

Skill Development in Pakistan

A. R. KEMAL

I. INTRODUCTION

Human resource development particularly improved skills impact rather significantly economic growth and the productivity levels. Whereas research on productivity following Abramovitz (1956) and Solow (1957), seminal articles on sources of growth, highlighted the importance of human resource development,¹ the endogenous theory of economic growth has brought human capital at the centre stage of the growth process [Romer (1990, 1993)].² While the contribution of productivity towards growth rate of GDP in Pakistan has been one-third, the increase in total factor productivity has more to do with catching up than the improvement in human resource development, major source of sustained growth [see Kemal, Din, and Qadir (2002)].

Whereas there has been a general neglect of the human resource development,³ Pakistan manifested in low Human Development Index, the skill development has been most neglected. Pakistan has neither been able to improve vocational and job skills nor could inculcate the creative and cognitive skills and the personal and social skills resulting in loss of output, exports and employment and slow growth of living standards. Various factors have contributed towards the neglect which includes among others inward looking policies with little emphasis on quality products, focus on primitive technologies and choice of economic activities⁴ and the limited supply of skilled workers [see Atta-ur-Rahman, *et al.* (2005)]. It is surprising that while main

A. R. Kemal was President of the Pakistan Society of Development Economists and Director, Pakistan Institute of Development Economics, Islamabad.

¹See for example Denson (1969), and Johnson and Griliches (1967).

²Lucas (1993) suggests that the main source of differences in living standards among nations is differences in human capital.

³There has been some improvement in Human Development Index and Pakistan is now placed at 135 instead of 142 a few years back. There is still significant room for development.

⁴The share of chemicals and engineering sector and sophisticated services in GDP is relatively small.

beneficiaries of the skill development are the producers, they have made little effort to improve the skills; upgrading of skills is unlikely until the producers themselves are convinced of the tangible benefits from skills.⁵

If Pakistan is to survive and prosper under the competitive conditions of the global economy then it must move into more technology and knowledge based products where global growth is concentrated [see Lall and Weiss (2004)]. The Medium Term Development Framework calls for diversification of GDP towards high value added manufacturing and sophisticated services and the need for skilled, therefore, workers is imminent.⁶ In the absence of trained manpower the producers would make stop-gap arrangements leading to sub-optimal decisions and low levels of productivity.

Amjad (2005) asks a pertinent question: Would the development of a well-educated and skilled labour force assists countries in graduating from labour-intensive to higher value-added, skill-intensive, technologically advanced sectors? Or that unless the country moves towards sophisticated sector, the skills would remain primitive. But in any case, as pointed out by Wagner (2005), vocational and professional training system would have a major impact on national competitiveness; she quotes the evidence⁷ of German-British industrial experience showing specific links between vocational training, products and competitiveness on the basis of matched plant comparisons.

As noted by Amjad (2005), Pakistan has for too long remained in a low-level skills trap and if it is to move into the knowledge economy then it must break out of this trap. While more investment in education and skills is required which should be both cost effective and demand driven, it would not be sufficient unless institutions are developed that recognise the 'value of investing in people and provide dignity, respect and a fair deal for working men and women'.

Plan of the paper is as follows: After the introductory section, the skill development in Pakistan is reviewed in Section II. Technology and research and development are discussed in Section III. The strategy to skill development is outlined in the concluding section.

II. SKILL TRAINING AND DEVELOPMENT IN PAKISTAN

With the advent of globalisation, the growth would crucially depend on skills for producing goods and services of better quality at the competitive prices. The skill

⁵Success of countries like Republic of Korea, in large part, stems from their emphasis on vocational training programmes on a massive scale.

⁶It needs to be noted that skill improvement is intrinsically tied to the nature of technology used. Upgradation of skills, therefore, have to be linked to an improvement in technology.

⁷The studies quoted include Daly, Hitchens and Wagner (1985); Prais and Wagner (1988); Steedman and Wagner (1987, 1989); van Ark (1996), Keltner, *et al.* (1996); Mason and Wagner (2005).

development results in mastery, resiliency, and core competencies in various fields. Moreover, skill building is a *process* and not an isolated event or training. Three types of skill development may be distinguished:

- **Creative and Cognitive Skills:** Problem-solving and action planning; and creative expression; linking creativity to action;
- **Personal and Social Skills:** Conflict resolution, refusal skills, peer mediation, coping skills, facilitation skills, action planning, and navigational skills; and
- **Vocational and Job Skills:** Job and career options and entrepreneurship.

Training of various skills in Pakistan is imparted through polytechnic, vocational training centres, apprenticeship schemes, various training and vocational institutions under various ministries and departments, commercial training institutions and 'Ustad-Shagird' system in the informal sector. The formal institutions produce a very small proportion of total increments to the skilled work force and not necessarily in accordance with the demand and of requisite quality. Skill Development Councils (SDCs), employers led bodies, set up in each province for training needs assessment and meeting the needs through making training arrangement with public and private sector training providers are expected to help in this direction.

At present technical education is being imparted through 546 technical and vocational institutions with the capacity of a little over than 200,000 (see Table 1).

Table 1

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 VT 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).

DMT = Directorate of Manpower and Training of Labour.

Technical Education and Vocation Training Authority (TEVTA) has been set up in Punjab and similar organisations are being set up in the other provinces as well as at the federal level. However, TEVTAs should not just focus on enhancing the enrolments, they must provide good quality relevant training; it is generally perceived that technical and vocational training in Pakistan has little relevance to the industry [see Table 2]. The technical institutions and training centres must have the desired machinery and equipment for training of the skilled workers. The floor and middle class supervisors be such that they can skillfully handle the production machinery to produce quality goods with higher productivity. Not only quality teachers need to be inducted, the teachers should be well-versed with the practical knowledge of the factories, there should be an in-service training programme as well. The curriculum should be developed by the experts and reviewed periodically by taking into consideration changes in the production techniques and introduction of new technology.

Table 2

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).

World Employment Report 1998-99 (ILO 1998) suggests that training systems are a product of the labour market institutions and incentive structures in which they operate and of the support they receive from employers, workers and governments. Yet most skills developed over a life time are acquired on the job, mostly in enterprises in which people work in both the formal and the informal economy. Similarly, in a study of competitiveness in South Asia, Lall and Weiss (2004) point out

- Technology-intensive and more sophisticated manufactured exports growing fastest in the world but South Asia, particularly, Pakistan, is a weak performer;
- Pakistan scores relatively low on export sophistication reflecting specialisation in low technology products, and within these, on products that are at the low commodity ends of the sophistication spectrum;

- Even in case of textile and clothing exports will have to match its competitors in terms of technology, skills, designs and quality; and
- Main driver's of competitiveness—human resources, technological effort, technology inflows and supporting institution—are weak and it is not improving over time in response to growing international challenges.

III. TECHNOLOGICAL UPGRADATION

Technological advancement is critical for attaining greater competitiveness in the world economy. Though Pakistan still lags behind in technology index, there are significant improvements over the last year. For example, technology index rank has improved from 87 to 80 and growth competitive index rank from 91 to 83 [WEF (2004-05) and (2005-06)]. Nevertheless, most of Pakistani firms continue to be on the lower end of technology; domestic firms may be facilitated to compete in the world market through technological up-gradation, investment, and innovative capabilities.

Innovation is a pioneering activity, arising from firm's internal competencies to develop a new product in the market. Of course, imitation stage is a precursor to innovation and a number of skills and activities for reverse engineering can be transformed into R&D. The innovations benefit the producers in a number of ways. They have no competitor but the benefit can be ensured only if intellectual property rights are effectively implemented. The other benefits include the building of image and reputation, brand royalty, technological leadership, setting the product standards, access to distribution and experience, and barriers through patents.

Demand for new technologies would be generated through higher investment levels, restructuring of industrial sector, enabling producers to internalise benefits from innovations and export orientation. To diversify and broaden the industrial base, it is necessary to encourage investment in the industries capable of exploiting dynamic comparative advantage, exhibiting strong backward linkages, and having healthy future growth prospects. Experience of the Asian economies including Japan, Korea, and Singapore, show that targeted intervention by the government along with sound public-private partnership are instrumental in fostering a wide range of new industries that can compete effectively in the global markets.

Manpower development programmes need to be expanded with adequate financing for S&T organisations. Attracting and retaining good scientists and technologists through an appropriate reward and incentive system and proper facilities; linkages amongst local R&D agencies and of the local system with the international community; to nurture university research to continuously feeding the R&D system; better laboratory facilities and libraries; contract research and active collaboration with applied research organisations; recognition of scholarly excellence and reward;

encouraging private sector to establish universities of science and technology that offer attractive working conditions to well qualified teaching and research staff would go a long way in improving S&T personnel.

The R&D institutions need to be given greater autonomy, financial and administrative. Improvement in equipment and other facilities, updating the equipment and skills continuously to keep abreast with the latest techniques and technologies; contract research; private sector involvement in the affairs of institutes through strong representation on the boards of governors and advisory committees; utilisation of indigenous technologies and products through appropriate tariff reforms; fostering competition for efficiency and productivity; and tax incentives for investment in R&D.

IV. STRATEGIES FOR SKILL DEVELOPMENT

With a view to ensuring that skill development is demand driven, there is a need for carrying out survey of the existing and future demand for skills in Pakistan, and existing training schemes by skills. This would help in ascertaining the mismatch of the skills. As pointed out earlier, the skill development is a process. Wagner (2005) points out that skill development depends on a number of factors including:

- “• the breadth of training, which enables individuals to work in any department;
- the specification of a detailed national curriculum that is well understood across the sector;
- the active role of employer associations in defining what is studied, to ensure it remains relevant to their needs, and in overseeing the system through the Chambers of Commerce that provide an independent assessment of all trainees against the national standards;
- the inclusion of practical as well as theoretical components in the examinations so individuals must demonstrate that they are able to perform all of the key functions in the business before passing their apprenticeship;
- the involvement of trade unions and work councils which ensure that training follows the national requirements and safeguards the interests of the trainee from exploitation in the workplace;
- the sharing of costs among employers, individuals, and the state, so that each contributes to the overall investment in skills; and
- the requirement that establishments taking on apprentices must have qualified trainers to oversee the quality of the on-the-job learning.”

The basic strategy over the long term for vocational training should be two-fold, viz., programmes which produce good basic and technical education and the specialised training through institutes administered closely by the employers in specific industries and on the job training. At the same time vast network of informal sector, mainstay of

skills development in Pakistan, needs to be strengthened. There is a need to take an inventory of informal sector workshops, their type and the concentration of units on a district wise basis. On the basis of this inventory a scheme should be devised to train this manpower in their relevant skills on a more systematic and scientific basis in order to improve existing skill capabilities. For this purpose mobile units equipped with all relevant technical equipment/tools and accompanied with trainers may provide training in the areas where they are concentrated. If necessary, tools should be provided to informal sector workers on subsidised rates. This will not only improve the skills of the informal sector manpower but it will also familiarise them with the latest available technology and efficient method of production.

Private sector should be encouraged to expand its involvement in the field of vocational and technical training. The rapid emergence of computer training facilities in the private sector is a clear indicator that it can respond quickly to market demand. Greater access to credit, exemptions on import duty on training equipment by certified institutions and agencies, etc., could be offered as incentives. It is important however to ensure proper regulation through determination of appropriate levels of fees, conduct of proper examinations and establishment of proper certification procedures.

Adequate institutional arrangements should be made for maintaining quality and standardisation of various formal and non-formal skill development programmes in the country. Keeping in view the need of skilled workers at various levels in the country, it is proposed to have the following system in place.

- **Two Years Certificate Course:** to produce skilled work force for different industrial activities; in the second year these enrolled be provided commercial jobs by the institute as a sub-contractor;
- **Diploma Course for Supervisors:** a two-year course to produce supervisors, well-versed in quality control techniques and with at least a three-month apprenticeship in the relevant industry;
- **Polytechnics:** The courses in these institutions need to be thoroughly revised and updated in accordance with the demand of industries and the latest production techniques. Specific fields including quality control management and methods, the use of quality control tools and instrument, maintenance and calibration of instruments, preparation of quality control record and its presentation to the higher management, and six months' work experience with some industrial units to qualify for diploma.

Apart from these, public-private sector partnership and the government should provide stipends to the apprentices who may get training as fresh graduates from a polytechnic or in-service training in a recognised industrial unit or institution. Once the industry is convinced of the fruits of investment in upgradation of the manpower, the government may not be required to further fund this activity.

REFERENCES

- Abramovitz, M. (1956) Resource and Output Trends in the United States. *American Economic Review* May.
- Amjad, Rashid (2005) Skills and Competitiveness: Can Pakistan Break Out of the Low-level Skills Trap? *The Pakistan Development Review* 44:4.
- Ark, B. van (1996) Productivity and Competitiveness in Manufacturing: A Comparison of Europe, Japan and the United States. In K. Wagner and B. van Ark (eds.) *International Productivity Differences, Measurement and Explanations*. Amsterdam, Elsevier.
- Asian Development Bank (2005) Improving Technical Education and Vocational Training. Strategies for Asia. Asian Development Bank, Manila.
- Atta-ur-Rahman, A. R. Kemal, Rehana Siddiqui, Musleh-ud Din, Zafar Mueen Nasir, Munir Ahmad, Ejaz Ghani, Mohammad Iqbal, Syeda Tanveer Naim, Aamir Matin and Shaukat Hameed Khan (2005) Technology based Industrial Vision and Strategy for Pakistan's Socio-economic Development (Draft). Pakistan Institute of Development Economics, Higher Education Commission/COMSTECH, Government of Pakistan, Islamabad.
- Daly, A., D. M. W. N. Hitchens, and K. Wagner (1985) Productivity, Machinery and Skills in a Sample of British and German Manufacturing Plants: Results of a Pilot Inquiry. In *National Institute Economic Review* 111, S. 48–61.
- Denison, E. (1969) Some Major Issues in Productivity Analysis: An Examination of Estimates by Jorgenson and Griliches. *Survey of Current Business* May, Part II.
- Hussain, Ishrat (2005) Education, Employment and Economic Development in Pakistan. Inaugural Address delivered at the Conference on Education held at Woodrow Wilson Center, Washington, D.C. on April 15 (website).
- ILO (1998) World Employment Report 1998-99. *Employability in the Global Economy: How Training Matters*. International Labour Office, Geneva.
- Jorgenson, D., and Z. Griliches (1967) The Explanation for Productivity Change. *Review of Economics and Statistics*.
- K. Wagner (2005) Productivity and Skills in Industry and Services—A British-German Comparison. *The Pakistan Development Review* 44:4.
- Keltner, B., D. Finegold, and C. Pager (1996) Institutional Supports for a High Performing Skills Standards System: Evidence from the UK, Australia and Germany, Santa Monica, CA: RAND DRU, December.
- Kemal, A. R. (1998) Manufacturing Skills Training in Pakistan. Study prepared for ILO, SAAT, New Delhi.
- Kemal, A. R., Musleh-ud Din, and Usman Qadir (2002) Global Research Project—Pakistan Country Report, Pakistan Institute of Development Economics, Islamabad.

- Lall, Sanjay and Weiss, John (2004) *Industrial Competitiveness: The Challenge for Pakistan*. ADB Institute-Pakistan Resident Mission Paper, ADB Pakistan Resident Mission, Islamabad.
- Lewis, Stephen R. Jr. (1969) *Economic Policy and Industrial Growth in Pakistan*. London: George Allen and Unwin Ltd.
- Lucas, R. F. (1993) Making a Miracle. In *Econometrica* (New Haven. Conn) 61: 2.
- Mason, G., and K. Wagner (2005) Restructuring of Automotive Supply-Chains: The Role of Workforce Skills in Germany and Britain. In *International Journal of Automotive Technology Management*.
- Pakistan, Government of (2005) Medium Term Development Framework (MTDF) 2005-10. Planning Commission, Government of Pakistan, Islamabad.
- Romer, P. (1990) Endogenous Technological Change. In *Journal of Political Economy* 98:5, Part 2.
- Romer, P. (1993) Two Strategies for Economic Development: Using Ideas and Producing Ideas. In Proceedings of the World Bank Annual Conference on Development Economics 1992. World Bank, Washington, D. C.
- Solow, R. (1957) Technical Change and Aggregate Production Function. *Review of Economics and Statistics*.
- Steedman, H., and K. Wagner (1987) A Second Look at Productivity, Machinery and Skills in Britain and Germany. In *National Institute Economic Review* 122, 84–95.
- Steedman, H., and K. Wagner (1989) Productivity, Machinery and Skills: Clothing Manufacture in Britain and Germany. In *National Institute Economic Review* 128, 40–57.
- UNDP (2005) *Human Development Report 2005*. New York: United Nations Development Programme.
- World Economic Forum (2004-05) *The Global Competitiveness Report*. New York: Palgrave Macmillan.
- World Economic Forum (2005-06) *The Global Competitiveness Report*. New York: Palgrave Macmillan.