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Enhancing Vocational Training for Economic Growth in Pakistan

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I. INTRODUCTION

Training in general and skills development in particular, not only play a vital role in individual, organisational and overall national economic growth but are integral part of Human Resource Development (HRD). Skill development may be defined as a process to acquiring and sharpening capabilities to perform various functions associated with their present and future roles [Tripathi (2003)]. Moreover, literature suggests that human capabilities can be improved through better education and training [Haq (2002)]. Enhanced skills enable individuals to be more productive and spawn more money. It not only raises the rate of return on investment and increases employability but also ensures the implementation of various development projects in the time [Booth and Snower (1996) and O'Conner and Lunati (1999)]. To summarise, vocational education and training are indispensable instruments for improving labour mobility, adaptability and productivity, thus contributing to enhancing firms' competitiveness and redressing labour market imbalances [Cailods (1994)].

The demand for vocationally trained and technically educated human resource rises with every step towards industrialisation and modernisation of production units and work premises. Yet another outcome of such a transformation is the surge in demand for commercially educated human resource with the inflow of capital. Therefore, skill and capital are complementary. With the emergence of globalisation there is an increase of capital inflow from developed to developing countries implying that even without technology imports, capital output ratios in developing countries would rise and, given the complementarities between capital and skill, this would raise the relative demand for skilled labour [O'Conner and Lunati (1999); Mayer (2000) and ADP (2004)].

The development of services sector, that invariably follows industrialisation and modernisation, requires mid-level human resource duly possessing entrepreneurial, secretarial and other vocational skills. Even, small-scale activities,

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especially those in the fields of businesses, transport and trade, are enhanced with improved skills thus generating demand for commercially educated human resource. Keeping this in view, the Asian Tigers stressed on rapid growth in worker output that brought rapid growth of the income of both the salaried and self-employed together with a swift influx of rural labour into higher productivity employment in industry and services. Over time these countries have invested heavily in both physical and human capital.

As with capital and skill, there are also complementarities between technology and skill. "The stock of human capital appears to be positively correlated with technological dynamism [ADB (2004)]". Technological changes have shifted demand toward higher skills in the labour force [World Bank (2002)]. The acceleration of technical change in recent decades has been complemented by greater numbers of workers with higher skill. Acquiring new skills is a continuous process without which it would be difficult to harness returns from technological progress. Additionally, a high rate of labour turnover across industries and occupations is also necessary to cope with the rapidly changing technologies and innovations: when people acquire skills, they commonly also make themselves more adaptable [Booth and Snower (1996) and ADB (2004)]. Thus, adaptability becomes crucial in order to keep the labour and capital employed and yet maintains competitiveness. New technologies are knowledge and skill intensive, and there is a need to train people to work accordingly.

Globalisation places a premium on skill; skill resources, rather than the traditional resource base, determine the competitiveness of region [Mayer (2000) and Shankar and Shah (2001)]. A well organised education system and a more educated labour force can act to attract globalise financial capital [O'Connor and Lunati (1999)]. Experience of East Asia shows that the availability of skills cannot catalyse growth by itself, but that of lack of skills can seriously constrain growth. The skill level and quality of the workforce will thus increasingly provide the cutting edge to successful competition in the global economy [ILO (1998a)].

During the last 50 years, Pakistan's population has increased from 33 million to 152.53 million in 2004-05 [Pakistan (2005a)]. Although, the current population growth rate showed to 1.9 percent per annum, overall population has increased by 2.76 million people as compared to last year. Pakistan is on the favourable end of the demographic transition. In the next few decades there would be massive influx of people in the working age group (around 60 million people). This trend can already be seen as over the last decade, the population of working age cohorts has increased from 53 percent in FY 1986 to 56 percent in FY 2003. As total labour force has also increased from 41.38 million in 2001 to 45.76 million in 2004. Of this, 99.25 million of work forces are in the rural areas and 51.22 million is in the urban area. According to the Labour Force Survey 2003-04 the overall labour force

participations rate [Crude Activity Rate (CAR)] is 30.41 percent (48.74 percent of males and 11.16 percent of females). Agricultural sector has absorbed 17.79 million of the total employed labour force [Pakistan (2005b)]. There is a need to harness the favourable end of the demographic transition in Pakistan. Government and private sectors should pursue policies that promote growth in Human Resource Development (HRD) investment and improved social infrastructure.

The objective of this paper is to highlight the importance of HRD in general and vocational training in particular for economic growth in Pakistan. The paper specifically reviews and analyses the status of vocational training, related policies and practices and their impact on development of human resource in Pakistan. Moreover it looks at overall vocational training needs and assesses the existing gaps in meeting the national economics goals, and thus formulates policy recommendations for an effective and efficient vocational training programme to meet the emerging new challenges and for prosperous economic growth.

II. METHODOLOGY

The output (GDP) is greatly affected by the fluctuations in the growth of vocational institutions, enrolment, and teachers. The effect of the rate and variability of these indicators on output growth variability is explored. Abbas (1992) examined the impact of the rate and variability of inflation on output growth variability and found that both have played significant role in determining the output growth variability in most of the countries under investigation.

The main sources of data for analysis were obtained from different issues of "The Labour Force Survey" published by Federal Bureau of Statistics, Statistical Division of Government of Pakistan. A rich source of information related to vocational training has been the progress reports of the World Bank and Asian Development Bank (ADB) sponsored vocational development and skill enhancement projects in Pakistan which have been reviewed in depth. Government policies and plans related to vocational training were analysed and reviewed from Medium Term Development Framework (MTDF) 2005–10 [Pakistan (2005c)]. The Asian Development Bank (ADB) Labour Market Survey [ADB (2003)] has been used for information on the quality of skilled workers and technicians employed in industries, level and quality of technicians and skilled workers produced by Technical Education and Vocational Training (TEVT) Programme.

The effect of the rate and variability of increase in institutions, enrolment, and teachers on output growth variability was explored. The fluctuations in rate and variability of these vocational indicators have serious implications for the output growth variability. In the present paper output growth variability was regressed on the rate and variability of the institutions, enrolment, and teachers, alternatively using appropriate lags. Following equations are estimated using Ordinary Least Square (OLS) method:

$$VGDP_{it} = a_{it} + bGINST(p)_{it} + U_{it} \quad \dots \quad \dots \quad \dots \quad (1)$$

$$VGDP_{it} = c_{it} + dGENROL(p)_{it} + U_{it} \quad \dots \quad \dots \quad \dots \quad (2)$$

$$VGDP = a_{it} + bGTEACH(p)_{it} + U_{it} \quad \dots \quad \dots \quad \dots \quad (3)$$

$$VGDP_{it} = a_{it} + bGINST(p)_{it} + U_{it} \quad \dots \quad \dots \quad \dots \quad (4)$$

$$VGDP_{it} = c_{it} + dGENROL(p)_{it} + U_{it} \quad \dots \quad \dots \quad \dots \quad (5)$$

$$VGDP_{it} = a_{it} + bGTEACH(p)_{it} + U_{it} \quad \dots \quad \dots \quad \dots \quad (6)$$

Where, GDP=Gross Domestic Product, INST=Institutions, and TEACH = Teachers, *G* and *V* are used in the start of the variables for growth rate and the variability, respectively. *P* denotes appropriate number of lags.

The rate of growth is the measure of desired rate while the standard deviation is the measure of next period's uncertainty. The direction and the strength of between the rate and its variability and output growth variability are determined from the sign of the coefficient and significance of *t*-ratios.

III. RESULTS AND DISCUSSION

III.1. Status of HRD and Vocational Training Programme in Pakistan

Training and education is a prime ingredient, not only in the process of creating jobs and generating growth, but of improving the capacity of economies to "seize the moment" by capitalising on opportunities and occupying the many niche markets that emerge from the interface between rapid globalisation and technological change. The HRD and vocational training situation in Pakistan is not impressive as of its competitors, neighbours, and other developing countries of Asia and South Asia. Malaysia is spending about eight percent of its GDP on education, while Pakistan is spending less than two percent, ever lower as of overall South Asian countries (Table 1). This underinvestment has the potential to inhibit future investment and development of high value added products and services for export and domestic markets.

Looking at the statistics in the Table 1, the percentage of professional, diploma holders, skilled worker are lagging badly but over the time their situation is not improved. The professionals/technology workers as percentage of work force are only 5.3 percent whereas it is 11 percent with Turkey and Malaysia.

In the case of Pakistan, there is a serious mismatch between the jobs demanded by the emerging needs of the economy and the supply of skills and trained human resource in the country (Table 2). While the economy is moving towards sophisticated sectors such as telecommunications, information technology, oil and gas, financial services, engineering goods, the universities and colleges are turning out hundreds of thousands of graduates in Arts, Humanities and Languages. This

Table 1

Comparative Human Indicators

Indicator	Turkey	Malaysia	Phil	Pakistan	South Asia
Unemployment Rate (2002; %)	9.2	3.2	10.8	7.8	5.4
Human Development Index	0.75	0.79	0.75	0.52	0.57
Public Spending on Education (1999; % GDP)	3.7	7.9	3.2	1.8	2.6
Secondary School Enrollment (%)	76	70	82	26	49
Post Sec. Tertiary Enrollment (%)	24	26	30	3.5	6.1
Adult Literacy (%)	86	88	95	47	57
Professionals/Technology Workers as Percentage of Work Force	11	11	7.1	5.3	6
Extent of Staff Training (1-7 scale)	3.6	5.1	3.9	3.0	3.1
Cluster Development (1-7 scale)	3.6	3.9	3.3	4.2	3.8
Average Years of Schooling	5.2	6.8	8.2	3.8	4.1

Source: ADB (2005).

Table 2

Percentage Distribution of Employed Population according to Major Occupation Groups

Major Occupational Groups	1996-97	2001-02	2003-04
Legislators, Senior Official and Managers	8.6	11.6	11.5
Professional	3.5	2.1	2.0
Technical and Associated Professionals	2.8	4.7	4.9
Clerks	2.9	1.7	1.6
Services Workers and Shop and Market Sale Workers	7.8	5.7	5.2
Skilled Agriculture and Fishery Workers	36.8	34.7	34.9
Craft and Related Traders Workers	9.9	16.2	15.9
Plant and Machine Operators and Assemblers	4.8	3.9	3.7
Elementary (Unskilled) Occupations	22.9	19.4	20.3
Total	100	100	100

Source: Pakistan (2005b).

divergence has created waste and misallocation of resources on one hand and the shortages of essential skills required to keep the wheels of the economy moving. It also shows that the public sector and government is losing jobs or there is at least stagnation. Moreover, technical and vocational training has failed to keep pace with the emerging skill gaps that have further been widened by the migration of experienced technicians and professionals to the Middle East and elsewhere.

III.2. Technical Education and Vocational Training (TEVT) in Pakistan

TEVT in Pakistan can be divided into three subcomponents: prevocational or school level known as TEVT, higher engineering, and technology education. The history of the introduction and integration of prevocational and vocational courses into the general school education dates back to the early 1950s and many

experiments have been conducted. However, these efforts have not had a significant impact on general school education, which from the period of colonial rule was geared toward producing clerks and other office workers rather than technicians, engineers, and scientists. The education policy of 1972–80 suggested a major shift from general education and emphasised relating education to the world of work. This resulted in the introduction of agro-technical studies (wood work, metal work, and electricity), agriculture, and home economics in urban, rural, and girls' middle schools respectively in grades 6–8. In grades 9–10 introduction of vocational courses of various groups such as agriculture, commerce, home economics, and industrial arts was encouraged. More recently, this approach is reaffirmed under the National Education Policy and Education Sector Reform Programme.

The growth of the TEVT sub-sector is due to the Government's desire to increase access of rural youths and women to technical education and vocational training to improve their job skills and means of livelihood. The lack of places in the universities also led to expansion of the sub-sector, as it became an alternative channel for youth and school leavers. This resulted in the social demand for more opportunities for and access to TEVT. The Government assumed the main responsibility of providing TEVT to youths with little participation of the private sector. Only during the last few years there has been a growing trend toward encouraging participation of the private sector in TEVT provision. Under the Education Sector Reforms Programme, a number of incentive schemes have been introduced to enlist private sector participation in education and training.

Vocational training caters to unemployed youths who lack skills and those who either drop out of the school system or fail to qualify for admission in the polytechnic institutes and colleges. Expansion in vocational training took place during 1980–1990, and included establishing several training centres and upgrading a number of old ones across the country. The Ministry of Youth Affairs also established 20 youth vocational centres. The duration as well as entry qualifications for different vocational training programmes vary widely. Training programmes range from a few weeks to 2 years and entry qualifications vary from middle to secondary school pass. Vocational courses are more practically oriented compared with technical education. The curriculum of vocational courses comprises 80 percent practical and 20 percent theory. Graduates are expected to perform semiskilled and skilled jobs in various sectors or can be self-employed.

The National Vocational Training project (1981–95) costing Rs 2, 467.206 million is being implemented by the National Training Bureau (NTB) through the Provincial Training Boards (PTBs) and is funded by the agencies/countries like the World Bank, ILO, CIDA, UNDP and the Federal Republic of Germany mainly for the purpose of increasing the supply and upgrading the skills in the country. The project is divided into two different phases.

Three years course leading to diploma of associate engineer (DAE) is the main programme of the polytechnic institutes in the country. The DAE curriculum comprises 60 percent practical and 40 percent theory. The polytechnic institutes offer a wide range of training programmes in traditional as well as new and emerging technologies. Traditionally most TEVT institutions, particularly the polytechnic institutes, were established to train the workforce for Government departments and public sector organisations where their qualifications (certificate/diplomas) served as proof of competence. Until recently very little attempt has been made to involve the end users in the operation, management, and programme delivery, and to align the course contents to the needs of industries. This failure has contributed to the marginalisation of TEVT institutions with employers showing little interest in extending cooperation to the institutions due to lack of interactions between industries and TEVT institutions. Consequently, TEVT programmes are seen as out of step with the needs and expectations of the workplace.

III.3. Structure of the Vocational Training System of Pakistan

Technical Education and Vocational Training (TEVT) are provided by a number of Federal, Provincial, and Private Agencies. The Vocational Training is skill-intensive and is offered in 27 trades for boys and 18 trades for girls by institutions both in public and private sectors. These institutions are under the administrative control of Federal Labour and Manpower Division, Women Division, Provincial Departments of Education/Labour and Manpower Training, Social Welfare, Small Industries, Agriculture, Agency for Barani Area Development (ABAD), Ex-Servicemen Welfare, WAPDA, Railways, POF, SMEDA, NGOs and private ownership. Besides, there are formal and informal apprenticeship programmes. A summary of existing Vocational and Technical Institutes (VTI) along with their capacity is presented in Table 3.

The National Training Board (NT Board) was established at the national level in 1980 by an Ordinance which was updated in 2002. The NTB was closed in 2001, but subsequently revised in 2002 and continues under the Ministry of Labour and Overseas Pakistanis (MLOP) to perform coordinating role for VTI. A National Training Bureau (NT Bureau) was established in 1976, and acts as secretarial for NT Board and performs all functions assigned to it by the NT Bureau. The NT Bureau does not directly manage training centres, but manages a teacher training function for VTI. It currently has 85 staff, as compared to 257 before 2001. The National Staff Training Institute (NSTI) was established in 1998. A recent initiative was small Education and Vocational training initiative by the MLO, in cooperation with the International Labour Organisation (ILO) and Skill Development Council (SDC) in Karachi, which is being expanded to include 300,000 youth [ADB (2005)].

Table 3

Vocational and Technical Training Institutions in Pakistan (2004)

Province	Type of Institute	No. of Centre	Capacity
TEVTA Punjab	Technical and Vocational	402	83,000
Punjab Training Council	Vocational	60	15,000
DMT* Sindh	Vocational	33	3,740
TE and MT NWFP	Technical and Vocational	35	3,300
DMT Balochistan	Vocational	12	1,730
Skill Development		Contractual Basis	25,000
Federal	Ministry of Labour	2	1,500
Federal	Ministry of Education	2	1,400
Private Sector and Apprentice			70,000
Total		546	204,670

Source: ADB (2005).

*Directorate of Manpower and Training of Labour.

III.4. Quality of Technical Training and the Job Market

Quality of training should be given higher weight than any other social objective as to give undue attention to establish training opportunities for disadvantaged segment of population. Social objectives in training were rarely achieved without a strong economic foundation [ADB (2004) and Middleton, *et al.* (1993)]. According to the ADB (2005) Labour Market Survey, the abilities of work ethics, reliability, initiative and person-relating were not acquired by both pass-out of vocational and polytechnics, and in the competencies of tool making, selecting materials/tools/process, producing/installing/operating/assembling and trouble shooting the pass-outs of vocational institutes were better. The overall evaluation of both programmes by the majority of the enterprises was 'fair', which means that the training in skills/techniques required in job market had to be strengthened and improved. The summary of the quality of abilities developed during training at polytechnic/vocational institutes is presented at Table 4.

Table 4

Abilities Developed during Training at Polytechnic/Vocational Institutes

Aspects of Evaluation	Polytechnic Programme			Vocational Programme		
	Poor	Fair	Good	Poor	Fair	Good
Technical Concepts	46	41	13	28	60	12
Practical Skills	55	33	12	27	54	19
Repair/Maintenance/Trouble Shooting	55	37	8	27	58	15
Communication Skills/Report Writing	63	29	8	44	48	8
Safety Consciousness	46	40	14	31	54	15
Quality Mindedness	43	43	14	28	60	12
Others	33	67	–	–	100	–

Source: ADB (2005).

III.5. Need and Duration of Orientation/Training of TEVT Workers after Employment

The Labour Market Survey [ADB (2005)] revealed that 58 percent enterprises state that the pass-outs of TEVT after employment needed 3–6 months orientation on-the-job training specific to the plant for improving general skill proficiency. 36 percent said that they needed 6–9 months training. This indicates that the preparedness of the pass-outs for skills in demand is unsatisfactory. If the training programmes were made more effective the duration of on the job orientation/training could be reduced (Table 5).

Table 5

<i>Need and Duration of Orientation/Training of TEVT</i>			
Type of Orientation Planning	6–9 Months	3–6 Months	1-2 Months
General Skill Proficiency	30	58	12
Shop Floor on-the-job	31	56	13
Specific to Plant	36	47	17

Source: ADB (2005).

III.6. The Impact of Rate and Variability of Vocational Training Indicators on the Output Growth Variability

Vocational training enhances the productivity of the workers and hence gives rise in the economic growth. Secondly, vocational institutions, enrolment of the students, and the teachers play an important role in determining the scope of the vocational training. Furthermore, technicians and associate professionals, skilled agricultural fishery workers, craft and related trade workers, and plant and machine operators and assemblers are the main components of the secondary vocational training.

Vocational institutions, enrolment of students in these institutions and teachers employed are the best indicators of the performance of the output in producing good quality labourers. A consistent time series data on skilled workers are not available. Therefore, we focus on these indicators in our analysis.

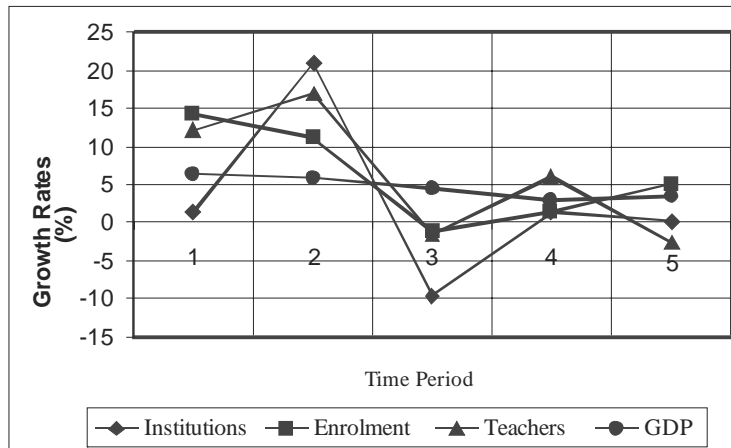
Growth rates of vocational institutions, enrolment, teachers and Gross Domestic Product (GDP) are presented in the Table 6. GDP fluctuated 2.86 percent in Period IV to 6.49 percent in period I. In Period III vocational institution showed a negative trend while it grew at 21 percent in the period II. The enrolment and the teacher declined during the period III.

Table 6

<i>Growth Rates of Secondary Vocational Institutions, Enrolment and Teachers</i>					
	1981-85	1986-90	1991-95	1996-00	2001-04
	Period I	Period II	Period III	Period IV	Period V
Institutions	1.33	20.98	-9.47	1.48	0.24
Enrolment	14.36	11.15	-1.13	1.42	5.03
Teachers	12.11	16.92	-1.57	6.14	-2.49
GDP	6.49	5.87	4.42	2.86	3.59

Source: Based on Pakistan (2005) and *50 Years of Pakistan in Statistics* (1997).

Graph 1: Growth Rates Institutions, Enrolment, Teachers, and GDP



The impact of rate and variability of vocational training indicators is presented in Table 7. In all, 6 equations have been estimated to find out the growth and the variability impact of the vocational indicators on the output growth variability. The analysis of the table shows that in all equations except Equation 6 the impact of vocational indicators emerges from 3rd to 10th lags. It indicates that the long term planning is required to achieve the benefits of current policies. Equation 1 explains the positive and significant relationship between the growth of Institutions and output growth variability at the 7th lag. Enrolment and Teachers also play a significant role in determining the output growth variability at the 10th and 4th lags, respectively. In the case of variability impact in Equation 5 and 6, both Enrolment and Teachers play a significant role. Equation 4 explains positive but insignificant effect of Institutions on output growth variability at the 6th lag. The overall analysis shows that both the rate and variability of vocational indicators have positive and mostly significant impact on the output growth variability in the long run.

Table 7

*Impact of Rate and Variability of Vocational Training
Indicators on Output Growth Variability*

	Growth Impact		Variability Impact
Equation 1 at 7th lag	1.0949+0.027 GINST (1.09) (1.40)* DW=1.78	Equation 4 at 6th lag	0.9321+0.0307 VINST (1.78)* (0.82) DW=1.88
Equation 2 at 10th lag	1.038+0.0409 GENROL (2.89) (2.17)* DW=1.82	Equation 5 at 3rd lag	0.6049+0.046 VENROL (1.50) (1.94)* DW=2.00
Equation 3 at 4th lag	0.0.961+0.0368 GTEACH (3.57)* (2.21)* DW=1.37	Equation 6	0.8572+0.0324 VTEACH (0.59) (1.43)* DW=2.06

III.7. Strategy for the MTFD 2005-2010

Pakistan is facing a serious skill gap. There is also large drop out of students from schools, or even when they continue they fail to acquire marketable skills. There is, therefore, a pressing need to plan for building a strong pool of skills among the young people so that they can earn a respectable living for their families. Keeping in view to emerging challenges and need of the day, the Government of Pakistan in her MTFD developed a strategy to develop a flexible and response Technical Training System in the country [Pakistan (2005c)].

The key features of the strategy include need oriented, multi skill and flexible training to meet changing needs of local industry, overseas employment and self employment. We should set minimum standards of training, trade testing and certification. Improvement should be carried out in quality of training of instructional and management staff. High priority should be given to female training. Operational and financial autonomy should be provided to institutions. Enhancement in public-private partnership should be ensured. Micro credit facilities should be provided to facilities to pass out trainees and private sector for establishment of training centres. We should development of well skilled Labour force to help achieve significant gains in productivity and efficiency primarily through efforts of the private sector.

III.7.1. Proposed Institutional Framework

With a view to giving a major impetus to technical and vocational training in the country, the MTFD investigates to impart training to one million unemployed youth, which would enhance their capabilities to gain productive jobs. In this connection, the following institutional framework is proposed for streamlining the technical Education and Vocational Training System.

III.7.1.1. National Technical Education and Vocational Training Authority (NTEVTA)

National Technical Education and Vocational Training Authority would undertake national planning, curriculum development, standardisation of technical education, training of trainers, national accreditation of private polytechnics and institutes and develop strong linkages with the industrial end users. This will afford close coordination with industry and proper judgment of demand and supply of appropriate skills. Training need assessment, Development and defining of skill standards, Curriculum development, Trainers training, International recognition and linkage, Standards and accreditation of institutions and Establishment of National University of Technology, are the main functions of NTEVTA.

III.7.1.2. Provincial Technical Education and Vocational Training Authority (PTEVTA)

A fully autonomous corporate body is set up in each province headed by a renowned entrepreneur whereas majority of other members be eminent industrialists, Government and one representative of NTEVTA. This organisation formed its own rules and procedures and allowed to work with out bureaucratic controls.

Table 9

Summary of the New TEVTA System 2005–2010

No. of Institutions to be Established	2649
Annual Intake	838,290
Total Enrolment of New Institutions	955,640
Apprentices	100,000
Total Enrolment	1,055,640
Direct Employment Generation	75,156
Capital Cost	Rs 69.72 billion
Annual Recurring Cost	Rs 17.3568 billion
Existing TEVT Capacity	0.86 percent of total enrolment up to higher secondary level, in the age group 10-16
Increased TEVT Capacity	2.75 percent of total enrolment up to higher secondary level, in the age group 10-16

Source: Pakistan (2005c).

III.7.1.3. Introduction of “Skills and Technology” as a Compulsory Subject

It is planned to introduce “Skills and Technology” as a compulsory subjects in Classes of 8–10 of schools, where students are provided reasonable proficiency in areas where there is great demand, such as plumbing, carpentry, masonry, electrical wiring and machines electronics and computer literacy. This strategy will reduce the

prohibitive costs of creating completely new institutes, spread basis skill more widely in society, reduce drop-out rates, if students can learn skills while still at school.

IV. CONCLUSIONS AND RECOMMENDATIONS

The levels of economic development roughly corresponded to certain levels of development of education and training. For a developing country like Pakistan universal secondary education, worker up gradation and technical training became priorities but we must prepare for the next stage in order to cope with the development. Governments, firms, and individuals must plan strategies to fill emerging gaps between existing education and skills levels of the population and the need for new skills and training arising from advance technology, capital accumulation and expansion of labour market.

The MTDF proposed an ambitious strategy for TEVT. We are already behind our competitor although we have substantial comparative advance. Our analysis and experiences from “Asian Tigers” countries shows that in order to reach takeoff stage they plan their HRD well in time. It will take five to ten years to reap the benefit from HRD. Countries that fail to develop action plan to implement cost effective and quality education and training for citizen will risk jeopardising long terms effectiveness in successfully competing in the global economy. With WTO agreements, we have more opportunities for export and also to open our border for import. Only those countries will survive which have quality and cheap product. These only achieved with new technologies and skill. It is worth wise to note that skill formation policies cannot be delivered just in time. In many countries the reform process has taken a decade or more to reach full implementation.

Resource Development through vocational and technical education should be encouraged to promote the capacity of skilled manpower to adjust to changes in Labour demand. The MTDP should be properly supported and encouraged in order to achieve its next five year objectives for a prosperous and well growing economy of Pakistan. For this thing to happen Technical and Vocational training and education is must for high skilled Labour force and manpower of country. This programme should be launched on crash and implemented on emergency basis.

Institutional Level Recommendations

Training institutes should develop research and development capacities in their own respective fields to keep the supply of technicians/skilled workers of TEVT institutions matched, quantitatively and qualitatively, with the demand of industry.

Technical education and vocational training institutions should ideally have to devise their technical education and vocational training according to the requirements of industry. The industry and the institutions should strengthen linkages between themselves

as one cannot succeed without the support and cooperation of the other. The teachers at training institutes should be provided training by the relevant manufacturers/vendors about installing/operating machines/equipment and developing/using software to avoid situations where machines cannot be used due to malfunction. The shortage of teachers at institutions of distant and rural locations should be made up by filling the sanctioned posts by those teachers who have high proficiencies in such latest skills that were in demand in job market. Accredite own TEVT institutions with global or regional associations of repute to accord international acceptability to workforce. The shortage of teachers at institutions of distant and rural locations should be made up by filling the sanctioned posts by those teachers who have high proficiencies in such latest skills that were in demand in job market. Consolidate existing TEVT institutes by completing their deficiencies of teachers and equipment. Initiate refresher programmes and crash programmes in latest methodologies for teachers. Upgrade existing technical colleges in terms of syllabus, equipment, facilities and teachers to meet modern challenges. An internal pool of trainers in selected technologies should be created by inducting master trainers from abroad.

Policy Level Recommendations

A central regulatory authority should be established to ensure that not only technical training programmes are developed and implemented but also continuous data collection and/or analysis is carried out to keep technical educational and vocational training in sink with the every changing demand. A national level strategy should be developed to provide direction and chalk out a pathway to help meet the targets set under the Millennium Development Goals. The strategy should also help develop provincial and local training plans and projects. The Provincial Directorates of Technical Education should be brought together under one umbrella at the Federal level. It should however be made sure that this mechanism does not increase bureaucracy. The objective of bringing the Provincial Directorates under one umbrella is to encourage synergism and complementarity and also to provide guidance and direction to all four provinces. Introduce and implement immediate measures for improving service conditions of teachers. Develop and establish national system of skills standardisation, testing, certification, accreditation of institutions and equivalence. Develop and implement a monitoring and evaluation system to assess the efficiency and effectiveness of training programmes. Foster public-private partnership especially in technology-intensive field. Incentives can then be provided to private to establish technical institutes relevant to their own sector. Emphasis should be given to sectors where jobs are being created now for instance telecommunications, information technology, electronic media companies, private and non-governmental educational institutions, scientific research and development organisations, hospital management and medical services, automotive industry, hospitality management, airlines industry and sustainable exploration and development of natural resource.

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Comments

Thanks for inviting me as a discussant. The authors presented a paper in a very important area which has not received adequate attention in past. The paper is clearly linked with the theme of the conference. The role of vocational training is important because of its linkages with economic growth, employment generation and poverty reduction. Enhanced skills enable individuals to be more productive and generate more money that helps in capacity building; raises the rate of return on investment as well as the level of employability and thus enhances the economic growth rate.

In most of the part of the paper, the authors review and describe the status of vocational training, its policies, practices and their impact on Human Resource Development in general and in Pakistan in particular. At page 5, the authors make a comparison of Pakistan's HRD and vocational training with its competitors, neighbours, and other developing countries of Asia and South Asia by comparing Public Spending on education as percent of GDP, which is not impressive. However, I would say that this indicator does not capture the importance of vocational training in public sector priorities. The right indicator to gauge importance of vocational training in public sector priorities is the Public Spending on vocational training as percent of total Government Expenditure or as percent of Public Spending on education. I am sure that the comparison based on such indicator would be even more unimpressive.

While describing the data it should be clearly mentioned what type of data have been used in their regression analysis to analyse the variability of GDP growth rate. The main sources of data for analysis is obviously the Labour Force Surveys conducted by Federal Bureau of Statistics, Government of Pakistan. However, historical data on skilled labour from labour force survey are available with a gap of 2-3 years. Since consistent time series of data on skilled labour workers are not available because labour force surveys are not conducted on yearly basis, the authors have used vocational institutions, enrolment and teachers in these institutions as proxy for the skilled labour probably as reported by the Economic Survey. Since in the empirical section the authors reported quite long effects of lags, I suggest that it would be interesting to see the effect of skilled labour on the economic growth or its variability by using direct indicators of skilled labour from the labour force data.

The authors mentioned at page 3 that the objective of the paper is to highlight the importance of HRD in general and vocational training in particular for economic growth in Pakistan. Conversely, the analysis is different from the objective of the paper. The variability of economic growth rate has been analysed rather than the

growth rate. At page 3 the authors mentioned that the fluctuations in rate and variability of the vocational institutions, enrolment and teachers have serious implications for the output growth variability but they have not explained these serious implications in the paper.

The authors found in all equations except Equation 6 as positive impact of vocational indicators on output growth variability from 3rd to 10th lags. It appears that both rate and variability of vocational indicators have long run impact on the output growth variability. While lag effect seems to be logical but sequencing of the effects is not understandable. For example, teachers affect the growth well before the establishment of institution in growth equation in Table 7. Similarly, enrolment effect is before the establishment of institutions in variability impact equation. While growth rate GDP is a performance indicator, the use of variability of GDP as explanatory variable should be explained in the paper. However, the authors did not explain what they have achieved or deduced from this empirical analysis by using output variability as an outcome variable. Even the concluding section is silent about the inference from the empirical analysis. The conclusion is not entirely linked from the empirical analysis. Rather it is based on the general review of policies, practices and their impact on Human Resource Development in general and in Pakistan in particular. Nevertheless, the authors recommend pursuing the ambitious strategy of technical education and vocational training proposed by the MTFD.

In the end, I would say that the paper is yet a good attempt in the area which has received less attention in past.

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