



## **The Impact of Vocational Education on Economic Growth of Pakistan**

**Arooj Fatima**

Lahore College for Women University

**Ramesha Saleem**

Lahore College for Women University

### **Abstract**

Vocational training improves productivity and enhances efficiency of labour for better participation in economic development. The objective of this study is to determine the impact of vocational education on economic growth of Pakistan. The study finds the impact of public investment in vocational education and availability of teachers in vocational education. This study uses time series data for empirical analysis. The findings of the study show that there is a positive relationship between vocational education and economic growth. Better vocational education improves the efficiency and productivity of labour force which further enhances economic development. It is suggested that existing vocational education system should be upgraded. The shortage of teachers in technical institutions should be fulfilled and proper training should be provided to teachers.

**Keywords:** vocational education, labor productivity, economic growth, Pakistan

**JEL Codes:** A20, J1, O

## **I. Introduction**

Human Capital is considered an essential determinant of economic growth. It comprises of different factors like education, health, vocational training and skill development is among one of them. Vocational education refers to the education that's prepares people for job and make them more productive and enhance human potentials and diversifies their choices in order to promote self-employment. It is an established fact that technical education and vocational training can help individuals to generate income and contribute towards economic growth and social development of a country. Trained labour force is considered an important factor for the development (Mustafa, 2005).

The demand of vocational education and training is increasing as we move towards industrialization and modernization. Vocational education and training are indispensable instruments for improving labour mobility, adaptability and productivity. Economic development and technological advancement cannot be attained without the general status of technical and vocational competency embodied in its workforce (Khalji, 2012) Enrollment of teachers in vocational institutions play very important role. The most cost effective use of public resources is to improve the productivity of workforce. The developments of occupational skills lead to technological advancement that ensures optimum utilization of resources and enhanced productivity. Vocational education is different from general education. Vocational education improves skill of workforce and effects the economic growth and helps to reduce the unemployment. Skilled worker enhances the quality and efficiency of production.

Better training and education would refine the skills of workers which lead to a higher income and better living standard. It enables the worker to earn themselves and create self satisfaction. It protects people from unemployment. Vocational graduate are well prepared to enter the competitive workforce. It reduces gender difference, migration and dependency ratio. Young people with experience can find a better job easily. Investment in the priority areas of education becomes very necessary for reducing the gap between skilled and unskilled workers. Spending on education sector by the government helps in increasing the productivity of the workers. Rapid technological progress changes the production methods now individual can learn new skills and improve labour productivity. The level of technological capacity of a society has direct link with its educational system. It is necessary that youth population should be trained in different profession of its choice. This process enables them to start a business and it is possible only vocational education and training.

In Pakistan vocational education institutes offer courses that vary from three month to two month after 8 grades. Vocational education is provided through polytechnic, vocational centers and apprenticeships. Over past few years Government of Pakistan has improved vocational education system. But still country is lagged behind in vocational education and training. Quality of teachers is not really good and the learning material is outdated. Pakistan workforce is characterized as having low skills and poorly prepared to compete globalized world (Kazmi, 2007).

Pakistan is a developing country with higher population growth and the youth population appeared to be the major portion of the population (Economics survey of Pakistan, 2014) With the fast growing youth population, the vocational education sector capacity for delivering training services for increasing workforce abilities is skills remain insufficient to meet the modern labour market challenges Many countries leading in global workforce have heavily invests on skills development. Investment in physical and human capital leads to the development of services sector, which invariably follows industrialization and modernization.

The current structure of vocational education in Pakistan is complex, and consisting of many agencies and level. Government vocational education institute are administered by the provincial education department. Training of various skills in Pakistan is imparted through polytechnic, vocational training centers, apprenticeship and departments, commercial and training institutions. Before the establishment of the technical and vocational education in Pakistan there was lack of the responsiveness and flexibility of the training system in meeting the demands of the industry. The link between industry and training institutions was weak. There were little funds to purchase new machinery to replace the old one. The institutions were increasingly becoming supply-driven instead of demand-driven (Kazmi, 2007).

The real challenge is to establish institutions which recognize the value of investing in people and provide dignity and a fair deal for working men and women with the well-educated and skilled labour force. The most important outcome of an effective human resource development system is that it opens up decent employment opportunities by enhancing workers abilities to secure and retain jobs. In this way they

survive in competitive conditions of the new global economy, technical vocational education must break out of the low level skills trap. It is essential to visualize the need for vocational training to fulfill the immediate markets demand (Khilji, 2012). Because of globalization and technological changes there is a need for vocational education and upgradation of existing technical institutions. This is the era of large scale industries and large scale factories are necessary for economic development. Vocational education and training program could serve the purpose by providing the marketable skills to individual. The old structure of Pakistan domestic economy has failed to produce skilled labour force, which enhance's quality and productivity of industries. It is necessary to investment in the vocational educational to enhance the productivity of workers. This study has provided brief picture how vocational education effect economic growth in Pakistan. This study is a healthy contribution towards respective literature.

## **II. Literature Review**

Kazmi (2007) studied that developing countries faces many challenges in labour market to compete the required skills and technological innovation. Skills requirements are not only growing but also changing constantly. Labour with knowledge and skill in occupation are determined the growth pattern of nation. Vocational education at school and secondary level is necessary to fulfill the requirement of existing job opportunities. Quality of teachers, limited supplies of skill workers effect the vocational education. This study finds that Pakistan needs to improve the vocational education system. Pakistan workforce describe as low skilled and poorly prepared to compete in globalized world. There is direct need to invest in vocational education.

Inamullah et al, (2009) study the present profile of technical vocational education in NWFP in Pakistan. The main objective of the study is to explore the perception of teachers and students regarding the physical and academic facilities of technical education in NWFP. There is a lack of technological changes and physical facilities. A questionnaire is designed for this purpose, Total Design Method (TDM) is used for empirical analysis. The results show that the facilities of laboratory and computer are sufficient while building, transport, first aid, hostel, fire fighting facilities, latest reading material, on line research facilities and budget are not sufficient in the institutions of technical education. It is revealed that the overall physical facilities are not satisfactory.

Shah et al., (2011) examine the situations of vocational training and technical education in Punjab. Technical education and vocational training can help individuals to generate income and contribute towards economic growth and social development of a country with knowledge and skills. The objective of this study is to explore the perceptions of the teachers regarding effectiveness of vocational education and technical training. This study also examines the effects of teacher training courses. A questionnaire consisting of 15 items is used to collect primary data. OLS technique is used for empirical analysis. The finding shows that the curriculum of TEVT is good but its linkage with industry is weak and internship is not properly managed. In Punjab it is also found that the outgoing students are not ready for job market. Teachers have faced the problems of housing and lack of incentives for better performance.

Khilji et al, (2012) conduct a study for examining the impact of vocational education on economic growth. They find that vocational education is an essential determinant of economic growth. It enhances the efficiency of labour. This Study shows that government spending on education increases the productivity of labour force. This study is based upon time series data. It is found that vocational education need to be refocused so labour force contribute towards growth for providing vocational education, it is necessary to improve the quality of education.

Mustafa et al, (2005) investigate that the demand of vocational education in this industrialization and modernization era. They discuss the role of vocational education for productivity of workers and unemployment rate. The skill and quality of labour force has allowed to compete with other countries. The main sources of data for empirical analysis are various issues of "The labour Force Survey" published by Federal Bureau of Statistics Division of Government of Pakistan. They find that when people acquire skills they become more adaptable. It will improve their lives as well as contribute towards economic growth. Pakistan needs to upgrade the technical education and must plan some strategies, for making its labour more productive.

Agrawal (2013) studies the role of vocational education system in Asian countries. VET system has played a major role in economic development of South Asian countries especially in case of Afghanistan, Bangladesh, India and Pakistan. Governments of these countries have paid more attention to this sector in past few years but outcomes are still poor. The VET system is facing several challenges like quality of

institutions and less linkages between VET providers and industries. South Asian countries are expanding the VET system but this system has not responded very well for this region.

Ajmal et al., (2011) compare the vocational training structure of Pakistan with British & German model. They propose a vocational and technical education and training model for Pakistan. The data collected through interview and survey. Dual systems of training are introduced in Pakistan, UK and Germany. These system is functionally well in Great Britain and Germany but there are numbers of weakness in Pakistan. Training system does not meet the requirement of industries in case of Pakistan. It was found that the dual systems of vocational training do not work well in Pakistan as compared to UK and Germany.

Ansari et al., (2013) study that Technical and vocational education play important role for socio-economic development of a country. The aim of this work is to highlight the development phases of Pakistan's technical vocational education. The efforts for reforming this sector are mainly focusing on the proposed Skilling Pakistan reforms outlined in NSS. Quantitative information is collected from published literature and reports. The study shows that numerous efforts are made to promote technical education in Pakistan since 1947. But no such tangible progress is recorded as compared to other developing countries. Consequently, Pakistan faces serious skills gap which ultimately put immense pressure on labour productivity in both domestic and foreign labour market.

Mohammad (2006) examines the current situations of vocational education system. He highlights the challenges that technical vocational education system is facing and the quality of technical vocational education system in developing countries. For a successful Technical vocational education training System it is important to ensure positive social attitudes towards training. It is needed for new development patterns Moreover, policies and practices of TVE in the Developing Countries must have their foundations in this pattern. It will reduce wastage of resources; improve relevance and retention of training personnel in the country. It finds that technical and vocational education system in developing countries faces number of limitations that this sector is facing

Javied (2009) studies the role of training in determination of labour wages. Quality of training plays very important role. It is needed to train the workers and provide them vocational technical education to increase the productivity of workers. The least square technique is used for empirical analysis. Schooling and other demographic variables have expected signs and magnitudes. This study shows that training is insignificant in the determination of wages. Technical education should be encouraged to promote the capacity of skilled manpower to adjust changes in Labour demand.

### **III. Theoretical Framework**

Vocational education and training is based on human capital theory (HTC). The human capital theory (Becker, 1981) asserts that additional education or training increase individual's useful knowledge and technical skill which eventually level so that it eventually increase individual's productivity and lifelong income. The effect of training may differ from gender, age, duration, and cost of training. Human capital theory (Becker, 1993) assumes the positive relationship among education, training and workers productivity. This study shows that individual's education and training has positive impact on economic growth. Decision of investment in training and education is depended on the cost and future profit. According to previous literature it never always guarantees the positive results. Under the human capital theory, job selection is affected by the amount of education that the workers receive when labor market is perfect competitive market. Therefore, an increase in the investment of human capital, increases expected profit. Further, human capital theory considers human capital as a primary source of economic growth and labor productivity & quality could be increased as a result of investment in human resources.

The essential role of vocational education is to facilitate and construction of knowledge through experiential, contextual, and social methods in the environment of real world. The conceptualization of human capital as propounded by Smith and expanded by Becker (1962). It suggests that human beings can improved by means of education, training or other activities that raise their future income and hence their life time earnings. Human beings are considered as assets that will generate income in the future and are referred to as capital. Smith (1776) mentions that education helps to increase the productive capacity of workers in the same way as new machinery or other forms of physical capital increase the productive capacity of a factory or other functional enterprises. Human Capital Theory refers to both the mental and physical abilities (skills, acquired knowledge and dexterity) of the human component of a society which can enhance productivity. The theory tries to explain and indeed established a link relationship between the development of human resources and growth in national output.

According to Baldwin (1991) training participation in human development is conceptualized as a multi dimensional phenomenon that leaves different forms (1997). There is a positive relationship with the rate of participation in training activities (Nie and Wilk, 1993).

Skinner’s school of thought is more acceptable ideology which supports positive reinforcement and discourages traditional teaching tools which are not user friendly. It mentions that the role of the learners or the trainees is vital as they are the main stakeholders in the whole process of learning. The Theory of Learning (Stromsforfer, 1972) refers to the technology of vocational training encompasses the training organization, pedagogy, instructional strategies, management and monitoring procedures. Lillis and Hogan (1983) and Grubb (1985) regard vocational education as the solution to an enrolment problem of the public education policies. Chung (1995) reports higher returns to vocational education than to general secondary education.

The Millennium Development Goals (MDGs) are the centered piece of development efforts of the government of Pakistan. There are some goals (MDGs) regarding education like expanding and improving comprehensive early childhood care and education. The learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programs and by improving all aspects of the quality of education. It ensures excellence of all so that measurable learning outcomes are achieved by all. Especially in literacy and essential life skills and enhancing capacity of the people through human development programs in education, health, population welfare and skill development. Enrolling children in the school can change the statistic ratio and may also help us to raise the Status on global platform and it cannot change the challenges faced by Pakistan. Only practical education is the tool which can lead Pakistan towards success. Hiring of trained teachers, providing basic facilities to the students, good attendance rates, timely progression through grades and mastery of basic cognitive skills are few of the elements, we need to consider. We must enhance the quality of schooling and ensures they are able to achieve their full potential.

#### IV. Methodology and discussion

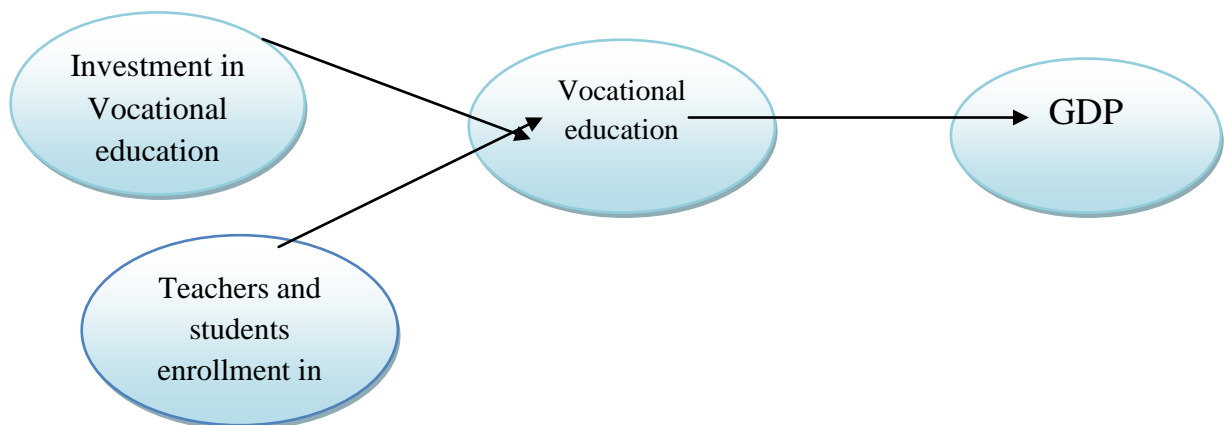
This study is based on secondary time series data. Data used in this study has been obtained from various sources of Economic Survey of Pakistan (Education). The main objective of this study is to see the impact of vocational education on the economic growth of Pakistan and to identify the how investment and enrolment of teachers in vocational institutional effect the economic growth. Mustafa (2005) uses the ordinary least square method to examine the effect of the rate and variability of increase in institutions, enrolment and teachers on output growth. Khiliji (2012) uses the time series data to test the relationship between labour stock and capital stock and economic growth. ADF unit root test is used for this purpose after determining the order of integration co-integration test and error correction model are used to determine the long run and short run relationship between the variables. Shah (2011) uses questionnaire containing 15 items for target group. Questionnaire is addressed to the teachers of the TEVTA institutions sought information about effectiveness of a training Programs, teacher training courses physical facilities.

Economic growth = f (Investment in vocational education, teachers enrolment, students enrolment)

#### Variable description:

Independent variable

Dependent variable



## V. Results and Discussion

Investment in vocational education play an important role in determining the scope of vocational training and the best indicators of the performance of the output in producing good quality labour and positively affect the economic growth. Investment in vocational education and skill development become important for reducing the gap between skilled and unskilled labour force. Investing in vocational education leads to technological advancement that ensures optimum utilization of resources and leads to enhance the productivity and thereby increased the level of growth. Enrolment of Teachers and students also play a significant role in determining the output growth. Because teachers are the key actors in maintaining and improving the quality of education and training systems Enrolment of trained teacher is one of the many factors that may influence student learning.

This study supports the null hypotheses. There is positive relationship between investment and enrollment of trained teachers in vocational education and economic growth. And vocational educational has a significant impact on economic growth. If there is increase in the expenditure of vocational education it will maintain infrastructure it will provide facilities to the teachers as well as students to learn in more productive ways. It also leads to the technological advancement which is very necessary for a country. The perception of vocational education system as being low 'status' in Pakistan that can cause two problems it can lead to a selection of lower quality teachers and deter the brighter student even if they are interested and have the talent for a particular vocational career. There should be an increase in the trained teachers because it will influence the students learning.

**Table 1**

<b>Expenditure on Education (Rs. million)</b>					(Rs million)
<b>Years</b>		Current Expenditure	Development Expenditure	Total Expenditure	As % of GDP
<b>2010-11</b>	Fedral	44,023	15,963	59,986	<b>1.8</b>
	Punjab	133,283	10,214	143,497	
	Sindh	64,370	7,925	72,295	
	Khyber Pakhtunkhwa	16,080	10,826	26,906	
	Balochistan	18,483	1,644	20,127	
	Pakistan	<b>276,239</b>	<b>46,572</b>	<b>322,811</b>	
<b>2011-12</b>	Fedral	45,278	12,521	57,799	<b>2.0</b>
	Punjab	151,474	22,578	174,052	
	Sindh	57,758	10,810	68,568	
	Khyber Pakhtunkhwa	53,429	14,255	67,684	
	Balochistan	22,289	3,131	25,420	
	Pakistan	<b>330,228</b>	<b>63,295</b>	<b>393,523</b>	
<b>2012-13</b>	Fedral	57,027	14,686	71,713	<b>2.1</b>
	Punjab	186,763	9,323	196,086	
	Sindh	92,697	5,728	98,425	
	Khyber Pakhtunkhwa	65,856	18,602	84,458	
	Balochistan	26,601	2,570	29,171	
	Pakistan	<b>428,944</b>	<b>50,909</b>	<b>479,853</b>	
<b>2013-14</b>	Fedral	65,497	21,554	87,051	<b>2.1</b>
	Punjab	187,556	30,485	218,038	
	Sindh	99,756	6,157	106,093	
	Khyber Pakhtunkhwa	7,048	18,756	89,704	
	Balochistan	29,978	6,911	36,889	

	Pakistan	<b>453,735</b>	<b>83,863</b>	<b>537,598</b>	<b>2.2</b>
<b>2014-15</b>	Fedral	73,322	27,969	101,291	
	Punjab	201,882	25,208	227,090	
	Sindh	109,274	7,847	117,121	
	Khyber Pakhtunkhwa	83,205	28,506	111,711	
	Balochistan	32,299	8,803	41,102	
	Pakistan	<b>499,982</b>	<b>98,333</b>	<b>598,315</b>	
<b>2015-16</b>	Fedral	33,005	14,541	47,546	-
	Punjab	100,842	9,511	110,353	
	Sindh	57,986	2,148	60,134	
	Khyber Pakhtunkhwa	22,767	3,700	6,467	
	Balochistan	16,280	2,923	19,203	
	Pakistan	<b>230,880</b>	<b>32,823</b>	<b>263,703</b>	

\*July-December (Provisional)

Source: PRSP Budgetary Expenditures, External Finance Policy Wing, Finance Division, Islamabad

#### VI. Technical and Vocational Education

National Vocational and Technical Training Commission (NAVTTTC) is an apex body and a national regulatory authority to address the challenges of Technical and Vocational stream in the country. It is involved in policy making, strategy formulation and regulation & revamping of TVET system. The Commission is establishing and promoting linkages among various stakeholders at national as well as international level. During FY2016, federal government has allocated and released Rs. 349.822 million for NAVTTTC to its on-going sub-projects throughout the country.

**Table 2**

<b>Profile of Prime Minister's Youth Skill Development Program (Phase-I, II&amp; III) (Rs. million)</b>				
<b>S#</b>	<b>Features</b>	<b>(Phase-I) 2014-15 &amp; 2015-16</b>	<b>(Phase-II) 2015-16</b>	<b>(Phase-III) 2016-17 &amp; 2017-18</b>
<b>1</b>	Block Allocation outside PSDP	800.00	1178.00	2630.00
<b>2</b>	Target trainees	25,000 24,834 (pass-outs)	25,000 (training completed)	50,000 (in two batches)
<b>3</b>	Male /Female ratio	66/34	61.18/ 38.82	75/25 (at least)
<b>4</b>	No. of target trades	100	195	50 - 70
<b>5</b>	Seat allocation	As per population	As per population	As per population
<b>6</b>	Trades highlighted by	· Prime Minister's Office, · TVET provincial stakeholders	· Prime Minister's Office, · TVET provincial stakeholders, · Commercial welfare attachés	Prime Minister's Office, · TVET provincial stakeholders, · CPEC, · Commercial welfare attachés, · M/o Overseas Pakistanis & HRD
<b>7</b>	Target group	18 to 35 years (Youth) Priority given to; · Less Educated	18 to 35 years (Youth) Priority given to; · Less Educated	18 to 40 years (Youth) Priority given to; · Less Educated

		<ul style="list-style-type: none"> <li>· Upper age personnel</li> <li>· Lower class (Economically)</li> <li>· Disabled</li> <li>· Eunuchs</li> <li>· Sportsman</li> </ul>	<ul style="list-style-type: none"> <li>· Upper age personnel</li> <li>· Lower class (Economically)</li> <li>· Disabled</li> <li>· Eunuchs</li> <li>· Sportsman, Hafiz e Quran &amp; madaris students</li> <li>· Widows</li> </ul>	<ul style="list-style-type: none"> <li>· Upper age personnel</li> <li>· Lower class (Economically)</li> <li>· Disabled</li> <li>· Eunuchs</li> <li>· Sportsman, Hafiz e Quran &amp; madaris students</li> <li>· Widows</li> </ul>
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### VII. Prime Minister’s Youth Skill Development Program (Phase-III)

Prime Minister’s Youth Skill Development Program was launched under the directives of Prime Minister for unemployed and less educated youth. National Vocational Technical Training Commission (NAVTTTC) in collaboration with Provincial TEVTAs including Azad Jammu & Kashmir, Gilgit-Baltistan, FATA and other Government/Private Sector Skill Training Institutes executed the phase-I of this program, in which 24,834 individuals were equipped with hand-on skills. After the successful execution of PMYSDP (Phase-II), NAVTTTC launched PMYSDP (Phase-II) for more 25,000 trainees and catered 195 demand driven trades. Detail profile of Prime Minister’s Youth Skill Development Program is given in Table-10.6 below. The ultimate objective of PMYSDP is to create competent, motivated, entrepreneurial, adaptable, creative and well trained / skilled workforce for local and international market. Better earning and livelihood will help in building the mind set of positive and creative activities.

### VIII. Conclusions

Vocational education is an essential determinant of economic growth. It enhances efficiency of labour force. It can help labour to generate income and contribute towards economic growth and social development of a country by acquiring knowledge and skills. Education with training is a prime ingredient not only in the process of creating job but also helps in increasing economic growth. Vocational education increases the productivity of workers and plays an important role in sustaining the current pace of growth through enhanced productivity of workers. The results show that there is a positive relationship between vocational education and economic growth. Better standards of vocational education improve efficiency and productivity of labour force. But in Pakistan there is lack of investment in vocational education which disturbed the productivity of labour. The public expenditure on vocational must be increased in order to fulfill the gap of skilled and unskilled workforce and to compete with other countries. For the solution of the problem, government must plan some strategies to fulfill the gap of skilled and unskilled workforce by investing in vocational education .The shortage of teachers at institutions should be fulfilled by filling the sanctioned posts of teacher who have latest skills. Upgrade the existing vocational education system in term if syllabus and facilities to meet the modern challenges. This will also contribute towards poverty reduction, social and economic developments through facilitating demand driven, high quality technical and vocational training.

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