suggested that youth who get technical skills get more returns than those who did not get any technical skills. Average treatment effect (ATE) is the difference of potential outcome mean for youth without training and potential outcome mean of youth with training. This measure gives value of (0.47) with a positive sign and depicting a highly statistically significant result. The youth that more focus on getting technical skills are more likely to get total weekly hours returns than those who did not focus on technical skills.

Likewise, table 4.2 expressed that total hour's weekly amount increase by 0.44 units against the average amount of 1.22 units when there is no training in case of a private provider of the training. Unlikely, Govt as a training provider is implying negative but insignificant results which means Govt training does not affect employment in case of total hours' weekly return.

The result in the table 4.1 has also measured average treatment effect of treated group (ATET). This measure expresses that if technically trained youth have had not got technical skills then what would have the condition of employment. If all the treated group or youth who get technical skills were not technically skilled, the average outcome is 0.46. This measure is indicating that technically trained youth are better off than non-trainees even if they had not

getting any training they would still have been relatively more total hours' weekly returns than actual non-trainee in the population. If all technical trained youth become non-trainee, the ATET (0.46) is approx. equal to ATE (0.47). This result specifies that non-trainee youth have lower total hours weekly returns than those of trained youth. Spontaneously, it depicts that those youths who got technical training were already having more total hours' weekly returns than those as if they were non-trainees.

*TABLE 4.1: LOG TOTAL HOURS WEEKLY*

	<b>ATE</b>	<b>POM(0)</b>	<b>ATET</b>	<b>POM(0)</b>
Coef.	0.46*	0.76	0.46*	0.76
S.E.	0.0095	0.004	0.008	0.01
z	48.57	191.56	53.34	113.85
P> z	0.0000	0	0	0

*TABLE 4.2: LOG TOTAL HOURS WEEKLY (PRIVATE/ GOVT TRAINING)*

	<b>Private training</b>		<b>Govt Training</b>	
	<b>ATE</b>	<b>POM(0)</b>	<b>ATE</b>	<b>POM(0)</b>
Coef.	.044*	1.22	-.024	1.22
S.E.	.018	.014	.051	.010
z	2.41	88.97	-0.47	121.35
P> z	0.016	0.000	0.635	0.000

#### **4.1.1.2. Wage returns**

The result produced in table 4.3 suggested that potential outcome mean of youth who get training is higher than those who did not get any technical skills. The measures of potential outcome mean for training is (9.41) and seems to be statistically significant whereas potential

outcome mean for no training is (9.38). These different but significant result in potential outcome mean suggested that the youth who get technical skills get more wages than those who did not get any technical skills. ATE measure gives (0.04) with a positive sign and depicting a statistically significance result. This statistically significant result suggests that the youth with more focus on getting technical skills are more likely to earn wages than those who did not focus on technical skills.

Likewise, table 4.4 depicted that wage return amount increase by (.06) units against the average amount of (9.39) units when there is no training in case of private training provider. Surprisingly, Govt provision of training is also producing same results for wage earning. The youth wage earnings increased by .35 against the average amount of 9.38 when youth get training from govt institutions.

In case of ATET, table 4.3 suggested that if all the treated group or youth who get technical skills were not technically skilled, the average outcome is (0.028). This positive but insignificant result express that if all treated group become non-treated then there will be no effect when youth is aiming at wage earning.

*TABLE 4.3 LOG WAGE*

	<b>ATE</b>	<b>POM(0)</b>	<b>ATET</b>	<b>POM(0)</b>
Coef.	0.04*	9.38	0.028	0.76
S.E.	0.015	0.0067	0.015	0.006
Z	2.7	1404.64	1.9	113.85
P> z	0.0070	0	0.06	0

*TABLE 4.4: LOG WAGE (PRIVATE/ GOVT TRAINING)*

	Private training		Govt Training	
	ATE	POM(0)	ATE	POM(0)
Coef.	.06*	9.39	.35*	9.38
S.E.	.028	.021	.047	.015
z	2.07	452.75	7.41	639.79
P> z	0.039	0.000	0.000	0.000

#### 4.1.1.3 Employment level

The result produced in table 4.5 suggested that potential outcomes mean of youth who get training is higher than those who did not get any technical skills. The measures of potential outcome mean for training seems to be more positively and statistically significant than potential outcome mean for non-trainees. These significant differences in potential outcome mean suggested that the youth who get technical skills are more likely to get employment than those who did not get any technical skills

In case of private/govt provision of training, results in table 4.6 are positive but insignificant. It means that private/govt training have no impact on employment level.

The result in the table 4.5 has also measured average treatment effect of treated group (ATET). If all the treated group or youth who get technical skills were not technically skilled, the measure is indicating that technically trained youth are better off than non-trainees even if they had not getting any training they would still have relatively more like to have employment

opportunity than actual non-trainee in the population. If all technical trained youth become non-trainee, the value of ATET is approx. equal to ATE.

*TABLE 4.5: EMPLOYMENT LEVEL*

	<b>ATE</b>	<b>POM(0)</b>	<b>ATET</b>	<b>POM(0)</b>
Coef.	0.24*	0.36*	0.23*	0.37*
S.E.	0.005	0.002	0.004	0.0032
Z	48.87	188.95	53.48	117.9
P> z	0.0000	0	0	0.0000

*TABLE 4.6: EMPLOYMENT LEVEL (PRIVATE/GOVT TRAINING)*

	<b>Private training</b>		<b>Govt Training</b>	
	<b>ATE</b>	<b>POM(0)</b>	<b>ATE</b>	<b>POM(0)</b>
Coef.	.0052	.61	.014	.61
S.E.	.0093	.007	.027	.005
z	0.56	92.91	0.53	125.66
P> z	0.57	0.000	0.595	0.000

#### **4.1.1.4. Employment status (Paid Employees)**

The result produced in table 4.7 suggested that potential outcomes mean of youth who get training is higher than those who did not get any technical skills. The measures of potential outcome mean for training seems to be more positively and statistically significant than potential outcome means for no training. These significant differences in potential outcome mean suggested that the youth who get technical skills are more likely to become a paid employee than those who did not get any technical skills. This statistically significant result suggests that the

youth that more focus on getting technical skills are more significant to be a paid employee than those who did not focus on technical skills.

In case of private/govt provision of training, results in table 4.7 are positive but insignificant. It means that private/govt training have no impact on being a paid employee.

The result in the table has also measure average treatment effect of treated group (ATET). If all the treated group or youth who get technical skills were not technically skilled, the measure is indicating that technically trained youth are better off than non-trainees even if they had not getting any training they would still have relatively more paid employee's opportunity than actual non-trainee in the population. If all technical trained youth become non-trainee, the ATET is closer to ATE. This result specifies that non-trainee youth have lower paid employee opportunity than those of trained youth. Spontaneously, it depicts that those youths who got technical training were already having more paid employee opportunity than those as if they were non-trainees.

*TABLE 4.7: PAID EMPLOYEE*

	<b>ATE</b>	<b>POM(0)</b>	<b>ATET</b>	<b>POM(0)</b>
Coef.	0.053*	0.45*	0.019*	0.48*
S.E.	0.008	0.003	0.007	0.004
Z	6.58	135.57	2.57	109.13
P> z	0.0000	0	0.01	0

*TABLE 4.8: PAID EMPLOYEE (PRIVATE/GOVT TRAINING)*

	Private training		Govt Training	
	ATE	POM(0)	ATE	POM(0)
Coef.	.0095	.50	.058	.49
S.E.	.014	.009	.03	.0064
Z	0.67	54.03	1.75	77.18
P> z	0.500	0.000	0.081	0.000

#### **4.1.1.5. Employment Status (Employer)**

The result produced in table 4.9 also suggested that potential outcomes mean of youth who get training is higher than those who did not get any technical skills. The measures of potential outcome mean for training seems to be statistically significant than potential outcome means for no training. These significant difference in potential outcome mean suggested that the youth who get technical skills are having more opportunity to be an employer than those who did not get any technical skills. This statistically significant result suggests that the youth with more focus on getting technical skills are more significant to be an employer than those who did not focus on technical skills.

In case of private/govt provision of training, results in 4.10 are positive but insignificant. It means that private/govt training have no impact on being an employer.

The result in the table 4.9 has also measured average treatment effect of treated group (ATET). If all the treated group or youth who get technical skills were not technically skilled, the measure is indicating that technically trained youth are better off than non-trainees even if they had not getting any training they would still have relatively more employer opportunity than

actual non-trainee in the population. If all technical trained youth become non-trainee, the value of ATET is approx. equal to ATE. This result specifies that non-trainee youth have lower employer opportunity than those of trained youth. Spontaneously, it depicts that those youths who got technical training were already having more employer opportunity than those as if they were non-trainees.

*TABLE 4.9: EMPLOYER*

	<b>ATE</b>	<b>POM(0)</b>	<b>ATET</b>	<b>POM(0)</b>
Coef.	0.005*	0.004*	0.0060*	0.0050*
S.E.	0.001	0.0005	0.001	0.0006
Z	3.53	9.68	4.17	8.16
P> z	0.0000	0.000	0.000	0.000

*TABLE 4.10: EMPLOYER (PRIVATE/GOVT TRAINING)*

	<b>Private training</b>		<b>Govt Training</b>	
	<b>ATE</b>	<b>POM(0)</b>	<b>ATE</b>	<b>POM(0)</b>
Coef.	.0030	.009	-.0014	.011
S.E.	.0029	.002	.0052	.0013
Z	0.99	4.17	-0.27	8.16
P> z	0.322	0.000	0.786	0.000

#### **4.1.1.6. Employment Status (Self-employed)**

The result produced in table 4.11 suggested that potential outcomes mean of youth who get training is higher than those who did not get any technical skills. The measures of potential outcome mean for training seems to be statistically significant than potential outcome means for no training. These differences in significant in potential outcome mean suggested that the youth

who get technical skills are having more opportunity to be self-employed than those who did not get any technical skills. This highly statistically significant result suggests that the youth with more focus on getting technical skills are more significant to be self-employed than those who did not focus on technical skills.

Likewise, private provision of training in table 4.12 is producing same results where youth become more likely to be self-employed. Unlikely, results of govt provision of training are negative but insignificant which means govt provision have no impact on being a self-employment.

The result in the table 4.11 has also measured average treatment effect of treated group (ATET). If all the treated group or youth who get technical skills were not technically skilled, the measure is indicating that technically trained youth are better off than non-trainees even if they had not getting any training they would still have relatively more self-employment opportunity than actual non-trainee in the population. If all technical trained youth become non-trainee, the ATET is approx. equal to ATE. This result specifies that non-trainee youth have lower self-employment opportunity than those of trained youth. Spontaneously, it depicts that those youths who got technical training were already having more self-employment opportunity than those as if they were non-trainees.

*TABLE 4.11: SELF EMPLOYED*

	<b>ATE</b>	<b>POM(0)</b>	<b>ATET</b>	<b>POM(0)</b>
Coef.	0.12*	0.20*	0.11*	0.19*
S.E.	0.0076	0.003	0.006	0.003
Z	15.89	74.08	17.59	57.15
P> z	0.0000	0.000	0.000	0.000

*TABLE 4.12: SELF-EMPLOYED(PRIVATE/GOVT TRAINING)*

	Private training		Govt Training	
	ATE	POM(0)	ATE	POM(0)
Coef.	.067*	.285*	-.0061	.30*
S.E.	.013	.0085	.032	.006
Z	5.01	33.51	-0.19	51.63
P> z	0.000	0.000	0.850	0.000

The measures of ATET, ATE and POM showed certain and significant results on employment indicating that youth who get technical education earn more benefit than those who did not get technical education. There is also significance difference between trainees and non-trainees where potential outcome means and average treatment effect is positive and significance for trainees. ATET also proposed that if technically skilled trainees become non-trainees, they would still have less benefit.

The determinant of employment has been taken Total hours' weekly return, Wage returns, Dummy employment, Employment status 1 (paid employee), Employment status 2(employer), Employment status 3 (self-employed). The potential outcome model mentioned is eq 5 to 7 is estimated by using 'teffects' command in STATA. Further, IPWRA (inverse probability weighted regression adjustment) command is linking the status of outcome and treatment models. Three equations were being estimated by using "teffects IPWRA" command that includes two outcome equations and one treatment equation.

#### **4.1.2. Parameter estimate of outcome equations**

The most of estimated parameters of outcome equations are showing positive and statistically significant results. These results are producing similar path of the outcome equation both for trainees and non-trainees. The dependent variable included in outcome equation is employment and having the attributes of continuous variable. Therefore the interpretations of results keeping in view the magnitude and signs of estimated parameter is important. Measures shows that factor of male gender raises the employment opportunity and its impact is statistically significant for all indicators of employment. It is also observed that the employer indicator is more statistically significant than all other indicators of employment. This result concluded that male employers are more likely to influence from employment opportunity than all other indicators.

The low dependency ratio shows significant result for wage, paid employee and employer. Among statistically significant indicators, employer indicator shows more significant result which means the household with employer members are more likely to get employment opportunity. On the other hand, medium dependency ratio shows significant result for wage and paid employees than total hours' weekly return, employment level, employer and self-employed. Among statistically significant indicators, paid employees indicator shows more significant result which means the house hold with paid employees are more likely to get employment opportunity.

In province wise comparison, Khyber Pakhtunkhwa shows significant result for wage returns, employed, self-employed but insignificant with total hour's weekly, employment level and paid employee. Among statistically significant indicators, employed indicator show more significant impact which means that youth belongs to Khyber Pakhtunkhwa earn more

employment opportunity for employed individuals. For the case of Sindh, results are statistically significant for paid employee and self-employed. Among statistically significant result, self-employed shows more positive and significant result than paid employee. The more significance result means that employment opportunity is more tilt towards Sindh youth when it comes to self-employment. The results also show significance and positive impact of wage, employer and self-employed in case of Baluchistan when it comes to employment opportunities. Among statistically significant result, employer indicator shows more positive impact than wage and self-employed. This result is depicting that youth of Baluchistan earn more employment opportunities when it comes to employer attribution.

In case of Punjab total hours weekly, wages, employment level and paid employees are showing positive and significant results. People of Punjab are more likely to have total hours weekly, wages, employment level, or a paid employee. Among positive statistically significant results, youth of Punjab is more bow towards wages than other indicators. While employer and self-employed are showing negative but statistically significant result.

Variable of male gender is showing positive and significant results among all the employment indicators. Likewise, employment indicator is showing positive results which means that the youth will still have the employment opportunities if there is no involvement of gender of male, low dependency ratio and medium dependency ratio. Moreover, employment will still prevail regardless of provinces location like Khyber Pakhtunkhwa, Sindh and Baluchistan. Negative results of significance are showing that youth with following attributes are less tilt words employment opportunity. This negative association of the variable is different among each indicators of employment. The only common significant and positive variable is Gender of male

that is showing positive significance among all employment indicators. Unlikely, the result of other measures are behaving differently with each indicator of employment.

**TABLE 4.13: PARAMETER ESTIMATE OF OUTCOME EQUATIONS FOR TOTAL HOURS WEEKLY RETURNS**

Variables	Training	P-value	No training	P-value
Gender male	1.31*	0.000	1.04*	0.000
Low Dependency ratio	-0.07*	0.001	-0.10*	0.000
Medium dependency ratio	-0.010	0.750	-0.02	0.155
Khyber Pakhtunkhwa	-0.46*	0.000	-0.22*	0.000
Sindh	-0.112*	0.000	-0.032*	0.000
Baluchistan	-0.090	0.083	-0.37*	0.000
Const	0.75*	0.000	0.37*	0.000

**TABLE 4.14: PARAMETER ESTIMATE OF THE OUTCOME EQUATIONS FOR WAGES**

Variables	Training	P-value	No training	P-value
Gender male	.98*	0.000	.42*	0.000
Low Dependency ratio	.06	0.130	.08*	0.000
Medium dependency ratio	.021	0.689	.05	0.100
Khyber Pakhtunkhwa	.31*	0.000	.06*	0.002
Sindh	-.16*	0.000	-.18*	0.000
Baluchistan	.16*	0.000	.16*	0.000
Const	8.49*	0.000	8.96*	0.000

*TABLE 4.15: PARAMETER ESTIMATE OF THE OUTCOME EQUATIONS FOR EMPLOYMENT LEVEL*

<b>Variables</b>	<b>Training</b>	<b>P-value</b>	<b>No training</b>	<b>P-value</b>
Gender male	.55*	0.000	.46*	0.000
Low Dependency ratio	-.033*	0.004	-.06*	0.000
Medium dependency ratio	-.003	0.863	-.02*	0.002
Khyber Pakhtunkhwa	-.22*	0.000	-.095*	0.000
Sindh	-.083*	0.000	-.001	0.755
Baluchistan	-.07*	0.004	-.15*	0.000
Const	.43*	0.000	.22*	0.000

*TABLE 4.16: PARAMETER ESTIMATE OF THE OUTCOME EQUATIONS FOR PAID EMPLOYEE*

<b>Variables</b>	<b>Trainees</b>	<b>P-value</b>	<b>Non-trainees</b>	<b>P-value</b>
Gender male	.18*	0.000	.17*	0.000
Low Dependency ratio	.082*	0.000	.12*	0.000
Medium dependency ratio	.041	0.125	.03*	0.008
Khyber Pakhtunkhwa	-.015	0.336	-.031*	0.001
Sindh	.026	0.221	.048*	0.000
Baluchistan	-.003	0.948	-.07*	0.000
Const	.29*	0.000	.23*	0.000

*TABLE 4.17: PARAMETER ESTIMATE OF THE OUTCOME EQUATIONS FOR EMPLOYER*

<b>Variables</b>	<b>Trainees</b>	<b>P-value</b>	<b>Non-trainees</b>	<b>P-value</b>
Gender male	3.14*	0.002	3.17*	0.002
Low Dependency ratio	.32	0.375	.11	0.711
Medium dependency ratio	-.06	0.924	-.042	0.917
Khyber Pakhtunkhwa	1.40*	0.000	.47	0.189
Sindh	-1.91	0.062	-.66*	0.027
Baluchistan	1.47*	0.002	.60*	0.015
Const	-8.31*	0.000	-8.20*	0.000

*TABLE 4.18: PARAMETER ESTIMATE OF THE OUTCOME EQUATIONS FOR SELF EMPLOYED*

<b>Variables</b>	<b>Trainees</b>	<b>P-value</b>	<b>Non-trainees</b>	<b>P-value</b>
Gender male	.20*	0.004	1.01*	0.000
Low Dependency ratio	-.54*	0.000	-.55*	0.000
Medium dependency ratio	-.12	0.285	-.02	0.724
Khyber Pakhtunkhwa	.22*	0.002	.12*	0.015
Sindh	.21*	0.028	.07	0.095
Baluchistan	.29	0.083	.04	0.501
Const	-.65*	0.000	-1.91*	0.000

### **4.1.3. Parameter measures of treatment equation**

The analysis has also raised a question of determining the decision of youth to get technical education. The dependent variable of the study is employment so logit model has been used to assess the factor determining the decision to get technical training or not. The estimated model shows some opposite parameter estimates. The major aim of the study is to analyze the impact of technical education on employment among youth. For the purpose of policy implications, factors that determine the decision to get technical education needs to be discussed briefly.

The variables which are more likely to support training decision in acquiring total hours' weekly returns are gender of male, intermediate but below degree, literate head of household, age of head of household. Although, the variable like Intermediate but below degree shows statistically insignificant result but positive sign is depicting a likely decision to get technical training. Moreover, gender of male is likely to more tilt towards the adoption of technical skills. On the other hand, Matric but below intermediate, middle but below matric, employed head of household and rural factor give a negative impact on deciding to get technical skills.

The variables which are more likely to support training decision in acquiring wages are: matric but below intermediate, middle but below matric, literate head of household, age of head of household. These variables show positive and significant results for getting technical education decision. Among all statistically significant variables, middle but below matric variable is more likely to support in the decision of getting technical education. On the other hand, Gender male, intermediate but below degree, Employed head of household, Rural are those variable which are less likely to contribute in the decision of getting technical education.

In case of employment level, the variables like Gender of male, Intermediate but below degree, Literate head of household, Age of head of household are more likely to support in deciding technical education. Unlikely, there is a statistical insignificance in the result of intermediate but below degree, but positive sign shows the decision likely to support technical training. Among all other statistically significant variables, gender of male is more likely to support the decision of getting technical education. on the other hand, Matric but below intermediate, Middle but below matric, Employed head of household, Rural are variables showing less likely contribution in deciding to get technical education.

In case of paid employee, Intermediate but below degree, Matric but below intermediate, Middle but below matric, Literate head of household, Age of head of household are likely to contribute in deciding to get technical education. By comparing all statistically significant variables, middle but below matric variable decision is more likely to contribute in getting technical education. Unlikely, Gender male, employed head of household, Rural are those variable that are contributing in less likely decision to get technical education.

Following the employer status of employment, the variables like Intermediate but below degree, Matric but below intermediate, Middle but below matric, Literate head of household, Age of head of household are more likely to contribute in deciding to get technical training. Among all variable showing significant result for employer status, Middle but below matric variable is contributing more in comparing other variable to contribute in the decision of getting technical education. Alternatively, Gender male, employed head of household and rural are less likely to contribute in the decision of getting technical education.

In representing self-employment status, the variables like Intermediate but below degree, Matric but below intermediate, Middle but below matric, Literate head of household, Age of

head of household are more likely to contribute in the decision of getting technical education. By comparing significant variables, Middle but below matric is likely to impact more in deciding to get technical education. Unlikely, Gender male, Employed head of household, Rural are negative impacted variable. These variables show a less likely contribution of decision to get technical education.

*TABLE 4.19: PARAMETER ESTIMATE OF THE TREATMENT EQUATIONS*

<b>Variables</b>	<b>T.Hours Weekly</b>	<b>Log wage</b>	<b>Employment Level</b>	<b>Paid Employee</b>	<b>Employer</b>	<b>Self- Employed</b>
Male	.17	-.55	.17	-.54	-.54	-.54
Intermediate below degree	.0029*	-.03*	.003*	.13	.13	.13
Matric below intermediate	-.070	.165	-.070	.27	.27	.27
Middle below matric	-.22	.35	-.22	.42	.42	.42
Literate head	.07	.11	.068	.19	.19	.19
Head age	.003	.002*	.0031	.003	.003	.003
Head	-.19	-.062*	-.189	-.21	-.21	-.21
Employed						
Rural	-.30	-.30	-.30	-.58	-.59	-.59
Cons	-1.62	-.661	-1.62	-.63	-.63	-.63

## **4.2. Discussion of the study**

The results of the study exhibited a positive relation of TVET on employment. Technical education increases the level of employment across each indicator. This result is relevant with many studies such as Ansah and Ernest (2013); Ali Asadullah (2019); Khirotdin et al. (2019);. TVET increase social inclusion by 23%, employment by 12% and wages by 53%. Likewise, 86.7% of graduate get employment after trained from TVET institutes. For the graduate who are still unemployed, they need to focus on interpersonal communication skills. Moreover, TVET helps to make the individual not only self-employed but also increase their self-confidence and self-reliance.

This study has used Average Treatment Effect model to explore the difference between youth who get training and those who did not get any training. This Study reveals that employment level is more tilt towards youth who get technical education than those who did not get. Average Treatment effect is a difference between the potential outcome mean of treatment group and control group. Many studies have also expressed the intervention of a program among the people who attend the training with those who did not attend the training session. Asghar, Gul, Hakkarainen, and Tasdemir (2019); Abebe and Gebreeyesus (2018). The student who participate in any entrepreneur education are more bow towards intending of being an entrepreneur than those who did not participate. The entrepreneurship education involves learning about business development techniques, training requirement for learning self-employment techniques. Moreover, higher business practices are more converged towards participating in any entrepreneurial, marketing training activities that are offered various government agencies.

The study is also revealing the influence of socioeconomic status of parents in deciding whether to get technical education or not. The results of treatment model effect show that the

education of head of household, employment status of head of household also influence on the decision of getting technical skills. This outcome of the study is relevant with the results of Ayub (2017); Safarmamad (2019); Odike and Nnaekwe (2019). Fathers education level, monthly income and his employment status influence the decision of child to get technical education. Education level of parents are directly influencing in enrolling student in technical training institute. These studies interrogated that some parents prefer their child to be focused on academic course line rather to be a technical trainee. This outcome could be influencing by the prestigious social impact over technical skills.

## **Chapter 5**

### **Conclusion**

This study analyzes the data of Labor force survey 2017-18. Pakistan Bureau of statistics taken the responsible of conducting the data of 43,361 households. The data contain disaggregated estimates at national and provincial level with rural or urban breakdowns. The total sample size of the data is further distributed into four sub samples enumerated against a given quarter. This study includes the survey of 191,240 individuals regardless of age to know the ratio of people who get training and the people who did not get the training. In this ratio, 1, 66,222 individuals were not trained and 25,018 were trained. By including youth in the study, 60,292 young people did not get the training while 10,616 get the training.

This study assesses the employment of youth regarding those who get technical training (treatment group) and those who did not get any technical training (control group). It also uses different factors influence on the decision of getting technical skills and whether the decision help to improve the status of employment. Employment is analyzed by using different indicators: total hours weekly earning, wages, employment dummy, paid employees, employer, self-employed. The factors influencing the training decision are: male gender, low dependency ratio, medium dependency ratio, province (Khyber Pakhtunkhwa, Sindh, Baluchistan), intermediate but below degree, matric but below intermediate, middle but below matric, literate head of household, age of head of household, employed head of household, region (rural).

This study has used potential outcome treatment effect model. This model helped to evaluate the impact of technical education on employment. Three estimated measure are: Potential Outcome Means (POM), Average Treatment Effect among Treatment group (ATET) and Average

Treatment Effect (ATE). The result of the analysis proposed that the youth who get technical training are significantly more secure in getting employment than those who did not get any technical training. Likewise, the effect of technical education on each indicator of employment produced similar statistically significant result. Considering Average Treatment Effect among Treatment group (ATET), results were analyzed among technically trained youth. This measure expresses that if technically trained youth have had not got technical skills then what would have the condition of employment. Fortunately, this measure is indicating that technically trained youth are better off than non-trainees even if they had not getting any training they would still have relatively more benefit than actual non-trainees in the population. This analysis produced similar result among each indicator of employment.

By estimating parameter of outcome equations, results show inconsistent measures for each indicator of employment except male gender in outcome equation. Among all indicators, employment opportunities are more converge toward male gender. Moreover, it is also observed that the employer indicator is more statistically significant than all other indicators which means employment would be more benefited when male gender is employer of an organization.

Analysis has also estimate the results comparing with public and private institutions. The results indicated that govt training is more likely to benefit in acquiring wages, employment level and being a paid employee. While it less likely to benefit when youth is acquiring total hours weekly, be an employer and self-employment. On the other hand, youth is more likely to benefit from private institution in acquiring each indicator of employment. All indicators are showing positive and statistically significant result in case of training from private institute.

## **Recommendations**

TVET must be reformed in coordinating academic and occupational skill development

Government must also incorporate soft skills development in curriculum.

Traditional system of TVET pay attention on the uniformity of learners. So, counselling of the student in the institutions regarding desired skill learning must also be the part.

Government must try to bring reforms in public-private partnership to fill the market gap and holding market oriented skills.

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