

Higher Education and the Labor Market in India

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Introduction

As the knowledge has become a key factor in economic development, there is a change in the nature of work, shifting away from occupations rooted in industrial production to occupations associated with knowledge and information. This transformation has both increased and updated the skills required in economy. It is now increasingly felt that the jobs of the future would necessarily require some kind of higher education qualifications. Growing enrolments in higher education and rising rates of return on it in not only advanced countries but also many developing countries tend to make a case for expanding higher education to reach larger number of people across the world (World Bank 2001).

A consensus is now emerging that though primary and secondary education is important, it is the quality and size of the higher education that will differentiate a dynamic economy from a marginalized one. Source of competitiveness in the new knowledge economy being talent, it is felt that the countries that are able to nurture talent by pursuing progressive policies in higher education would be the winners. These and many more such arguments have brought focus on higher education in the developed and the developing countries alike. More and better higher education has become like ‘gospel’ – an article of faith for most countries.

At the same time there is evidence of growing unemployment and underemployment of graduates across a wide range of countries. There are concerns that the higher education is not equipping students with skills and competences required in the global knowledge economy. As a result many countries face a paradox of mounting skill shortages co-existing with rising graduate unemployment and underemployment. This makes it necessary to understand the dynamics of the linkages between higher education and labor market seen in the context of globalization. Globalization is integrating the labor market for the skilled people. There is a rising wave of internationalization of higher education marked by increased flow students, programs and providers across national boundaries.

In the above context, there have many interesting developments in India since early 1980s. These have impacted the dynamics of linkages between the higher education sector and the labor market for qualified people. With a large system of higher education, a vast pool of qualified manpower and an employment structure with small organized sector India’s experience in this regard would provide valuable insights for developing as well as developed countries.

This paper analyses the linkages between higher education and labor markets in India in the context of recent developments. Various sections in this paper have been

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organized as follows – an overview of recent developments; review of the higher education and training sector in India bringing out its salient characteristics; labor market, its structure and trends particularly as they relate to qualified people; new employment opportunities and perceived skill shortages; and finally evolving an action plan for better alignment of growth in higher education with changing labor market conditions in the country.

Recent Developments

To set the context, this paper outlines recent developments to improve understanding of the linkages of higher education / training with the labor markets. These developments relate to the changing occupational structure in the knowledge economy; different ways in which higher education relates to work at the individual level; clearing of demand and supply in higher education and labor markets. Experiences of the a few countries / regions and their concerns relating to higher education and labor market have been stated to set the overall context bringing out similarities and the differences amongst them.

Changing occupational structure

Accompanied with growth and development, there has been a change in occupational structure resulting in better division of labor and shifting from manual at times hazardous occupations to intellectual work. This transformation is the outcome of changing nature of work impacted by computerization. The end result is the emergence of a global occupational structure with an increasingly integrated labor market.

Change in nature of work: While much of the technical change during the early nineteenth century has been skill-replacing, the twentieth century is marked by skill-biased technical change. Rapid increase in the supply of skilled workers has induced the development of skill complementary technologies. The skill-biased technical change has altered work-environment. It has transformed the nature of work and its content. The changes are at individual as well as organizational level and this impacts employment structures and labor markets.

At the individual level, there are two undeniable trends: the decrease of workers in industrial and manual jobs and a rise in tertiary employment. Tertiary employment requires large number of people who do intellectual work. Work content of jobs has changed leading to new demands in terms of knowledge, skills and behavior. There is a demand for more abstract form of thought. It gives priority to analytical and problem solving ability, adaptability and capacity for innovation and written expression. In view of rapid technical changes, in many cases focus is now on attitudes and behavior of people rather than their technical capacities – that need to be renewed continually.

At the organizational level influenced by new technologies, distributed work has become the dominant form of work organization. It overcomes the challenges of working across organizational boundaries in different time zones or flexi-time at different physical

locations and often transcends national boundaries. This has altered the basic rules for organizing and managing work, particularly knowledge or intellectual work (Ware 2002).

The impact of the above changes has been sweeping for advanced economies that are truly knowledge-based. At the same time this transformation is now visible in many developing countries as well. The changing nature of work has implications on the expectations from education and training system. Now that knowledge matters more than ever, higher education is central to growth strategy for most countries. Forty per cent of the global workforce will be knowledge workers requiring higher education qualifications by the year 2020 as per *survey of near future* by the Economist (2001).

Impact of computerization: Driven by technological changes, particularly the rapid growth of new information and communication technologies and a greater mobility of both work and workers across borders, there is now more efficient division of labor across nations. There is a growth in the demand for analytical and managerial work like that of scientists, engineers, attorneys, executives and perhaps economists. Also, there is a growth in the demand for services workers, such as security guards, truck drivers, housekeepers, waiters, salespeople etc. But the demand for ‘middle-skilled’ white collar jobs like that of secretaries, bookkeepers, insurance adjusters, bank tellers, telephone receptionists has collapsed. These changes have resulted in a polarization of work – the hollowing-out of the distribution of job tasks (Autor 2006).

Global occupational structure: There is increase in trade of both goods and services, across national borders. This paved way for an integrated global economy. With the end of the cold war and collapse of the socialist economic system, two global economic systems – with very separate labor forces, trade patterns, and investment pools - merged into one. The labor force of the formerly socialist economies in Russia, China and Eastern Europe is being slowly incorporated into the global production system. This is also true in case of India that shifted from inward domestic focus to outward focus since early 1990s. As a result of this integration, global supply of labor increased significantly without a corresponding increase in the capital for investment.

Productivity gains due to technological changes have led to a dramatic increase in the productivity levels in both manufacturing and services. According to Polaski (2004), though in the long-term, productivity growth is good because it creates the possibility of higher wages and incomes in countries that experience it, in the short-term; it contributes to the disequilibrium in supply and demand for labor. New developments in information technology and communication capacity are turning a segmented global labor market into an integrated whole. Offshore outsourcing of data-intensive work has become feasible. As result of the above changes, there is an over supply of labor and intense competition for an expanding array of jobs. In the backdrop of this discussion, this sub-section specifically looks at the impact of computerization and integration of job markets.

Integration of job markets: Routine cognitive tasks, mostly services, were formerly almost non- traded across borders. These services required real-time communications and coordination and massive information flows. Revolutionary advances in telecommunications have lowered the costs of sending vast amounts of information rapidly and have improved coordination in real- time basis across continents. As a result of these changes, there has been an emergence of off-shoring industries in a big way in the last few years. It is now clear that the dominant growing segment of the workforce will be the knowledge technologist in computers, manufacturing, and education.

Higher Education and Economic Growth

Over the past few decades many theories have been propounded to explain economic growth of nations. Some of them distinguish between the growth due to inputs (more labor and capital) and growth by use of inputs in a “better” or more productive way. The later measure is commonly referred to as “Total Factor Productivity” or TFP, and is generally considered to be very closely linked to the way in which knowledge is used in production. In 2001, Solow suggested that higher education could be an influential factor that determines TFP for a given economy.

On review of several studies of cross-country growth, Easterly and Levine (2000) concluded that TFP (factors other than physical and human capital) explain bulk of the differences in economic growth and recommended shift in focus from capital accumulation to policies that promote TFP growth. Higher education has been seen principally as a form of investment that develops human capital (Schultz 1972) for many years, with new understanding of the decisive role of TFP strongly influenced by higher education has brought higher education to the centre stage in economic growth of nations.

Higher Education and Employment

Developments over the past several decades – first marked by a wave of industrialization in one country after another and then with the emergence of knowledge economy endowed education explicitly with an economic value by forging both direct and indirect backward and forward links between education and economy. The evolution of economic purposes of education is seen as the single most important educational development of the twentieth century. With this, *learning to do* has become a vital function of education, particularly higher education that usually connects formal education to the world of work. Other roles of higher education², though important, it is its role in terms of preparing qualified manpower that is now pre-eminent and more pragmatic.

² As per UNESCO’s International Commission on Education for the Twenty-first Century, education must be organized around four types of learning – *learning to know*, that is acquiring the instruments of understanding; *learning to do*, so as to be able to act creatively in one’s environment; *learning to live together*, so as to participate and cooperate with other people in all human activities; and *learning to be*, an essential progression which proceeds from the previous three (Delors 1996).

There is a general belief that investment in education and training by people enhances their skills and capacities, an increase in their skills increases their productivity and the employers award such people with higher earnings. People therefore invest in education and training by making rationale estimates of returns of education. This has been the central idea of the *human capital theory* that dominated the discourse in economics of education during the 1960s. Recognition of human capital as an agent of growth transformed not only development economics but also led to a new field in the economics of education. Since then productivity enhancing effect of education and its differential impacts on income in accordance with differential educational endowments of workers attracted attention of policy makers and analysts (Becker 1964).

In the 1973, Spence propounded the *screening hypothesis* in education. This hypothesis assumes that education does not enhance employee's productivity at all. Value of formal education is not so much in what has actually been learnt (provision of new knowledge that enhances human capital) but it is an instrument for the selection of most gifted employees by the employers. Education acts as a signaling device in the job market. Employers do not have much information about the potential employee's quality; they use markets to judge quality: a higher education qualification is treated as an indicator of ability, and sustained unemployment is regarded as mark of disability.

Based on contradictory set of assumptions, the human capital approach and the screening hypothesis differ in their policy implications. While the former makes a case for greater investment including public investment in higher education, the screening hypothesis suggest that since higher education merely enable employees to get higher wages and not make them more productive, therefore public investment in higher education is wasteful. The two take extreme views and could be found valid in different contexts. In addition, formal education is sometimes seen as a socialization process. These different approaches are not mutually exclusive, but are in fact complementary to each other. They help in understanding the link between education and the world of work in a holistic manner.

The link between formal education and work is usually established through what is termed as qualification. This qualification could mean the skills required to do a job, the skills that a worker possesses (linked mainly to his or her education) and / or the skills that are recognized in the labor market. The qualification could merely provide a signal in the job market. These concepts, not being identical, fail to establish any hard and fast correlation between education and employment. This makes it difficult to define the objective standards of qualification (Bertrand 1998). As a result, it is not always possible to create a total fit between the supply of graduates from the higher education system and demand for graduates from the job markets.

Labor Markets and Higher Education

Demand for higher education could either the private demand from students and parents or demand from the labor markets for particular kind skills and competencies or even social demand of need for educated people in society. There is often a dichotomy between various types of demand. Responding to the private demand and taking the plea of social demand, there is often a bias towards expansion of higher education, despite

poor labor market conditions for the educated people. This results in a situation where people with high qualifications are ready to accept inferior jobs which do not require those qualifications on the ground that some job is better than none.

Public policy is concerned with creating a fit between supply of skills and competencies by the education system and the demand for skilled manpower from the labor market and also with ensuring provision of adequate number of places in the higher education system to meet the aggregate of students demand for such places.

The above requires coordination at two levels – between the demand for qualified manpower and places in higher education system on one hand and places in higher education and students demand on the other. These are however inter-connected since students demand for places in higher education system would depend upon the labor market outcome of particular qualifications. The coordination is required for different types of education, at different points in time and at different locations. Given the complexity of the task, this multi-level coordination is not easy to achieve.

Adapting higher education to future work is difficult since it is almost impossible to foresee how the work is going to evolve over a period of time. Earlier, countries adopted manpower planning approach that projected demand occupation-by-occupation over a given time-scale and created education capacities accordingly. In these uncertain times, creating this fit has is found difficult and of little use. The fact that a large percentage of jobs are filled up through job mobility renders this approach even more meaningless.

As a result, the manpower planning approach has been by and large abandoned and replaced by a study of signals from the labor markets. This requires a dynamic system of providing the job market information on placement, unemployment rates by levels of competence, job offers and employers' estimation of their needs in terms of manpower to the higher education institutions on a continuing basis. These signals from the labor market help the educational institutions to make adjustments in their capacities and also adapt curricula to emerging changes in the job market and also assist individuals to make correct choices.

Since, social demand – aggregate of students' private demand is often based on aspirations of students, societal expectations and not necessarily based on signals from the job markets, there is usually a possibility of mismatch. This often results in over-education leading to unemployment and underemployment of graduates – a phenomenon common throughout the world in varying degrees.

Since, the link between in fields of study and occupational areas are relatively loose in most countries and the process of transition from higher education to employment has become more complex and protracted, it has its own dynamics of rising and dashing hopes (Gibbons 1998). The fact that the formal higher education does not necessarily equip students with skills required in the job markets creates a problem of

unemployment on one hand and skill shortages on the other. Based on the framework above, an enquiry into this paradox is the main purpose of this paper.

Various countries, different concerns

Both developed and developing countries are witnessing a jobless growth. As a result of greater degree of competition at the international as well as national levels, there is unprecedented productivity growth. Improved productivity is evidently at the expense of employment. Due to growing integration of China and India, the competition is likely to be even more intense in future.

Despite this rhetoric about higher education, while most countries aim to provide more and better higher education to largest section, they face a variety of challenges. Not only the developing countries, but even advanced countries are worried about their system of higher education. While, the Europeans lament that their universities are lagging behind those in the United States, the Americans are worried that their academic leadership is threatened by complacency and the rest of world catching up fast. Chinese that expanded their system of higher education from enrolling merely 3.82 million students in 1990 to 23 million in 2006 are now faced with massive problem of graduate unemployment as evident from Box 1 below.

Box 1. China – breakneck expansion in higher education and Graduate Unemployment in

The process for reforms in higher education in China was initiated along with reforms in other sectors of economy in the year 1979. Initially growth in enrolment was slow. In 1992, only 3 percent youth in eligible age group were enrolled in higher education. During the 1990s, the pace of growth increased. It further accelerated during the early years of the third millennium. Now more than 20 percent of the eligible age group is enrolled higher education. The number of university students has doubled since 2000, to 23 million in 2006. Many universities have set up suburban campuses in just six months.

Unanticipated expansion of higher education has resulted in skyrocketing unemployment rate. In 2006, 4.13 million graduates will come out, as compared to 1.15 million in 2001. Many college graduates work as security guards, maids and nannies. In a widely publicized survey released by the China Youth Daily, 35 percent of the youth said that they regretted their university experience and more than half said that they learnt nothing of use. China's National Development and Reform Commission reported that 60 percent of China's upcoming university graduates will be unable to find work. Despite poor labor market outcomes, there is a huge demand for higher education. As many as nine million people sat in the nationwide college entrance exams in 2005. There is a popular saying in China that if you go to university, you regret it for four years and if you don't you regret it for life

Source: Melvin (2006)

Faced with many challenges, the countries often respond by using cookie cutter solution to these problems without realizing that there are many contradictions in higher education. As a result they end up by aggravating the problem. A few examples below show how different countries are facing a variety of concerns. In view of their different contexts, they will have to find their own solutions though insights from experiences of other countries would be useful.

There was a surging demand for higher education in the 1990s in Russia. This was almost fully met by the increased supply of higher education fully paid for by the students or their parents. Today, Russia is the most highly educated society with overall percentage of Russians with higher education qualifications higher than any other developed country in the world. This however has not translated into either economic performance or living standards. The reason is probably low quality of education as well as inefficiency in labor market that prevents proper use of qualified people. With high premium on work experience rather than academic degree in the labor market, many students now work on permanent basis while studying. As Russia becomes a market economy, there is shift from earlier technology focus (primarily defense related) to social fields such law, economics and management.

Within Europe, the higher education systems differ widely and the higher education attainment levels vary amongst the European Countries. This poses a huge challenge to the unification processes in Europe and towards developing a *European Higher Education Area* and integration of their labor markets. With skill biased technological change in Europe, there is clear increase of the demand for college graduates while the supply appears to be growing only slowly (Frans van Vught 2006). In many cases, the deficit will have to be met by getting temporary workers from outside. Many countries in Europe are making changes in their immigration policies to attract skilled workers.

Latin American countries face serious problem of growing unemployment particularly amongst the youth and rising wage inequality between skilled and low-skilled or non-skilled workers. Both the advanced and as well developing countries face similar challenges due to skills-biased technological changes and increased cross-border trade that raises the vulnerability of the low-skilled workers. While advanced countries have increased immigration of low-skilled workers from their neighboring countries, the developing countries find the abundance of low-skilled workers due to rural-urban migration and shift from agriculture to informal services sector. While increased returns to skill-based training appear to be the way forward, however many countries are not able to create capacity for it due to structural problems with their domestic system of higher education and training. The key to better livelihood for their citizens lies in reforms of their higher education and training systems in many countries.

Higher Education and Training Sector

There were 560 million literates in India in 2001 as compared to 359 million literates (excluding J&K) in 1991. As per 2001 Census literacy rate among the population of 7 years and above at the national level was 64.8 percent. Amongst the literates, 6.7 percent were graduates and above and only about 0.7 percent have technical diploma or certificate. Decadal trend in Figure 1 below for the period 1991-2001 show increase in population at all education levels in absolute terms. In percentage terms it is mainly at the higher levels because a large number of people with primary education go on for secondary education and those with secondary education go on for higher secondary

education and so on. The figure shows stocks rather than enrolment levels that may be important to assess growth pattern in terms of education facilities.

Number of people who were graduates and above in 2001 was 37.67 million that is around 6.7 percent of the literate population against 5.7 percent of literate population being graduate and above in 1991. The stock of graduates and above has increased both in absolute as well as percentage terms; although this increase is rather slow.

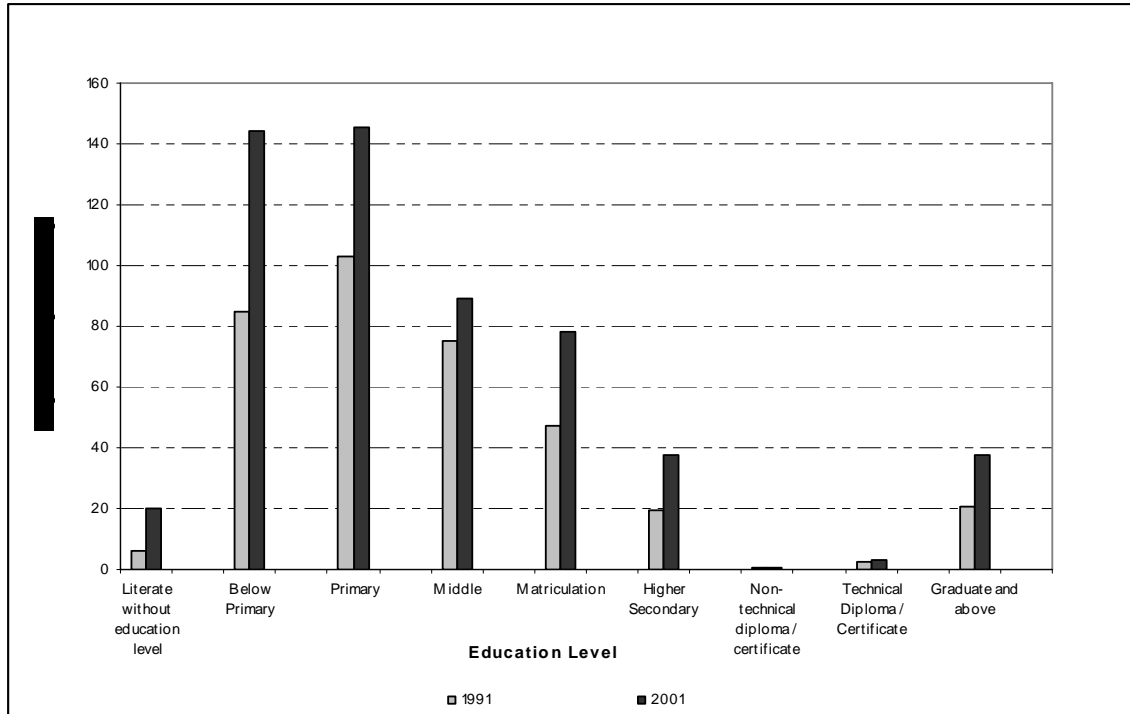


Figure 1: Population by Education Levels, India (1991 and 2001)

Source: Census of India, 2001 and Census of India 1991

Higher education and training sector in India comprises of large university sector and a big and complex non-university sector. It involves both public and private institutions and formal and non-formal activities. In the Indian context the distinction between education and training³ is often blurred. It is therefore necessary to look at the higher education and training sector together to understand as to how this relates to labor market in India. Below we track the growth of higher education and training sector in the country to bring out its salient characteristics particularly those that relate to the emerging labor market for the qualified people in the country.

University Sector

³ Education is an open-ended process leading to the development of mind; involves inputs in the cognitive and affective domains, the specific goal of training is to impart technical skills and usually involves inputs in the psychomotor domain.

From a small system of higher education at the time of independence in 1947, university sector in India has grown large and complex. It comprises of universities of various types and colleges, public as well as private providers, institutions offering general and professional qualifications through conventional and distance education mode. The focus here would be to look at stock of graduates, enrolment and outturn of graduates of various types and pattern of growth with a view to relate it to their employment and labor market outcome.

Stock, Enrolment and Outturn: University sector in India has an enrolment of 10.4 million students with an outturn of 2.65 million each year as noted in Table 1 below. Nearly one third of the undergraduates go on for postgraduate programs or for second degree programs. Total stock of graduates in India is around 51.14 million. The university system comprised of 348 universities and 17,625 affiliated colleges⁴ in 2005. With eighty seven percent of enrolment in affiliated colleges, affiliating system defines the main academic arrangement in the higher education system in the country.

Table 1. Stock, Enrolment and Outturn of Graduates and Above, India, 2005
(in thousand)

Education Level / Subject	Enrolment (2004/05)	Outturn (2004/05)	Stock (2001)	Stock (2005)
Graduate and above	10,430	2,654	37,670	51,140
<i>General Stream</i>	<i>8,556</i> <i>(82.04)</i>	<i>2,095</i> <i>(78.94)</i>	<i>30,015</i> <i>(79.7)</i>	<i>40,490</i> <i>(79.1)</i>
Graduate other than technical degree (B.A., B.Sc. and B. Com.)	7,886	1,760	24,065	32,865
Postgraduate degree other than technical degree (M.A., M.Sc. and M.Com.)	770	335	5,950	7,625
<i>Professional Stream</i>	<i>1744</i> <i>(17.96)</i>	<i>559</i> <i>(21.06)</i>	<i>7,655</i> <i>(20.3)</i>	<i>10,650</i> <i>(20.9)</i>
Management	100	50	800	1,050
Law	319	150	1,800	2,550
Engineering and Technology	754	160	2,588	3,388
Medicine	330	60	769	1,069
Agriculture, dairying and veterinary	77	20	127	227

⁴ While the universities in India have degree granting powers, students from colleges are awarded degree of the respective affiliating universities. There are 131 affiliating universities in the country. Normally, the affiliating universities have their defined territorial jurisdictions. All colleges falling within the jurisdiction of an affiliating university are attached to that university and under its academic control and supervision.

Teaching	154	154	1,548	2,318
Others	10	5	23	48

Source: Compiled by the Author⁵

Graduates in general stream outnumber those with professional qualifications. More than 82 percent of the total enrolment is in arts, science and commerce programs with little occupational focus. Large enrollment in arts, science, and commerce courses does not suggest that the students are addicted to purely academic pursuits. It is simply that they are able to find a place in professional courses for lack of capacity for professional education or they find private professional education expensive.

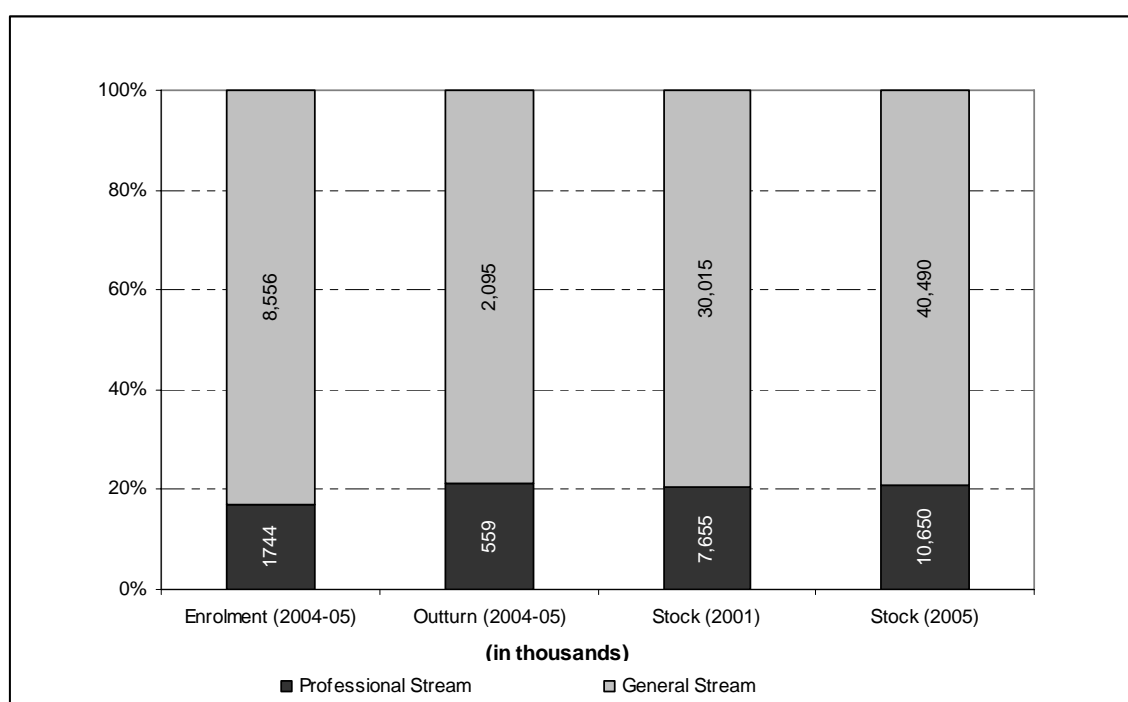


Figure 2: Relative Share of General and Professional stream in Enrolment, Outturn and Stock of Graduates and above

Duration of programs vary with subject and level. Further, more than a million undergraduates go in for post graduate degrees like Master in Business Administration (or equivalent), Master in Computer Applications (MCA) and second degrees like Bachelor of Education or Bachelor of Law (LLB), therefore outturn and stocks rather than enrollments are important in the context of labor markets. Professional higher education has grown faster than before, however the gap is huge and graduates from

⁵ Enrolment for 2004/05 is from Annual Report (2004/05) of the University Grants Commission and the Stock for 2001 is from the 2001 Census of India; Stock (2005) and Outturn 2004/05 are estimated by the Author

general stream would continue to form the bulk of the stock of graduates in the country in the years to come as seen in Figure 2 above.

Apart from numbers, much of the Indian higher education is antiquated. It has not kept pace with the needs of its rapidly growing economy. Universities and colleges use archaic teaching methods and outdated syllabi, and their emphasis on rote-learning produces graduates who know little about their field of study and even less how to relate that knowledge to outside world. Students acquire a degree for its symbolic value. Though some of them get jobs that require generalized skills such as those required in government organizations or teaching, the number of such jobs is dwindling.

Growth Pattern: The foundation of modern higher education in India was laid by the British colonial regime prior to independence in the mid-19th century. Modeled after the University of London, the colonial government established universities with many affiliated colleges. While universities were examining bodies, teaching and learning took place in colleges. With a view to consolidate and maintain their dominance in the country, the British needed clerical staff that was well-versed in English. Therefore English was not only taught as a language but was also the medium of instruction in higher education. The curriculum and contents were biased in favor of languages and the humanities, and against science and technology.

Post- independence, political freedom and rise in democracy resulted in a galloping demand for higher education. Until independence, higher education was the preserve of the elite class. Over the last fifty-five years since 1950, while the country's population increased threefold, higher education enrolment rose 105 times. Possession of some kind higher education has become passport to a decent job. Now higher education has become a norm for the middle class. For those who want to stand out of the crowd, must ensure that their degree is awarded by prestigious university or college. Since there are not many of such institutions, the middle class insecurity has resulted in intense competition for limited seats.

Post-independence and till about 1980, expansion of higher education was with few exceptions was driven by the colonial mentality. Acquiring a degree – or several – became an end in itself. Higher education was neither job-oriented nor research oriented. It was confined to undergraduate programs in arts, science and commerce in the prevailing tradition of liberal education with little connection to the economic and social requirements of society. The notable exceptions were setting up of the Indian Institutes of Technology (IITs) and Regional Engineering Colleges (later renamed as National Institutes of Technology) for engineering education and the Indian Institutes of Management for management education.

IITs and IIMs were set up with the help of foreign guest faculty from advanced countries. These institutions introduced a whole new academic culture. Unfortunately that culture remained confined to them and the academic standards have continued to deteriorate in the rest of the system. Though the number of these elite institutions and the enrolment in them has increased over time, they enroll only a tiny fraction of students.

Occupying the top slot in the hierarchy of higher education institutions in the country, they are extremely selective in admissions. Several hundred thousand students do intense preparations to get through the high stake tests for admission into them. While this may have resulted in sudden spurt of coaching classes, but it spurred competition and self-directed learning and improved the knowledge base for a large pool of students.

By 1980s, the pace of growth of higher education had slowed down to 4 to 5 percent from an earlier 13 to 14 percent per annum during the 1950s and 1960s. Breakneck expansion in higher education in the earlier decades had resulted in severe problem of graduate unemployment. Upward bias in the requirement of highly educated manpower by the Education Commission (1964-66) was challenged (Sen 1970). As a result, the country neither had a rationale nor financial resources to sustain growth of higher education. In 1985, the government proposed a moratorium on the expansion of the conventional pattern of colleges and universities and diversification of courses.

With economic growth there was a demand for higher education relevant to the needs of business and industry in the 1980s. It became evident that there was a huge capacity gap in the provision for professional higher education. Growing middle-class that could afford higher fees made the non-subsidized higher education a viable enterprise. Financial constraints had put a brake on the expansion of the government-funded universities and colleges, even the existing ones faced financial difficulties. Under these circumstances private entrepreneurs (sometimes referred to edu-entrepreneurs) saw an opportunity in the huge and growing unmet demand for professional education. Large number of private unaided institutions emerged initially in the southern and western part of the country and then all over the country. The state reluctantly allowed their entry.

A large number of professional institutions – engineering, medicine, management, teacher education have come up in the private sector over the past two decades. At present, in the professional stream, about eighty per cent of all institutions and enrolments are in the private sector. This brought in dynamism to the hitherto moribund higher education system. Many of these private institutions got degree granting powers either as deemed to be universities or even full-fledged private universities through the state legislatures over the last few years adding a new dimension to growth of higher education in the country.

In overall terms prior to 1980 the growth was primarily in government or government aided institutions, in the post-1980 era the number of public institutions – both government and aided institutions has increased only marginally, the number of private unaided institutions has increased significantly. Nearly thirty per cent enrolment is in private unaided institutions that do not receive any government grant. In future the number of government and private aided universities and colleges is not likely to increase much while the number of private unaided higher education institutions may increase.

During this phase the profile of private initiatives has been noticeably different from that in the past. Only a few private institutions have been set up by genuine religious and charitable trusts of repute for philanthropic purposes. Most others have been

set up by individuals or family groups. These depend primarily on tuition fees and are financially independent. This is not unique to India. According to Altbach (2005), emergence of such family-style higher education institutions is a worldwide phenomenon. In such institutions, the family members remain directly involved in the administration, governance, financial control and direct and / or indirect ownership of the institution. These are de-jure not-for-profit institutions; though most of them in India exhibit several characteristics of the private-for-profit institutions as elsewhere in the world.

It was around 1980s that higher education in India changed tracks from an earlier government-driven growth pattern to growth driven primarily through private initiatives. Private institutions have proliferated over the years. Faced with financial limitations even many public universities and colleges started self-financing courses and distance education programs with occupational focus to cater to this unmet demand.

From the above data that even today a vast majority of academic programs are not equipping the students for the world of work. Notion that learning should take place without reference to the economic and social requirements has been under attack even in the United Kingdom from where India inherited its university system. A white paper on higher education in 1972 noted that “if (these) economic, personal and social aims are to be realized, within the limits of available resources and competing priorities, both the purposes and the nature of higher education...must be critically and realistically examined. The continuously changing relationship between higher education and the subsequent employment should be reflected both in the institutions and in individual choices.” (DES-UK, 1972)

With a view to address similar concerns in India, the National Policy on Education (NPE), 1986 advocated a systematic and a well-planned program of vocational education. This was intended to be a distinct stream intended to prepare students for identified occupations. In pursuance to this, a scheme for vocationalization of education at the university / college level was started in the year 1994-95 by the UGC. This was redesigned in the year 2003-04 to bring in greater flexibility. This now allows students to pursue both their regular programs and utility oriented certificate / diploma courses together. Since inception, 2769 colleges and 39 universities have been provided assistance amounting to Rs.2.44 billion. For want of any systematic study, the effectiveness of this initiative is not known. At the same time, its coverage is small. Overall the impact of this scheme has not been significant.

Skills Development in the Non-university Sector

Outside the formal higher education sector, the country has a large vocational education and training sector. This comprises of institutions imparting diploma level training, Industrial Training Institutes (ITIs) and Industrial Training Centers (ITCs) for craftsmen training and apprenticeship training in the formal sector. In addition, there is scheme of vocational training at the higher secondary school level. For informal sector, there are many initiatives by the government. There is a large and dynamic private

training sector catering to both formal and non-formal sector. Each of them is briefly discussed below.

Supervisory Level Training: Diploma-level courses to meet training needs of manpower for industry at the supervisory level are offered primarily by polytechnics. All India Council of Technical Education (AICTE) approves diploma programs in engineering and architecture, hotel management and catering technology and pharmacy. Currently there are 1,747 AICTE approved diploma programs with 294,370 seats. More than ninety percent of this enrolment is in engineering programs and around eight percent in pharmacy programs.

In the initial years polytechnics were established with government support. Later, when it was found that the courses are popular and many students are willing to pay for them, private sector stepped in and a large number of polytechnics were established in self-financing mode through private initiatives. There were only 332 polytechnics in the country in the year 1980. Now there are more than 1200 polytechnics with more than fifty percent in the private sector.

Though post-2000, the intake continues to increase marginally, number of institutions offering such courses is reducing. This has been result of decreasing demand for diploma courses both from the job-markets due to increased automation and from students, who now had easy access to engineering courses. The fact that due to easy availability of engineering degree-holders, the industry employed engineering graduates in place of diploma holders. As a result of these changes, some polytechnics also got themselves upgraded as engineering colleges. With large capacity in the private (self-financing sector), the capacity for diploma education is adjusting itself to changing students' demand and demand from the job markets.

Craftsman Training Scheme: Certificate level crafts training is imparted through 1,895 Industrial Training Institutes (ITIs) and 3219 Industrial Training Centers (ITCs) with 773,000 places under the Craftsman Training Scheme. While the ITIs with about 415,000 places are financed and managed by the state governments, the ITCs with 358,000 places are financed and managed by private or non-governmental organizations. ITCs constitute 63 percent of the total number of institutions and 46 percent of the seats. Like the private unaided colleges, rapid growth of ITCs has been a post-1980 phenomenon. On an average ITCs have smaller capacity (around 111) compared to ITIs (218). Students between the ages of 14-40 after completing anywhere between Grade 8-12 depending on trade undergo these training programs. These are usually two-year duration with more than 80 percent of them in engineering trades.

Although ITI / ITC certificate holders have relatively better labor market outcomes than Grade 10 and Grade 12 completers, yet more than 60 percent remain unemployed even three years after completion of their course as per study of ITI certificate holders in Karnataka (World bank, 2002). An ILO study in 2002-03 found that ITCs were more efficient than ITIs. Despite poor student: teacher ratio (9.6 in ITCs compared to 5.5 in ITIs), student retention, graduation rate and capacity utilization have

all been better in case of ITCs. The study found that the labor market outcomes of ITI certificate holders were better than that of ITC certificate holders. This could be due to ITIs better screening mechanism for admission of students and also strict grading regime.

Private Training Institutions: Government efforts to provide training have been found to be inadequate. Many private and non-governmental efforts merged to fill in this gap. Too little is known about them to be definitive about their size and activities. They mainly offer short-non-formal, non-standard courses, focusing on a few types of skills and occupations, typically associated with information technology. Based on a survey conducted in 2003, it was estimated that around 0.8-1.0 million students are enrolled in these non-public training institutions. Though some of them are accredited by some government agency or the other, a majority of them are unaccredited. A bulk of these institutions offer training in IT-related and non-engineering trades, such as travel and tourism, hospitality, media and journalism, animation, aviation, event management, fitness consultancy, fashion designing and even clinical research.

The private training institutions adapt quickly to change in demand. This is evident from the way the private IT training and education sector initially grew slowly and very rapidly before its growth again slowing down after 2000. Starting in the year 1980, by 1995/96 this sector generated revenues to the tune of Rs.4.58 billion. Pioneering the franchising route for growth, IT training and education expanded fast and became a popular option for tapping the geographically dispersed demand rapidly. Between 1995/96 and 2000/01, the sector posted a compounded annual growth rate of 41 per cent and stood at Rs.25.94 billion in 2000/01.

Training for the informal sector: With over 90 percent of employment in the informal sector, there has been an obvious thrust for providing training for the workers in this sector. There are many schemes and programs for the same. Polytechnics as an add-on feature training programs offer 3 to 9 month training programs for skill development within communities. These courses are expected to enable transfer of technology to communities, manpower development and rendering of technical and support services. This add-on feature is referred to as community polytechnic. There are 675 community polytechnics training about 450,000 people a year. It is proposed to extend the community polytechnic scheme to all AICTE-accredited polytechnics shortly.

In addition, Ministry of HRD has established 172 Jan Shikshan Sansthan (formerly known as Shramik Vidyapiths) for improving vocational skills and quality of life of neo-literates and unskilled and unemployed youth in both rural and urban areas. During 2004-05, around 1.4 million people participated in the JSS activities. In addition, there are other training programs in the informal such as Training for Rural Youth for Self-Employment (TRYSEM) of the Ministry of Rural Development, Support to Training and Employment of Women of the Department of Women and Child Development. The Khadi and Village Industries Commission (KVIC) runs 51 training centers for various skills at locations in the country.

Skills Development at the School Level

In Indian schools, students choose their “stream” or area of study, after Grade 10 grade. In Grade 11 and 12, students take subjects only in their chosen fields. This continues in college as well. Decision to specialize is taken at the age of 15 or 16 determines a student's life.

A centrally sponsored scheme of vocationalization of secondary education for offering vocational courses in school grades 11 and 12 is being implemented in the country from 1988. Its purpose is to “enhance individual employability, reduce mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education without particular interest and purpose.” Targeted to ensure that 25 percent of all higher secondary students are enrolled in vocational courses by the year 2000, total enrolment is less than three percent. With a capacity utilization of only about 42 percent and capacity of about 846,100 places in vocational courses, only about 350,000 to 400,000 students are enrolled in vocational education. In 2006, 21,000 sections in 9583 schools catering to 1 million students were reported. An amount of Rs.7580 million is supposed to have been released for purpose.

Usually students who perform poorly in the Grade 10 examination join the vocational stream. With limited options to proceed onto higher education, most students take vocational courses as an option of last resort. A study by Operations Research Group (ORG) in 1998 reported that only 28% of the pass-outs of the vocational stream were gainfully employed and 38.3% were pursuing higher studies. Apart from basic problem of not being able to attract good students due to poor image of vocational stream, there are concerns about inadequate numbers of trained teachers and training materials to deliver the vast majority of courses. Instructional materials have been developed for only a quarter of the courses supposedly available. Despite poor outcomes, government appears to be keen on expanding vocational education at the grade 11 and 12 level. This thrust is quite obvious considering that the enrolments in vocational education in India seem to be small judged by international standards and there is rising problem of graduate unemployment. Trends in many countries are however towards increasing generalization of vocational curricula and integrating technical / vocational tracks in general education content. By blurring the boundaries between general and vocational stream, many countries are addressing the “image problem” with vocational courses.

In addition, National Institute of Open Schooling (NIOS) has accredited 731 training providers to deliver vocational education to youth likely to work in the informal sector.

Apprenticeship Training: Apprenticeship Training is regulated under the Statutory Apprenticeship Training Scheme (SATS). Ministry of HRD is responsible for apprenticeship training of degree / diploma holder engineers and those with vocational education. DGET is responsible for ITI / ITC trained persons or equivalent. Training lasts from 6 months to 4 years depending on the trade. The skill levels go from craftsmen to engineers, and the occupations include those in agriculture, business, commerce, health and paramedical, home science, humanities, and engineering. Although SATS covers 254 industries and 140 trades, there were only 158,000 registered apprentices in 2001. Three fourth of them were from the ITIs/ITCs, and only a fourth were degree or diploma engineers or people from vocational education stream. Major occupational grouping

under this scheme has been engineering. DGET reports apprenticeship training through 20,700 establishments in 153 designated trades with over 254,000 seats in 2006.

Despite regulation requiring public and private sector employers in designated industries to engage apprentices to set ratios of apprentices to workers for prescribed trades, there has been major shortfall. Out of total 17,900 establishments, only 1,900 private establishments (against around 25,000 private establishments registered under the Employees Provident Fund) were registered for the Apprenticeship scheme in 2001, others were essentially government agencies and enterprises.

Community Colleges: An interesting development in recent years has been setting up of community colleges primarily through non-governmental initiatives in the country. More than 150 community colleges mainly concentrated in South India have been set up over the last decade. These colleges have flexible entry norms and prior formal academic qualification is not essential. But for a few, all of them are non-governmental initiatives. The curriculum comprises of 21 weeks each of life skills and work skills with eight weeks of internship and hands-on training and 2 weeks of preparation for employment and evaluation. With more than 75 per cent students finding employment on passing out, it is a resounding success and needs replication and support.

Box 2. Community Colleges in the United States and Canada

United States and Canada have their unique system of community colleges that fulfils certification needs for vocations and skills required in communities. Anyone regardless of prior academic status or college entrance exam score is allowed to join a community college. Community colleges are as popular with students attending high school (who can enroll under concurrent enrollment policy), as with working adults (who attend classes at night to complete their degree or gain additional skills in their field). These not only provide a cheaper option than the expansive higher education, but provide pathways for entry to a regular four-year college. Research shows that students who begin their higher education with a community college are more likely to transfer to better quality four-year institution. Low fees, focus on vocational skills with easy transfer to regular higher education programs makes community colleges a preferred option particularly for students with mediocre academic records. In the United States, low-cost community colleges focus on vocational skills with open admission policy on one side and highly selective and very expensive research universities on the other are a part of an integrated and coherent higher education system. This system provides for high degree vertical and horizontal mobility and has a lot of flexibility and variety.

Source: Author based on literature survey

In all the non-university sector now huge and plays an important role in skills development in the country. A major proportion of this is financed by students and their parents. It responds more directly and usually more effectively to the needs of industry and the labor market. With the gap between training and education getting narrower, this is the eroding of the traditional monopoly that universities have enjoyed in providing training and granting credentials with good currency in the job markets.

Salient Characteristics

From the empirical mapping of the structure and growth pattern of the higher education and training sector in India it is clear that the country has a large and complex system. There are many government agencies often resulting in duplication of efforts. A bulk of funding comes from the state governments. Public funding arrangements are ad hoc and funding model is largely ineffective. Though unit costs have risen, but expenditure on critical inputs has decreased. Usually the public institutions are underfunded and face problem of deteriorating infrastructure and facilities, large vacancies and falling standards.

Growth trends show that while the number and enrolment in public institutions have ceased to grow, number of private institutions has been steadily rising both in the university and the non-university sector. Incidentally the advent of private sector is not the result of an official policy. Private sector looked at the market opportunity and emerged to meet the unmet and rising demand for education and training with occupational focus required in the job market.

In course of the private sector growth some private providers indulged in exploitative practices. The government responded to it by putting in place a burdensome regulatory arrangement. While, due to poor compliance many private providers continue to be exploitative, regulations have erected entry barriers for new providers and prevented the existing providers from being creative to meet growing and diverse need for skills in the country. Coverage of accreditation system is poor and without much consequence, it has failed to create incentives for improving quality of the system.

There are serious concerns about the relevance of higher education imparted in the country. With large enrolments in liberal arts and humanities, there is a mismatch between the available capacity and the skill requirements. Quality higher education sector remains tiny and perceived as a major bottleneck. Although the competition spurred by tough entry requirement into these institutions has raising the overall standards of large population with positive outcomes.

Each segment of higher education and training — public, private, formal and informal — has grown oblivious of the other. There are no pathways. Vocational education and training suffers from image-problem. Rather than aptitude, it is the academic performance that segregates those who opt for higher education from those who are forced into vocational stream. Not only capacities are limited, the quality and relevance of vocational education and training and its relevance are major bottlenecks.

Over the years public policy on higher education and training has been driven in different directions. A well-thought out strategy is not visible. Meanwhile the system has continued to grow in a chaotic and unplanned manner. Higher education and training system in India faces the challenge of improving its quality and enhancing access while maintaining equity. It has to find creative ways to do so realizing the limitations of public funds due to pressing demands for resources from other sectors of economy.

Labor Market: Structure and Trends

Status and dynamics of the labor market for the educated people in India has to be viewed within the context of the overall employment pattern and labor market trends in the country. Employment pattern has to be viewed in terms of the shift taking place between the economic sectors and formal and non-formal sector of economy. The education and skill profile of the workforce and labor market trends have to be analyzed.

Employment Pattern

A vast majority of workforce is engaged in agriculture and allied activities marked with low productivity levels. Low levels of productivity and low wages dominate even in the non-agricultural activities. Nearly ninety percent of the workforce is in the informal sector most of them in poor working environment. Despite changes in economic structure over the years, the employment pattern has been resistant to change.

Employment Pattern by Economic Sectors: As per Census 2001, 61.6 percent of all workers were engaged in agriculture, 17.2 percent in industry and 21.12 percent in services sectors. Data on workers as per industrial category as per 1991 and 2001 Census is given in Table 2 below. Census 2001 had recorded 402 million workers. This comprised of 313 million main workers and 89 million marginal workers and 626 million non-workers⁶. The workers included 127 million cultivators and 106 million agricultural laborers. Decade 1991-2001 saw a decrease in the number of main workers in agriculture with a significant increase in the number of marginal workers. Agriculture sector that did not grow at the same pace as growth resulted in division of the available job opportunities causing marginalization of workforce in agriculture. The non-agricultural sectors (except mining and quarrying) saw growth in absolute as well as percentage terms and in both the main and marginal workers as seen in Figure 3 below. This suggests a shift in occupational pattern from agriculture to other sectors in the country, but the shift has not been significant.

India has followed a non-traditional pattern of development. This is evident from two facts. One - in recent years, growth in services has preceded growth in manufacturing and there is growth in skill intensive rather than labor-intensive manufacturing within manufacturing sector. Two - share of services in employment has grown much slower than its share in GDP. Services that account for over 57 percent of GDP now, contribute only about 28 percent of the employment. Many people have raised doubts about sustainability of this growth pattern. These doubts have been put to rest by Handsa (2001), when on detailed analysis he concluded that services sector with its backward and forward linkages would induce growth in manufacturing and improve its productivity. It also pointed out that within the services, fast growth is confined to communication and business services sectors that absorb less labor compared to labor intensive construction and transport sectors resulted in relatively jobless growth (Banga 2005).

⁶ Non-workers broadly constitute students not participating in paid or unpaid work, persons engaged in household chores, persons not even helping unpaid work in family cultivation etc., dependents – infants and elderly people, pensioners, beggars, vagrants, prostitutes, persons living on remittances and rent etc.

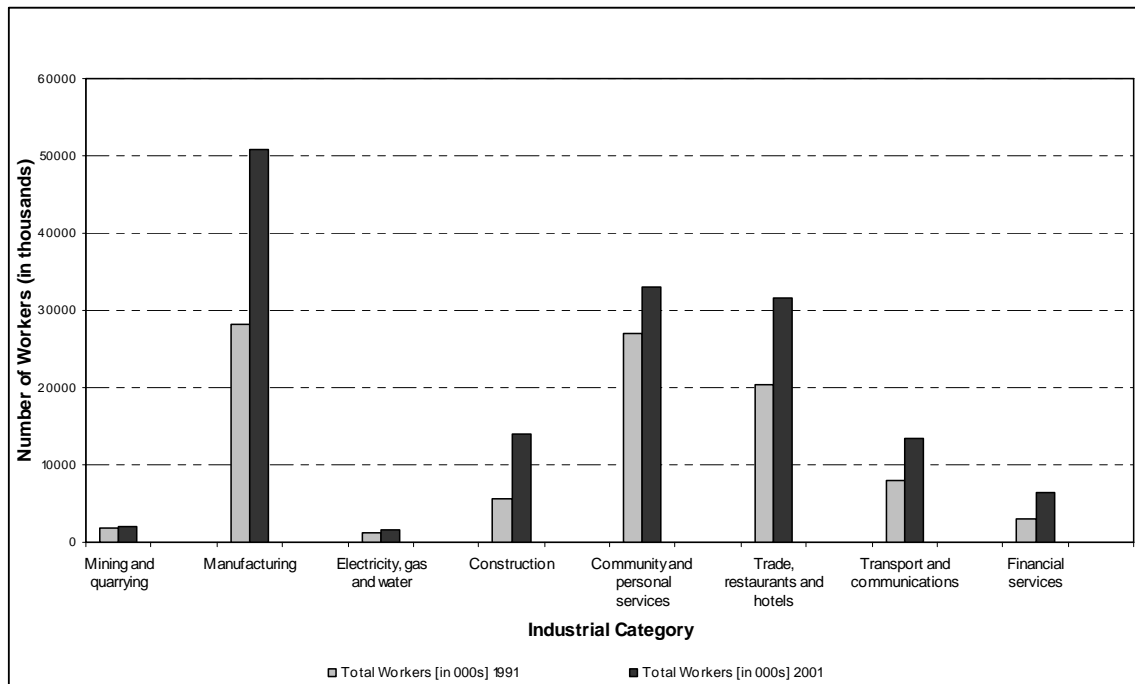


Figure 3: Total Workers in 1991 and 2001 as per Industrial Category

Source: Compiled by the Author based on Census of India, 2001

In the face of this atypical growth pattern, India is confronted with the problem of employing a growing unskilled labor force and managing increased wage disparity. Kochhar et.al.(2005) analyzed these challenges and suggested that policies to boost the supply of skilled labor would be essential not only to further consolidate gains but also to attract investment in labor-intensive activities in order to reduce income gaps. Availability of skilled manpower both for its growing services sector and skill-intensive manufacturing sector would continue to be important as also to attract investment in labor-intensive activities. This makes a case for enlargement of the higher education and training sector in the country.

Employment Pattern by Formal and Informal Sector: Whereas, the informal sector in India contributes 59 percent of the GDP, it employs 92 percent of the total workforce. In contrast, only seven percent of the workforce is employed in the formal sector that contributes to 41 percent of the GDP. The informal sector in India comprises of small, non-capital intensive enterprises run by self-employed persons often with family support and/or employing a few temporary, hired workers. This also includes casual wage-workers, contract laborers and piece-rated home-workers constituting a large, fluid labor market. According to a NCEAR study, around 30 percent of the workforce in the informal sector is in the home-based segment comprising of mostly invisible workers. It needs to be noted that skill acquisition in the informal sector is substantially hereditary or through apprenticeship with master craftsmen. According to Economic Census (1998), 94.20% of the enterprises in the Indian economy employ between 1 to 5 persons.

Within the formal sector, seventy percent of this employment is in the public sector. Due to capital deepening and technology adoption, employment elasticity of organized sector has been very low at 0.066 during 1993-94 to 1999-2000, whereas it has been 0.213 for the informal sector. Because of its very small base and major portion of this being in the public sector, prospects of organized sector of employment emerging as a major employer even in a 20-year perspective in India are bleak. In fact, employment in public sector and government has been stagnating since 1994.

Under competitive pressure due to market globalization and consequent rationalization and retrenchment, there is sub-contracting, outsourcing and casualization of work. Though the 60th round of the National Sample Survey shows that there is a recovery in share of self-employed workers and decline in casual workers yet the shift is not large. Though quality of jobs is an issue because regular jobs are not being created, yet the top cohort of self-employed workers matches the working conditions of regular workers.

In all, while tracking the evolution of labor market conditions in India, it is seen that more jobs are being created, but these are not necessarily better jobs. With acceleration in growth, there are signs of picking up in employment. The size of the informal economy is growing rapidly due to steady labor accruals. This is accompanied with decline in real wages in some sub-sectors leading to marginalization. The trends reflect the bleak employment scenario in the country; though a recent World Bank report suggests that labor market outcomes in the 1990s have been better than commonly perceived. Wages and labor productivity grew faster, workforce have been deployed more efficiently (World Bank 2006).

Education and Skill Profile of Workforce

The educational and skill profile of existing workforce in India is very poor and primarily responsible for its low productivity. Though enrolments in academic institutions are significant, more than 90 percent in primary classes, around 60 percent in middle classes, more than 30 percent in higher secondary and above 10 percent in higher education, yet percentage of people having marketable skills is woefully low. As per National Sample Survey on employment and unemployment (1993-94), only 10.1 percent of male workers and 6.3 percent of female workers possessed specific marketable skills. The percentages were marginally higher in urban areas.

The levels of vocational skills of labor force in India compare poorly with other countries. Only 5 percent of the Indian labor force in the age group 20-24 had vocational training compared to 96 percent in Korea and varying between 60-80 percent in industrial countries. This points out to the fact that education system in India is excessively oriented towards general academic education with little or no vocational orientation.

Work participation rates by levels of education in Figure 4 shows that participation rate increases with the level of education. At the same time non-workers seeking work or available for work also increases by level of education. More graduates

and people with technical diploma or certificates are seeking or available for work than those with below matric qualifications.

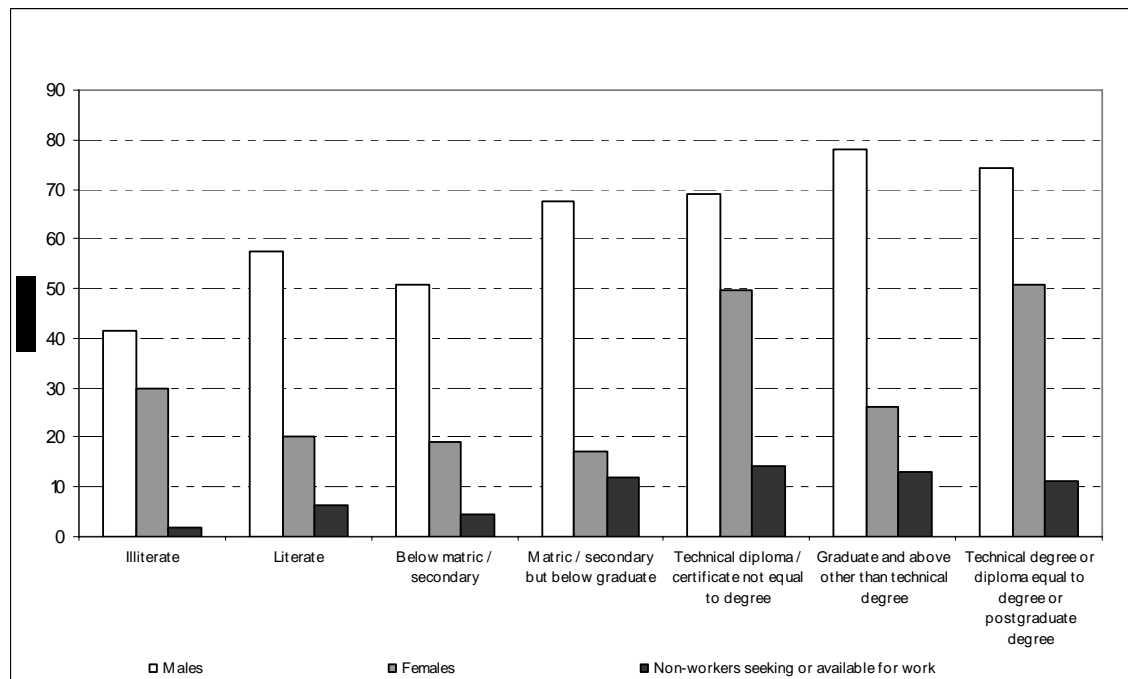


Figure 4: Work participation rate and proportion of non-workers seeking / available for work by level of education, India-2001

Source: Census of India

It is seen in Table 2 that from amongst the graduates, a large majority (41.2 percent) are working in the community and personal services sector. This includes government, defense, education, and health services. More than thirty percent of the main workers in this sector have graduate degree or above. In manufacturing sector only about 10 percent of workers are graduate and above. This is not surprising since 16.9 million (out of 41.6 million) workers in manufacturing are in the household industries and large proportion of jobs in manufacturing in India do not require higher education qualifications. Nearly half of the workers in financial services sector that includes insurance, real estates and business services and also scientific and research services are graduates or above. In Agriculture & allied activities sector, 166 million main workers are either agricultural laborers or cultivators with small farm holding and subsistence agriculture most of the do not require higher education qualifications. These have not been included in the table below. From amongst 9.7 million other workers in this sector, only 3 percent are graduates and above.

Table 2. Graduate and above main workers classified by Industrial category, India, 2001

(in million)

Industrial category	Main workers	Graduates &	Percent of total
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		above <i>(as percent of main workers)</i>	graduate and above workers
Community and personal services	30.3	9.7 (32.0)	41.2
Manufacturing	41.6	4.3 (10.3)	18.1
Trade and restaurants and hotels	29.1	3.7 (12.6)	15.8
Financing services	6.1	2.9 (47.5)	12.3
Transport and communications	12.5	1.3 (10.4)	5.5
Construction	11.5	0.7 (6.0)	2.9
Agriculture & allied activities	9.9	0.5 (3.0)	2.2
Electricity, gas and water	1.5	0.3 (19.0)	1.3
Mining and quarrying	1.9	0.2 (8.0)	2.2
Total	144.4	23.6	100.0

Source: Census of India (2001)

Comparing higher education enrolments with skill distribution in the labor force and share of labor in the three major economic sector, namely agriculture, industry and services in Table 3 below, one finds that advanced countries have large share of labor force in services sector with some in industry and very little in the agriculture. In contrast, developing countries usually would have large share of labor force in agriculture sector with the balance distributed evenly between the industry and the services sector. Similarly advanced countries have skilled labor. Gross enrolment ratio in higher education is usually the double that of proportion of skilled proportion. Obviously even in advanced there are concerns related to overeducation as also about the underemployment of graduates.

Though usually no one questions provision for more and better education for all, however there are occasional voices of dissent to government policies of increasing higher education enrolments. Wolf (2002) criticized the policy of increasing enrolments in higher education in the United Kingdom pointing out that that expansion of the enrolment cannot become an end in itself. She argued that such thoughtless expansion degrades the overall quality and would undermine the real economic value of education. Studies in the United States have shown that the key skills —such as numeracy and literacy, and cognitive skills of reasoning and problem solving that are important — are acquired much earlier than entry to higher education; therefore it raises questions value addition due to higher education (Pryor and Schaffer 1999).

Table 3: GER, skill distribution and labour share

(For the year 2002-2003 or most recent year available)

GER - gross enrolment ratio

Country	GER in HE	Skill distribution of labour force			Labour share in economic sectors in 2000-2004		
		Agriculture labour	Unskilled labour	Skilled labour	Agri-culture	Indus-try	Services
USA	83	2.0	63.7	34.3	2.5	21.6	75.9
China	15	43.6	48.9	7.5	44.1	17.7	16.1
Japan	52	3.8	79.0	17.2	4.7	29.7	64.8
India	11	59.2	35.4	5.4	59.0	17.2	23.8
Germany	50	n. a.	n. a.	n. a.	2.5	32.5	64.9
UK	64	4.1	69.0	26.9	1.4	24.1	74.2
Italy	59	n. a.	n. a.	n. a.	5.1	32.1	62.8
Brazil	20	16.1	73.1	10.8	19.8	21.6	58.4
Russia	65	14.3	61.6	24.0	10.7	29.7	59.6
Canada	57	n. a.	n. a.	n. a.	2.8	22.8	74.4
Korea	89	n. a.	n. a.	n. a.	9.3	27.3	63.3
Indonesia	16	47.7	48.2	4.1	44.3	14.1	41.6

n. a. = not available

Source: GER data from UNESCO Institute for Statistics; Labour data (by skill distribution) from LABORSTA Database, International Labour Organization (ILO), <http://laborsta.ilo.org>. Labour share in economic sectors data from WDI (2006); Data on Labour share in economic sectors on India from Table 5.

Analysis of cross-national data by Pritchett (2001) seems to suggest that there is no association between increases in human capital attributable to the rising educational attainment of the labor force and the rate of growth of output per worker. Pritchett provides three possible explanations for the same. First, he points out that the institutional/governance environment could have been sufficiently perverse that the accumulation of educational capital lowered economic growth. Second, marginal returns to education could have fallen rapidly as the supply of educated labor expanded while demand remained stagnant. Third, educational quality could have been so low that years of schooling created no human capital.

In final analysis, one could conclude that needing a sufficient number of highly skilled and highly educated individuals is not same as needing an infinite number. Secondly, it must be ensured that quantity is not substituted for quality. Expansion that might result in deterioration of quality might in fact result in negative result in economic growth. Expansion of higher education could however be desirable from a social point.

Labor Market Trends

About 75 percent of the labor force is located in the rural areas with a vast majority of the same engaged in the low productivity agriculture sector. Many other jobs also have low productivity levels and low pay; 102 million (25 percent of the total) are low earning jobs. Ninety percent of the prime aged workers were in the informal sector jobs in 2004. Female labor force accounted for 114.2 million. Wage inequality has

increased in India with real wages have grown rapidly in the top two deciles between 1983 and 1999/2000 (World Bank, 2006b).

Though male participation rates are roughly comparable with other countries, and female participation rates at about 30 percent in India are low and flat or declining over time. In India, women are usually responsible for household activities (not classified as economic activities) and men work outside. Between 1993/94 to 1999/2000, rate of employment growth has slowed down from 2.1 percent to 1.6 percent per annum and is below the growth of labor supply which is around 2 percent per annum. During the 1990s, there has been a shift from low productivity sectors earlier to middle productivity sectors such as financial and business services category. After 2000, there appears to have been a surge in employment in IT and IT enabled services sector.

It is seen that overall share of manufacturing in employment has not changed over the past two decades. Generous depreciation rate of 25 percent for investment in machinery and equipment for tax purposes and rigid labor laws encourages firms to be capita intensive. Employment within manufacturing and services sector show signs of dualism, with most jobs clustered at low productivity end and some growth taking place at high productivity ends.

Indian manufacturing is marked by the concentration in very large scale and very small scale firms, leading to the problem of missing middle. International experience shows that this missing middle is the most dynamic in employment generation and entrepreneurship generation. As per NSSO 56th round and the Annual Survey of Industries, while in the year 2000-01 the gross value added by the organized sector is 75.24 percent, it employed only 13.85 percent of the workforce.

Within the services sector growth has been in financial and business services sector (primarily in the IT and IT enabled services) creating high skilled jobs with high productivity level. Jobs have also been created in trade and transport and hotels and restaurants sectors marked with low productivity levels.

In terms of quality of jobs, the status has been bleak. In the Indian context, the debate on quality of jobs centers on formal organized sector employment. The estimates of employment in organized sector vary widely. The Directorate General of Employment and Training (DGET) collects data on employment in the public sector or in non-agricultural establishments employing more than 10 workers as organized sector employment. According to these estimates formal sector constitutes merely 7 percent of the total workforce. Other estimates put the figure somewhere between 11 and 14 percent. DGET data in Table 4 below shows that employment in organized sector has remained stagnant since 1990. There has in fact been a fall in public sector employment since 2000, while employment in the organized private sector has marginally increased recent year.

Table 4: Employment in Public and Organized Private Sectors and Number of Persons on Live Register

(In millions)

Year	Employment in the organized sector (end-March)			Number of persons on the live register (end-December)
	Total	Public sector	Private sector	
1970-71	17.83	11.10	6.73	5.10
1980-81	22.88	15.48	7.40	17.84
1990-91	26.74	19.06	7.68	36.30
2000-01	27.79	19.14	8.65	42.00
2001-02	27.20	18.77	8.43	41.17
2002-03	27.00	18.58	8.42	41.39
2003-04	26.45	18.20	8.25	40.46
2004-05	26.19	17.71	8.48	39.35

Source: Directorate General of Employment and Training, Ministry of Labor, Government of India. Handbook of Statistics on the Indian Economy, Reserve Bank of India, 2004-05 and 2005-06

Despite declining opportunities for jobs in the organized sector, a large number of people register with the employment exchanges in the country. As on December 31, 2005, around 39.3 million persons were registered in 939 employment exchanges and waiting for jobs. Though the numbers of vacancies notified vary between 220,000 – 420,000 over the past few years (placement is even lower at 138,000 in 2004 and 173,000 in 2005), around 5-5.5 million job seekers on an average register with employment exchanges in the country each year. More than eighty percent of job seekers (4.2 million) during 2004-05 were educated that is having passed Grade 10 pass or more.

Of the total number of job seekers at the end of 2004, 72.3 percent were educated. This was an increase from 67.5 percent at the end of 1995. This suggests that over the years jobseekers are becoming more educated. Seen in Table 5 below, at the end of 2004 more than half (56.2 percent) of the job seekers were Grade 10 pass and as much as 17.9 percent of them were graduates. Seventy percent job seekers are young below the age of 29 years. Majority of the job seekers (72.5 percent) were in the category of workers not classified by any occupation. This suggests that majority of job seekers are inexperienced, freshers and do not possess skills to qualify them into any category of occupation Table 6 below gives break up these job seekers according to educational levels.

Table 5: Educated Job-Seekers on Live Register (As on 31.12.2004)

Educational Level	Number of Live Register (,000)	Percent to total educated
Total - Educated	29,263.2	100.0
<i>Grade 10 Pass</i>	<i>16442.6</i>	<i>56.2</i>
<i>Grade 12 Pass</i>	<i>7568.1</i>	<i>25.9</i>
<i>Graduates and Postgraduates</i>	<i>5252.5</i>	<i>17.9</i>

- Arts	2124.7	40.5
- Science	983.7	18.7
- Commerce	769.0	14.7
- Engineering	216.0	4.1
- Medicine	47.5	0.9
- Veterinary	6.9	0.1
- Agriculture	35.9	0.7
- Law	21.2	0.4
- Education	794.3	15.1
- Others	253.2	4.8

Source: *Employment Exchange Statistics (2006)*, Directorate General of Employment and Training (DGET), Govt. of India

In overall terms India has a huge problem of unemployment and underemployment. Measuring unemployment rate is however a tricky issue. Going by workers' principal status (UPS) definition, the number of unemployed persons in India steadily increased from around 7.78 million in 1983 to 10.6 million in 1999-2000 placing the unemployment rate at around 2.8 percent. This definition counts only those people who spend more than 6 months of the year looking for or being available for work.

Other approaches to measure unemployment based the current weekly status (CWS, which corresponds to the international definition of unemployment) and current daily status both underemployment and short term unemployment can be measured better. By CWS definition, unemployment rate in India is about 5 percent in 2004 and by CDS unemployment rate was 9 percent in 2004. Further, under employment is estimated to be as high as 13 percent on average for all workers and 25 percent for casual workers.

In absence of reliable set of data and due to differences in definitions across countries, international comparisons of unemployment rates are often difficult. Based on data from the World Factbook, unemployment rate for some important countries has been compiled in Table 6. It is seen that open unemployment rate at 9.2 percent for India is comparable to that in the European Union (9.5 percent) and China (9.8 percent). Like India, there is a substantial underemployment in China which is estimated at 20 percent in 2003. While the countries in East Asia -Vietnam, Malaysia, Thailand and South Korea have low unemployment rate, the advanced countries such as Germany and Spain have high rates of unemployment.

Table 6. Unemployment Rates – Various Countries (2004 or 2005)

Range (%)	Countries (rate in %)
Below 5	Thailand (1.5); Vietnam (1.9); Cuba (2.5); Malaysia (3.0); South Korea (3.6); United States (4.4)
5-10	United Kingdom (5.5); Canada (6.1); Russia (7.5); Sri Lanka (7.8); Pakistan (8.3); Chile (8.5); Indonesia (9.2); India (9.2) ; European Union (9.5); China* (9.8)

10-20	Spain (10.5); Germany (10.6); Argentina(10.4); Egypt (10.9); Brazil (11.5); Philippines (11.7)
Above 20	Iraq (25.0); South Africa (26.2); Libya (30.0); Bangladesh (40.0); Nepal (47.0);

Source: *The World Factbook*

In India education and unemployment as well as underemployment are positively related. Unemployment is lowest among the illiterates, but rose progressively with education as seen in Table 7 below. Those with more than 12 years of education that is the graduates have the highest rate of unemployment and underemployment. There is also evidence to suggest that persons with technical qualifications have the highest unemployment rate suggesting a mismatch between the labor market requirement and the training provided (Mathur and Marngain 2004).

Table 7. Unemployment (UPS) and level of education (in per cent)

Years of education	Rate of unemployment			Distribution of underemployment		
	Male	Female	All	Male	Female	All
0	0.4	0.1	0.3	5.1	3.8	4.8
1-5	1.7	1.3	1.6	15.2	7.7	13.3
6-8	3.7	4.9	3.8	21.5	11.5	19.0
9-10	5.4	15.8	6.5	21.5	23.1	21.9
11-12	7.6	21.1	9.1	15.2	15.4	15.2
More than 12	8.5	27.0	11.3	21.5	38.5	25.8

Source: Reproduced from Ghosh, 2004 (Based on Data from NSSO-2000) [Unemployed are persons, aged 5 years or more, who are unemployed according to usual principal status.]

Graduate Unemployment: In light of the above, it is not surprising that the unemployment rate of graduates at 17.2 percent is significantly higher than the overall rate of unemployment in the country. Nearly 40 percent of the graduates are not productively employed. Of the total unemployed population of 44.5 million, unemployed graduates are 4.8 million (Census of India, 2001). This number is now estimated at 5.3 million. A positive co-relation has been seen between unemployment and the level of education. Ghose (2004) pointed out the fact that the young people with some education would not want to engage in low-productivity, low-income work in the informal sector. They want non-manual work, preferably in the organized sector. The very fact that they have some education also means that their families have some capacity to support them. Visaria (1998) noted that many of the unemployed have rather poor qualifications in terms of their performance at the examinations and have little aptitude or the capacity for the type of work they aspire for. Many of the unemployed are also perceived as unemployable by the industry.

Earlier in 1987, Carnoy in a review of three studies conducted in various parts of India showed that students in India attend university primarily to get better jobs, and an important reason given for choosing a particular subject studied is its career potential (Carnoy, 1987). This demonstrates that students would generally give more weightage to employability; though many people from the academia like to believe that education is completely autonomous from economic forces and should remain oblivious of the

changes taking place in the economy. The students generally base their choice of subject to study on how it will contribute to their future employment opportunities rather than on what was intrinsically interesting.

The review by Carnoy (1987) further shows that the graduates from the arts faculty had highest unemployment rate, followed by science and commerce. Those who got jobs with degree in arts worked as clerks / typists. Higher percentage of women graduated in arts and they were often disinclined to enter the job market. Compared to this, students graduating in education, engineering, law, or medicine had better employment prospects. Such students with professional qualifications were often from higher socio-economic background.

Earlier, a classic study by Blaug et al (1969) showed that higher education in India expanded despite high levels of graduate unemployment among graduates, long-waiting times for first jobs, and the first jobs when obtained are not much more than that of high-level clerks. This in part is due to even higher unemployment of persons with secondary education qualifications and charging of low fees by public universities in India.

As a result of high unemployment, it is seen that many graduates in India tend to accept lower paid jobs incompatible with their qualifications. The jobs tend to get undervalued while the fat salaries enjoyed by a few tend to get highlighted and the plight of the vast numbers who remain jobless for long periods after graduation goes unnoticed. This fact suggests that education cannot be considered as panacea to unemployment. Though education can improve the chances of individuals in hard competition for available jobs, but cannot be seen to create jobs.

India's Formidable Employment Challenges

On analysis of the occupational structure in India, education and skill profile of the workforce, labor market trends and problems of graduate unemployment, it is clear that India faces formidable employment challenges. The country has to provide jobs for the 8 million new workers expected to enter labor force annually over the next decade and increase the earnings of currently more than 100 million workers who live in poverty. In addition, gender, caste, regional disparities have to be addressed.

A majority of the unemployed youth consists of persons with no prior work experience. They are new entrants into the workforce. The high rates of youth unemployment have probably contributed to the rise in the proportion of youth aspiring to go for higher education. A large proportion of higher education does not provide employability skills and those that provide are of poor quality.

Reforms are needed in labor laws and active labor market policies are required to deliver better outcomes. Regulatory reforms are needed to accelerate job growth. There is evidence that regulations are costly and hurt workers. It is estimated that 30 percent to 40 percent in formal manufacturing jobs are getting lost due to rigidity in labor market regulations. Increase effectiveness of active labor market policies by providing protection and insurance in the informal sector and enhancing skills

New Employment Opportunities

Over the past few years, India has seen a healthy economic growth. India is emerging as the fourth largest market in the world with its GDP measured on the scale of purchasing point parity. Often referred to as “sleeping giant”, development in India has been its move from a “working power” based on supply of low-cost labor to a brain power comprising of skilled and educated workforce.

The country has strong macro-economic fundamentals. The economists are now trying to find out the microeconomic phenomenon that is driving this change. With growing middle class with increasing aspirations, large consumption due to easy access to finance, powerful media and strong judiciary, somewhat muddled up democracy, Indian society is witnessing small order behavioral changes. These changes aggregated and over a period of time results in big and fundamental change.

India is currently witnessing a virtuous cycle of growth. In the virtuous cycle of growth as Freidman (2005 p378) points out as the countries “begin to produce enough food for people to leave the land, the excess labor gets trained and educated, it begins working in services and industry; they leads to innovation and better education and universities, freer market, economic growth and development, better infrastructure, fewer diseases, and slower population growth. It is that dynamic that is going on in parts of urban India, enabling people to compete on a level playing field and attracting large investments”.

This has dramatically changed the face of employment opportunities in India. Till about mid-1980s, it was employers’ market. There was little job-hopping; engineers, doctors and civil services were most coveted. After that, till about 1995, job opportunities expanded as multinational corporations came in; MBA became a middle-class dream degree. Between 1995 and 2000, there was a boom in the services sector; manufacturing shed jobs and the multinational corporations continued to be big hirers. After 2000, manufacturing has rebounded; exports are doing well and the services sector is continuing to boom. There is now a scramble for qualified people. A leading news weekly-India Today- in its cover story on March 7, 2005 identified ‘Top 10’ emerging job opportunities in India. These were - hospitality, biotech, education and training, animation, aviation, event management, research and development, fitness consultancy, fashion designing and the NGO sector.

A recent CII Employment Potential Study for 36 sectors that an additional 2.5 million jobs would be created the automotive sector, while the financial sector could employ another 1.1 million people. The construction industry could employ 9.9 million more people, whereas the defense equipment sector sees the possibility of generating only 160,000 jobs. Employment potential in banking & financial services sector is 1.1 million jobs. Other important sectors where high employment is possible are oil & gas (2.3 million), gems & jewellery (3.16 million), healthcare (6.1 million), horticulture (2.6 million), khadi (1.9 million), media & entertainment (1.0 million), retail (9 million),

tobacco & tobacco products (6.4 million), tourism (19.6 million), railways (1.9 million), state transport undertakings (2.3 million), and food (2.1 million). The Study makes a case for major initiatives to provide skilled manpower in these sectors failing which future growth may not be constrained.

Integration of labor markets globally accompanied with technological changes offer an opportunity to India. The demographic differentials provide a distinct advantage to India due to the young profile of its workforce. Report of a High Level Strategic Group in 2003 that by 2020 India could possibly generate (direct or indirect) job opportunities for 10-24 million people by providing an increasing array of services to advanced countries that currently face skill shortages. An additional 10-48 million jobs could be created by servicing overseas consumers of services such as medical, tourism and education (AIMA 2003). The emerging global occupational structure offers an opportunity for India to provide workforce for the knowledge economy beyond the national borders.

Further, India also has opportunity by sending its people for work abroad. For a country like India with large population and huge capacity to generate skilled professionals at home and by education abroad, out-migration of professionals is now seen as *an opportunity* and not a threat (Bhagwati 2004). It is seen that advanced countries have a big appetite for skilled professionals. In a globalized economy countries compete for markets by creating and attracting technically skilled talent. A large part of such flow is through education abroad. Host countries perceive workers who studied in their countries to assimilate into their new societies quickly. Freeman (2005) sees that a country like India with large population and sizeable number of scientists and engineers could threaten North's monopoly in the hi-tech sectors by producing innovative products and services. This he terms as *human resource leapfrogging* that countries like India could possibly create.

In all, outlook for job opportunities for Indians looks good. India can become a magnet economy attracting high skilled and high waged investment capital from the MNCs, and offer high value added services to the rest of the world. This would require India to adopt an outward looking approach to reach out to the global markets and focus on sectors where it has resource advantage. This transformation is also reflects the emerging global occupational structure on the basis of a more efficient division of labour across nations. Technological changes, particularly rapid growth of new information and communication technologies is responsible for this. Two specific sectors, namely - IT / ITES sector, the manufacturing sector and the personal and community services sector are examined below further.

IT / ITES sector: The services sector in India has been growing rapidly over the last few years. Within the services sector, other business services (which include IT / ITES) have seen phenomenal growth in recent years with a significant proportion of the same coming from exports. According to the World Bank (2004), India exhibits a strong revealed comparative advantage (RCA) in services, particularly software services as compared to goods. The country has leveraged its rich pool of human capital with quality

educational institutions and large English speaking population. India is globally positioned in IT-ITES sector with a cumulative average growth rate (CAGR) of 35.3 per cent over the financial year FY-2000/05 amounting to US\$ 17.9 billion in FY2004-05. India is now an international services hub. It commenced with IT-enabled services, both voice and data, and expanded to all knowledge sectors, such as pharmaceuticals, biotechnology, and engineering design. This sector directly employs 0.85 million people. Seventy two percent of them are engineers and other graduates. This number is likely to go up to 1.5 million in the next four years.

Though the growth of IT / ITES sector would have a limited impact of the overall employment scenario in India, but its share in graduate employment is significant. In addition, it has many multiplier effects on the Indian economy. It has created indirect employment opportunities for 1.15 million people in transport, catering, construction, security and housekeeping services. Large disposable income of a relatively young section of society has fueled consumer demand. There has been a surge in demand for cars, two-wheelers, real estate, hotel and airline travel. Adding more than Rs.10 billion in direct tax revenue, the sector is contributing to rapid growth in consumer demand, hotel accommodation and air-traffic demand, and the demand for real estate both for offices and housing (NASSCOM 2005).

Manufacturing sector: With increasing international competition, mass-production — demanding a work-force with a low level of skills — tends to gravitate towards low-wage countries. Also, automation would affect the most simple and most repetitive jobs. In the more complex manufacturing sector, greater modularity and disintegration in product design and related manufacture is expected. With increasing use of ICT in design and logistics, the services component of manufacturing activities is bound to increase and can be delivered from remote location.

Skill-intensive products would require highly qualified and trained manpower. India is already on the way to become an important destination for off shoring engineering services. Further, whereas, manufacturing will continue to exploit economies of physical scale, speed and scope, with greater modularity, a lot of components can now be produced by a large number of small manufacturing units in the unorganized sector. Thus, through entrepreneurship and skill up-gradation, the Indian manufacturing sector can become competitive in specific areas. Such signs in some sectors such as automotive sector are already visible.

In all, there are huge and diverse job opportunities available in India. According to CISCO Chairman, John Chambers, “the jobs are going to go where the best educated workforce is with the most competitive infrastructure and environment for creativity and supportive government. It is inevitable. And by definition those people will have the best standard of living. This may or may not be the countries who led the industrial revolution” (Freidman 2004 pp 323). Education Economist of Stanford University argues that globalization “increases the pay-off to high level skills relative to low level skills....because interdependence between globalization and education presupposes

competitiveness and efficiency which is achieved upon the latest technology or knowledge accessibility of the system” (Carnoy 1999). Therefore, now the country has the opportunities, but to seize them requires an overhaul of the education and training system.

Skill Imbalances

In a sharp contrast to the bleak scenario in the section on labor market trends, the previous section outlined huge employment opportunities in the non-agricultural sector. It is almost impossible to make an exact estimate of new job opportunities. The CII and HLSG projections may quite off the mark, yet there is strong evidence of structural transformation of Indian economy resulting in creation of a large number of jobs in the non-agricultural sectors. All these jobs may not be in the organized sector due to change in industrial organization where in intellectual work can be performed in a much disaggregated manner but a large proportion of them could be termed as decent jobs.

This paper deals primarily with jobs requiring graduate degrees or above, hence a projection of the same may be in order. These estimates and projections are given in Table 11 below. As per 2001 Census, 23.6 million main workers were graduates and above, this number is estimated to have increased to 33.3 million in 2005-06. This is based on actual growth in each sector over the past five years while maintaining the same proportion of people with graduates and above qualification as in 2001. This number is projected to 50.8 million by 2010-11. This projection has been made keeping an average annual growth rate as per past trends and maintaining the same graduates as in 2001.

Table 8. Workforce with Graduate and Above Qualifications

Industrial category	Actual	Estimated	Projected		
	2000-2001	2005-2006	Annual Growth rate (2005/06-2010/11)	2010-11	Additional Jobs between (2005/06-2010/11)
Community, social and personal services	9.7	13.0	7.0	18.3	5.3
Manufacturing	4.3	6.0	8.0	8.8	2.8
Trade, hotels, transport and communications	3.7	8.2	11.0	14.5	6.3
Financial services	2.9	4.2	9.0	6.5	2.3
Others	1.7	2.1	8.0	2.7	0.8
Total	23.6	33.3		50.8	17.5

Source: Actual based on Census 2001; Estimated 2005-06 based on actual growth rate in each sector; Projected based on growth rate projected on average growth rate for last five years.

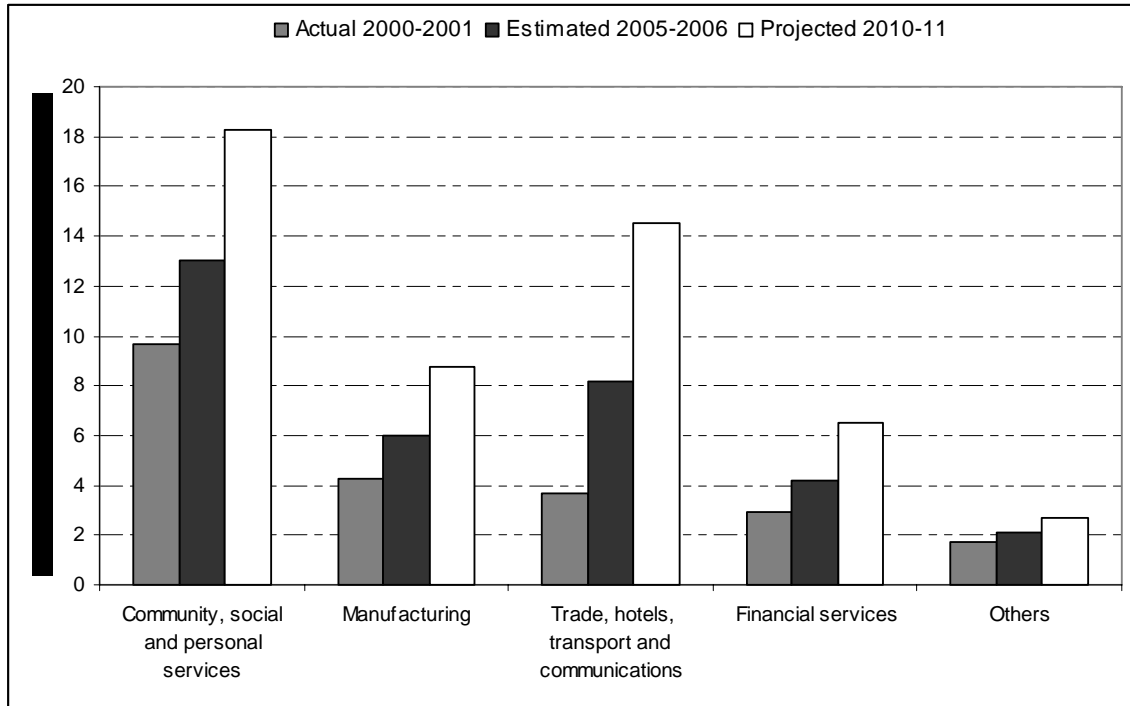


Figure 5. Actual, Estimated and Projected Workforce with Graduate and Above Qualifications

With 33.3 million out of 50.7 million graduates and above in the labor market, there appear to be no shortage of graduates. However, it needs to be gradually, while in year 2000-01, only about 46 percent of the graduates and above were in the workforce, this has increased to 66 percent in 2005-06 and 77 percent in the 2010-11. The remaining comprises of women and elderly – not looking for job or those who are seeking job, but not getting in absence of requisite skills or due to limitations of mobility. Recent research shows that though overeducation may appear to be a waste of resources if many workers have a higher level of education than their job requires, it may actually facilitate the development of a competitive and dynamic knowledge-based economy. Unemployable graduates seeking work may therefore be result of restricted mobility and skill mismatches in the labor market (Büxhel, Grip and Mertens 2004).

From above it is evident that larger job opportunities for graduates would result in employers going deeper into the graduate pool. The quality of higher education in India is extremely heterogeneous. It has a small number of quality institutions and a large base of higher education institutions of indifferent quality. With industry requiring a large number of people of adequate quality, large imbalances are seen.

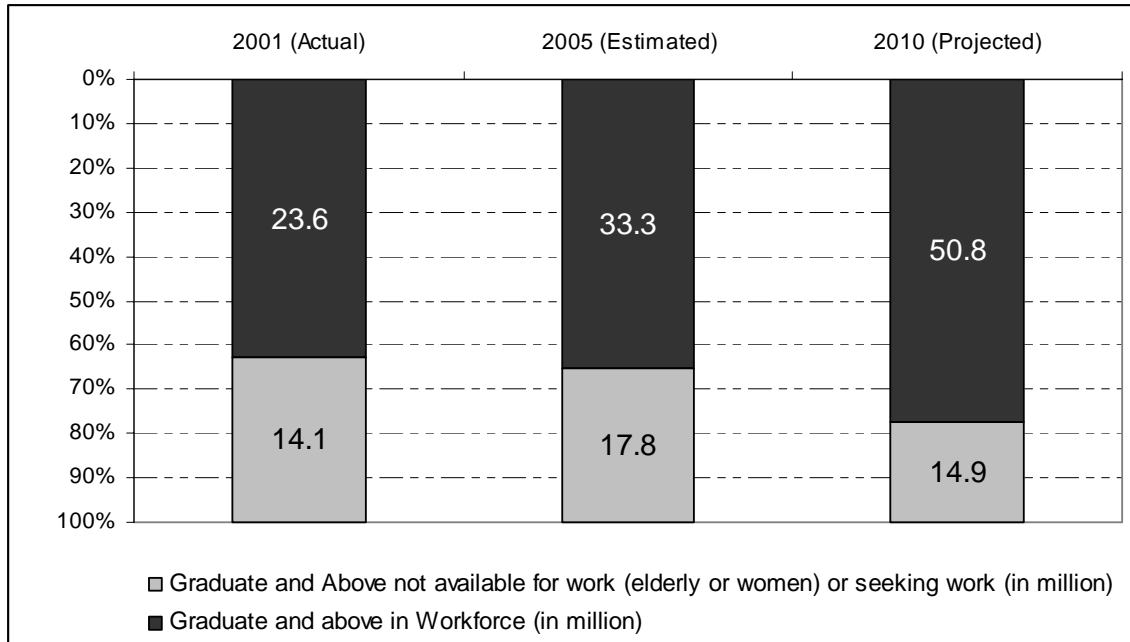


Figure 6: Going Deeper in the Graduate Pool for Employment

There are three possibilities in skill imbalances. One is Skill shortages when employers are unable to fill or have considerable difficulty in filling vacancies for an occupation. Second possibility is when existing employees do not have the required qualifications, experience and/or specialized skills and this is often referred to as skill gaps. Third is when recruitment difficulties exist due to characteristics of the industry, occupation or employer, such as relatively low remuneration, poor working conditions, and poor image of the industry, unsatisfactory working hours, location hard to commute to, inadequate recruitment or firm-specific and highly-specialized skill needs. The distinction between the three is not always clear-cut and it is inevitable to use the umbrella term 'skill shortages' to define all three skill imbalances. In Indian situation, all three types of skill imbalances are seen.

Indian industry and their associations routinely lament the severe shortage of qualified people and unacceptable attrition rates. In recent times there has been a global interest on the issue skill shortages in India. On October 17, 2006 *The New York Times* reported that skills gap threaten technology boom in India. Referring to severe constraint in the supply of qualified manpower, *The Financial Times, London* on July 20, 2006 sounded alarm over educational failings in India. *The Wilson Quarterly* in its autumn 2006 issue carried an article by Philip Altbach, an international education expert bringing out that India with its tiny quality education sector cannot sustain leadership in global knowledge economy. A study based on the perception of HR managers worldwide concluded that only one in four Indian engineering graduates was actually employable. The rest are deficient in fluency in English, ability to work in teams or deliver basic oral presentation and technical skills.

It is paradox that all these stories in the global media point towards the inadequacies of the Indian higher education, while it is on the strength of its vast pool of quality manpower that has fueled India's growth in many knowledge sectors in recent years and would continue to do so. A recent Duke University study based on actual hiring experience however established that India continues to be the country with the best availability of entry-level engineers.

In this context, there is a need to deconstruct the issue of skill shortages in India and examine it in an objective manner. From the growth pattern it is clear that instead of being worse than before, Indian higher education has performed much better in recent years. It is producing a much larger number of professional graduates than before. Skilled shortages should be seen as an outcome of the increased appetite of the industry for qualified people.

NASSCOM projects that technology jobs will double to 1.7 million in the next four years and forecasts a shortage of at least half a million people. Tata Consultancy Services (TCS) plans to add 30,000 people over the next four years to its large pool of 72,000 build over past 35 years. Other companies have similar ambitious plans. We need to be doing something very different than before to overcome such huge requirements. Industry is already finding ways to address this concern. TCS under its 'Talent Transformation Program' is training science graduates to be industry-ready IT professionals. TCS would then hire them at salaries less than the salary of an engineering graduate. TCS has accredited 350 colleges for the purpose and plans to hire 2000 science graduates during the year (As reported in the Times of India 23 November 2006).

English Language Skills: Skill shortages in services sector has also to be seen in the context of inadequacy of English language skills. For large part of export oriented services sector particularly IT / ITES sector, English language proficiency is a key skill. While claiming to have a big advantage due to its large English knowing population, India has an insignificant number of people that speak English as a first language. However, over 90 million people know it as an additional language as per 1991 Census. 64.6 million (8.0 percent) knew it as the second language people and 25.44 million (3.15 percent) people knew it as the third language. Incidentally this is more than the number of people who knew Hindi as an additional language. Cambridge Encyclopedia of the English Language reports that in late 1990s, around 350 million Indian spoke English. Table 12 below lists the countries in order of their population that speaks English. India not only occupies the top slot, English population in India is more than the entire European Union and several times over the individual countries.

Table 12. English Speaking Population in Different Countries

<i>(in million)</i>				
Rank	Country	Total	First language	As an additional language
1	India	350.18	0.18	350.0
2	USA	251.4	215.4	36.0
*	European Union	229.8	61.8	168.0

3	China	200.0-300.0	not significant	200.0-300.0
4	United Kingdom	59.6	58.1	1.5
5	Philippines	45.9	3.4	42.5
6	Germany	36.27	0.27	36.0
7	Canada	25.2	20.0	5.2
8	Australia	17.4	15.0	2.4
9	Pakistan	17.0	not significant	17.0
10	France	16.0	not available	16.0

Source: The Cambridge Encyclopedia of the English Language and Other sources

The large numbers should however not keep us under any illusion. With an insignificant number of people having English as at their mother tongue, the English proficiency levels are often poor. Despite, English being the main medium of instruction in universities, most of the interaction amongst the students and between students and faculty both inside and outside the classroom takes place in Hindi or the vernacular medium. Engineering institutions are largely single-discipline institutions with little focus on developing English language skills. Competitive exams for entry to engineering schools do not test English language skills, therefore test preparation is not able to hone language skills of the students. Rather than actively promote learning English as a part of the country's strategy for economic development in the context of globalization as in case of China⁷, English language instruction has been victim of language chauvinism in India.

In addition, there appears to be a 'disconnect' between higher education opportunities and job openings. Leading news weekly-India Today in its cover story on March 7, 2005 identified 'Top 10' emerging job opportunities in India. These were - hospitality, biotech, education and training, animation, aviation, event management, research and development, fitness consultancy, fashion designing and the NGO sector. Higher education does not provide formal qualifications in many such areas.

Ideally the demand for higher education should be based on the demand of skills in the job markets; supply of graduates from the higher education system need to adjust to it. However the link between higher education and world of work is relatively loose and the process of transition from higher education to employment is complex and protracted (Gibbons 1998). Students' demand for higher education is often based on their aspirations, societal and parental expectations and not necessarily based on signals from the job markets. Under these conditions there is often a mismatch creating a problem of unemployment on one hand and skill shortages on the other.

⁷ One fifth of Chinese people are learning English and China has emerged as the world's largest market for English language training. Apart from education and training in the public system, there are around 50,000 private language schools that enroll 2.5 million students. Not only adults, even children at very young age are enrolled in these schools. Parents in China are willing to spend more than half of their income for their children to learn English (*The Economist*, 15 April 2006)

It is generally thought that higher education should equip students only with generic skills rather than tailor them to meet the specific requirements of industry. This is due to the realization that the evaluation of economic needs is often random and approximate and could change often. It is argued that the generic skills together with flexibility and adaptability and an acceptance of the need for life-long learning, will provide young people with the best basis for a career in any area, including industry, and for the unforeseen needs of the future. Though there is merit in this argument, there is no doubt that education needs to be made more useful and usable and to prepare young people for employment and to encourage adaptability.

In all, the skill shortages in India are real. It is however unrealistic for the country to expect the system to feed into such large expansion without enlarging the pipeline for quality graduates.

Towards an Action Plan

Though some unemployment and underemployment of graduates may be due to imperfections in labor market but high levels of the same coexisting with shortage of skills suggests problems with higher education and training system. Though quality and to some extent numbers may be an issue, but major problem concerning poor labor outcomes of graduates relate to relevance. Mismatch is the primary concern. To address this concern, there has to be focus on enhancing employability and aligning higher education with labor markets. New institutional arrangements may be required to enlarge the pipeline of quality graduates in the country.

Enhancing employability

Rather than providing employment, the focus now is on making people employable. Employability is often referred to as the acquisition of skills, which not only help in landing a job but also allow a person to remain employable. From the perspective of employers, 'employability' often seems to refer to 'work-readiness', that is, possession of the skills, knowledge, attitudes and commercial understanding that will enable new graduates to make productive contributions to organizational objectives soon after commencing employment. Though this may appear to be very restrictive, but there are pressures on higher education institutions from its stakeholders to make more explicit efforts to develop the 'key', 'core', 'transferable' and/or 'generic' skills needed in many types of high-level employment. This is not unique to India, but seen in most parts of the world.

In the context of higher education, the broad concept of employability was suggested in the 1997 Dearing Report that identified a set of key skills which were 'relevant throughout life, not simply in employment' (NCIHE, 1997, Para. 9.18). Dearing defined these skills as communication, numeracy, IT and learning how to learn at a higher level and recommended that provision of such skills should become a central aim for higher education.

In the United Kingdom these recommendations were backed up by a number of government-funded initiatives and programs designed to encourage the development of such skills within HE and, more generally, to enhance the employability of graduates, for example, the Enterprise in Higher Education Initiative and HE 'Development Projects' covering areas such as Key Skills, Careers Guidance and Work Experience. Within HE the generic skills needed to enhance graduate employability (whether defined in terms of immediate work-readiness or longer-term career prospects) are now typically seen as including the skills emphasized by Dearing and also Literacy, Problem-solving skills and Team-working skills. In addition, the employability skills agenda is commonly defined to include 'Understanding of the world of work' which typically refers to knowledge about the ways in which organizations work, what their objectives are and how people in those organizations do their jobs (Coopers and Lybrand, 1998).

University responses to this agenda typically include modifications to existing course content (sometimes in response to employer suggestions), the introduction of new courses and teaching methods and expanded provision of opportunities for work experience – all intended to enhance the development of employability skills and/or ensure that the acquisition of such skills is made more explicit. In some cases university departments have sought to 'embed' the desired skills within courses; in other departments' students are offered 'stand-alone' skills courses which are effectively 'bolted on' to traditional academic programs (ibid). In fact many university departments now use a mix of embedded and stand-alone teaching methods in their efforts to develop employability skills.

Aligning higher education and labor market

In a changing economic environment with a dynamic labor market, it is necessary to enlarge adaptive capacity and flexibility of higher education system so that higher education continues to be aligned to the labor market. This is not only desirable to ensure that higher education institutions continue to be relevant, but essential step so that they continue enjoy greater autonomy within a framework of greater self-responsibility. Adaptability in higher education has to be nurtured both at the systemic level and the institutional level. While at the systemic level, policies for structural adaptation have to be pursued; at the institutional level it involves creating conditions so that curriculum and content are continuously updated as per changing needs.

Structural adaptation: With a view to address problem of mismatch, many countries have pursued structural adaptation policies - UK integrated the university and the non-university sectors to improve efficiency and effectiveness of the system as a whole; in the Netherlands, Norway and Portugal, the non-university sector was strengthened; in Austria and Finland, the non-university sector was introduced for the first time; and Italy simulated the development of sub-campuses and introduced short cycle courses. Length of study of the basic qualification in favor of short-cycle programs has also been revisited in many countries.

Since the 1980s, higher education in India has diversified significantly. There was an emergence of new types of institutions and providers. These included a wide range of private professional colleges, private universities, and private training centers. The diversification has enhanced competition. Growth with diversification not only absorbed excess demand without direct burden on public exchequer, but helped in building the adaptive capacity and the response time of the system.

Two recent developments illustrate the above point. As seen in Box below creation of capacities in excess of demand for engineering education resulted in several thousands of seats remaining vacant. Now many engineering colleges are on the verge of closure.

Box 4. Excess Capacity of Engineering Seats in Tamil Nadu and Andhra Pradesh

Correction taking place

Out of the 43346 government quota seats available at the Bachelor's level for engineering education, 11059 (25.5%) seats – all in self-financing colleges remained vacant in Tamil Nadu in the year 2005. The situation was however better than previous year when nearly 20000 seats had gone a-begging. Though, 61529 candidates applied, 29,242 (47.5%) either did not turn up or take a seat that was on offer. In about a dozen colleges, less than 10 students joined, in 14 others, the number of students that joined was in double digits and in one college only one student turned up. Whereas some joined their preferred courses and colleges under management quota, others preferred for arts and science courses. In many cases, high tuition fee of Rs.75000 per annum put them off.

In Andhra Pradesh, 23000 out of 82250 sanctioned seats in 260 colleges for undergraduate programs in engineering could not be filled up during 2005. Whereas, not a single student joined in four colleges, another 50 admitted less than 30 students. Many engineering colleges offered rebates pulling down tuition fees to less than government approved rates. Many of these colleges are located in rural areas. As a result of declining demand, many of these colleges are on sale. Price demanded in some cases is much less than actual investment by the management of the colleges.

Source: New Indian Express (Chennai), August 29, 2005 and Times of India (Hyderabad), May 24, 2005.

Further, capacities in private training sector particularly in IT-related areas have been very quick to respond to market demand. Technology slow down in 2000/01 had a tremendous psychological impact on sentiments in the private IT training sector. Its revenue touched a low of Rs.10.59 billion in 2003/04 from a high of Rs.25.94 billion just a couple of years ago. It is again picking up now and was Rs.13 billion in 2004/05. Figure 6 shows as to how the private IT education and training sector has been on a roller coaster drive over the last few years. Being purely for-profit private sector, this could easily adapt to changing demands. Both in case of engineering education and IT training sector corrections take place on supply side with changing demand pattern. These are not easy to achieve in purely public system of higher education.

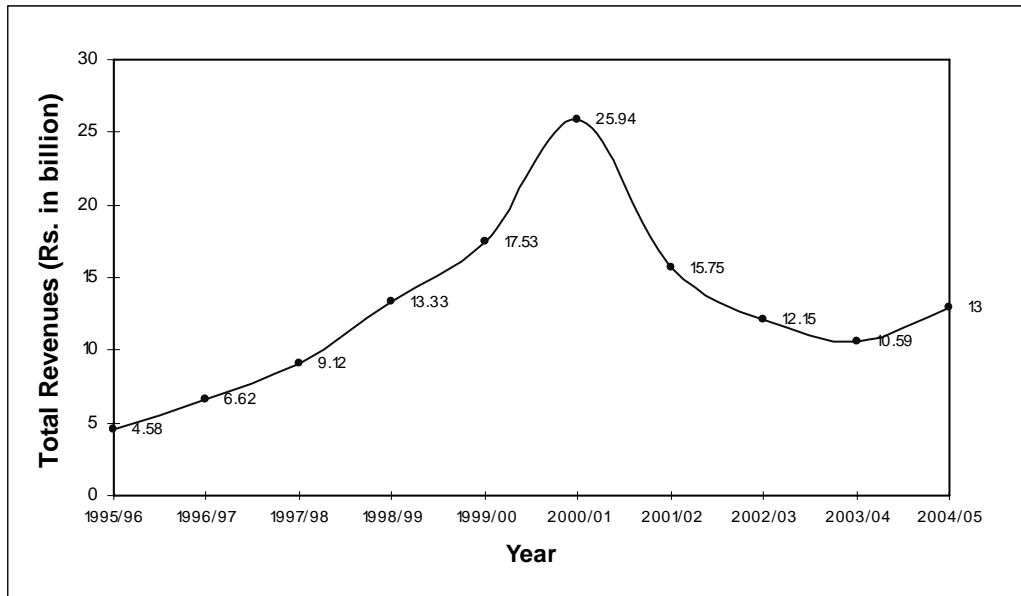


Figure 7: Private IT education and training sector in India

Without internal competition, public institutions have inertia of their own; courses once started cannot be easily discontinued; faculty once recruited on permanent tenure cannot be removed and is difficult to retrain; and putting facilities and infrastructure to alternative has its own limitations. In comparison, private institutions that depend primarily on tuition fees have to cater to students' demand and adapt their course offerings according to it. Private institutions are, therefore, likely to be far more adaptable to the changing circumstances. Within the private sector, the non-formal training providers are even more adaptable. They respond to the changes taking place in the job markets far more quickly. This makes case for mix of public and private as well as formal non-formal system of education and training each fulfilling a different need.

Curriculum Changes: Apart from structural adaptation of the system, the curriculum and content of courses has to change on a continuing basis to accommodate new body of knowledge that gets created with changes in economy and society. Considering that one of the major roles of higher education is to impart skills and competences required in the job-markets, there is also a need to align the curricula with the world of work. There is now a consensus that the just in-case approach to teaching-learning and curricula design has to be abandoned in favor of more useful and usable education. Therefore, the thrust is on vocational education.

Many universities in India have not changed their curricula for decades. The process for changing curricula in the universities in India is painfully slow. Rigid academic structure and cumbersome process for change in curriculum are often blamed for it. The fact that the colleges that enroll nearly ninety per cent students have no freedom to change curricula and are at the mercy of their affiliating universities makes the situation worse.

Boards of studies and the academic councils of the universities are responsible for curriculum. In the nation-wide survey conducted by the CAFE Sub-committee on

autonomy of higher education institutions, 80 per cent of the respondents from the academic community found the existing system to be in order (CABE 2005a). This reflects the complacency in the academic community on this issue. It goes on to show that the system has nurtured and cultivated a large vested interest that does not want to respond to change. Neither universities nor teachers have any incentive to change. In most cases they do not have the capacity to do so because of sub-optimal faculty size. With no competition between them either for students or funding, there is complacency. While subjecting universities to competition might push them to embrace change, an important intervention could be to support and facilitate universities in changing their curricula on a continuing basis.

In the year 2001/02, UGC undertook a massive exercise to develop model curricula in nearly forty subjects both at the undergraduate and postgraduate level through expert groups. These were then circulated to the universities. Whereas, some people in the academia questioned the authority of the UGC in carrying out this exercise and saw it as a blow to university autonomy, others questioned it on the grounds that this exercise was being carried out after a gap of several decades. Notwithstanding this criticism, it must be accepted that curriculum revision efforts have to be continuing efforts with scope for enough experimentation and innovation at the university level.

A few universities⁸ have taken initiatives on their own to restructure curricula and incorporate vocational element in the curricula so as to make it job-oriented. Such efforts are however few and far between. In many cases, the universities do not have dynamic leadership or capacity to initiate such changes. This process can be accelerated by creating communities of academia across the nation for sharing good practices and providing incentives to universities and faculty to champion such changes.

Interaction with Industry: Improved regular communication between higher education and the world of work is desirable. A major handicap in such a communication is often the huge perception.

The models of successful communication vary substantially- some advocate formal involvement of representative of the world of work in the decision-making processes of institutions of higher education (e.g., through membership in board etc.), others favor regular consultations, still others hope that practical elements in the processes of teaching and learning (e.g., internship or practitioners as part-time teachers) - are most eye-opening. But all agree that regular communication is most suitable in avoiding the problem of the un-informed, inward-looking teaching and learning on the one hand, and of naïve subordination of presumed demands on the other hand. To achieve a meaningful dialogue between higher education and industry would require bridging of perceptions gaps that exist between them.

⁸ In 2004, Delhi University restructured its BA (Pass) Course that now has both - theoretical and applied components. Restructured course provides ample scope for employment opportunities, a marked departure from the old one. In third year, applied papers ranging from computers, tourism, tax management, film studies, theatre and music have been introduced. (Source: *The Times of India*, April 23, 2005).

Liberal Arts Education: The thrust on professional education should not suggest that all liberal arts education be viewed as unproductive. There is now evidence to suggest that there is a greater demand for workers with general-skills (compared to vocational skills) in those industries where technology is changing rapidly. General course work can increase students' mental flexibility and demonstrate to potential employers that the student can deal with new situations. Berman et al (1998) have gathered substantial evidence from the past 15 years on technology-skill complementarities to make a case for general higher education in changing technology environment.

Generalized skills enable workers to develop and implement new technology more quickly. In contrast vocational education based on narrow skill sets is useful when technology is less rapidly changing. Therefore, good quality general higher education rather than becoming less relevant is likely to become more relevant in time to come. It is now realized that generic skills with flexibility, adaptability and opportunities for life-long learning, will provide young people with the best basis for a career in any area and for the unforeseen needs of the future. Return of liberal arts education is evident from the fact that many companies have started recruiting undergraduates for other jobs that traditionally required professional qualifications as seen in Box 6 below.

Box 6. Headhunters chase undergrads

There is now a trend to hire fresh graduates straight out of college in India. From big consultancies like McKinsey and Monitor Group to FMCG companies such as ITC and HLL, travel and insurance companies, banks, advertising agencies, actuaries and BPOs are all recruiting talented students of premier colleges. The pay packets present an interesting picture. While McKinsey and HLL are offering fat packets of Rs.7-7.5 lakh per annum, companies such as Monitor Group and Fair Isaac are not far behind with remunerations of Rs.4-4.5 lakh per annum. With consultancies recruiting graduates as business analysts and MBAs with work experience as senior analysts, working after college has no doubt, gained significance. Although most undergrads are looking at pursuing higher education after working for a couple of years, it doesn't seem compulsory. Our experience with some of our top performers who are also business heads and who are just graduates has been very good."

Source: The Economics Times dated 25 July, 2005

Promoting Entrepreneurship Education: With limitation of the organized sector providing employment in large numbers, hope for creating jobs for a country like India lie in promotion of small firms and in self-employment. In this context, education system is not only faced with the problem of disseminating knowledge and technical skills, but even more with the problem of developing attitudes and patterns of behavior, particularly those that encourage self-confidence and spirit of initiative and help people to work independently (Frost 1991). A special focus on promotion of entrepreneurship in mainstream education is, therefore, necessary. In this regard, the initiative of Wadhvani

Foundation in creating a setting up *National Entrepreneurship Network (NEN)*⁹ is worth noting.

Promoting Life Skills: Surveys of skills required in workforce across nations consistently show that the core characteristics employers are looking for, and not finding, include motivation and flexibility, willingness to work and learn, confidence, appearance and good manners. In contrast, written communication, literacy skills and using numbers, although important, come much lower in priority. Education system is overly concerned with structures, with insufficient attention given to extra-curricular activities, sports and project work – the activities that help to develop interpersonal skills and emotional intelligence. Aligning curricula to take care of these needs is, therefore, necessary.

Short-cycle Courses: Present system of education can be replaced by a system where skills are imparted much faster by reorganizing training in modules of essential skills. The skills can be imbibed at the convenience of the students.

New Institutional Arrangements

From an elite and largely public funded higher education and training system, India today has a large and complex system having public and private, formal and non-formal institutions. Yet, institutional arrangements to govern the system have largely remained unchanged. They fail to recognize and address new concerns and are not able to address continuing concerns due to the size of the system. New and creative ways have to be found to address concerns arising from a large and growing system. A few illustrative institutional arrangements are described below. These relate to curriculum, interface with industry, building pathways between the university and the non-university sector, benchmarking by end-users or their associations. All these are network initiatives that are low-cost yet would involve large number of institutions and would address key concerns relating to quality and relevance. It helps to address the issue of numbers at the same also take care of the sub-criticality factor relevant in many cases.

Teaching and Learning Support Networks (TLSN): Systematic research on teaching and learning process shows that student learning depends upon the quality of teaching and the academic coherence of curriculum. Academic coherence is defined by the nature and sequence of curricular experiences. It depends largely on the extent to which the teachers are collectively involved in communicating with each-other about the substance of teaching and learning. An organized effort to improve quality of learning,

⁹ NEN was set up in 2003 to create an ecosystem for promotion of entrepreneurship in the country. The Network works with academic institutions that serve both as hubs and nodes to educate and inspire future entrepreneurs. The network started with five founding institutes, namely IIT Bombay, SPJIMR, Mumbai, IIM Ahmedabad, BITS Pilani and ISB Hyderabad. It expanded to have another 10 members in 2005 and planning to have at least 100 more academic institutes to be part of the network over the next year. NEN aims to provide several entrepreneurship and guidance touch points across the country to thousands of aspiring entrepreneurs with the end goal of enterprise creation and employment creation.

therefore, requires cooperative action by teachers. They are expected to jointly restructure curriculum, redesign course sequences and requirements and ensure better coordination of their individual efforts to achieve greater academic coherence (Dill 1999).

Unfortunately, there are just a few teachers for each subject in an institution in India. Being sub-optimal collective action to attain academic coherence is usually not achieved. The problem of sub-optimality can be addressed by creating networks of teachers for each subject area and empowering and enabling them to achieve academic coherence in curricula design.

Such networks of teachers could be referred to as teaching and learning support networks (TLSN). They would not only restructure the curriculum, redesign course sequences, but also evolve policies and develop framework to strengthen teaching, learning and research in different subject areas that are in tune with global practices. These networks could be open-ended communities of academia and other stakeholders. New technologies could be leveraged for collaboration. The work of these networks could be coordinated through an independent body – the National Qualification Authority. To spur innovation in teaching learning and teaching performance fund could be created and competitive grants provided to individual or group of teachers

Skill Development Networks: For engagement of higher education institutions with industry and employers, sector-specific membership based networks could be created. Time and resources have to be committed from the industry and the employers as well as by the higher education institutions for these networks. These networks would also compile and collate high quality labour market intelligence and make it generally available to all for making informed decisions. These could also ensure that specific skills (including generic skills) required in particular sectors are met on a continuing basis. This would be an important platform for sustained meaningful interaction.

National Framework of Qualifications (NQF): Formal as well as non-formal education and training is important. While the formal education leads to overall development of mind and prepares students for life-long learning, the non-formal education imparts specific skills that are usable in the job markets. Therefore, a suitable mix of the public and the private, the formal and the non-formal provision for higher education and training provides an optimal solution. With increased and varied demand on higher education, diversification of education and training opportunities has to be pursued as a goal.

Though both the formal and the non-formal system of higher education coexist in the country, yet having grown independently, there are no linkages between the two. The non-formal system suffers from image problem and is always the option of last resort. Considering the complementarities between the two systems, there is a need to build pathways between them through a national framework of qualifications. This framework will help in developing a coherent and integrated system of higher education and training in the country. A suitable mix of the public and private, formal and non-formal system of higher education and training provides the most optimal solution.

Certification or Benchmarking by End-Users or their Associations: Certification or benchmarking by the end-users or their associations could effectively raise the quality and constructively meet their needs for qualified manpower. This could either be done for individual or for institutions. When this is done at the institutional level, this helps to reduce the search cost for the employers and provide an incentive to educational institutions to improve the standard of teaching.

Currently a large part of the higher education and training system is provided by private institutions. Because of the dysfunctional regulatory mechanism and inconsequential accreditation system these institutions have no incentive to improve their quality. Gresham's Law kicks in and the bad drives out the good. There are many creative ways in which industry could contribute towards reversing the trend. For instance, it could foster competition between the institutes of higher learning by setting standards on things like contact hours for effective teaching-learning, computing, library and laboratory facilities and enlisting institutions that publish these details. Enlisted institutions could then become preferred choices for industry to recruit from.

End users could also set up certification program with their specific needs in mind. For instance in 1998, the National Stock Exchange (NSE) started the National Certificate on Financial Management (NCFM) to measure the knowledge of a person for many roles in the financial industry. At present, under this umbrella nine different certification tests are offered. Tests take place at locations all over the country, and roughly 55,000 persons appeared in the tests in 2004 (Shah, 2004). NASSCOM has initiated a pilot project for assessment of competences of professionals for the BPO sector and maintains National Skills Registry of IT manpower. Since academic degrees fail to provide a signal about the quality and suitability of person in the job market, private companies have entered the business of skills assessment.

Creating high end manpower through collaborative efforts: In many high technology areas the number of people required is just a few hundreds or at best a few thousands, yet the shortages persist as noted for semiconductor industry in box 6. This is because teaching and training facilities in such areas are scarce. By pooling resources of a large number of institutions a critical mass can be built and high-end manpower produced in sufficient numbers.

Box 6. High end manpower constraints in Semiconductor industry

Only 20 percent of the required manpower is available in areas of integrated circuit design, VLSI, EDA (electronic design automation), manufacturing operations related to testing, packaging and logistics etc.

Engineers with knowledge of digital design, simulation, synthesis tools, computer architecture and mixed signal design, and strong mathematical aptitude required. People

Industry requires math and algorithm skills. An ecosystem is required to be created where industry and academic join hands to identify the global needs of the industry and churn out highly skilled people with relevant skills.

Source: Time of India, December 13, 2006.

National Mission for Skills Development: The issue of skills development cuts across allocation of work of many line ministries at the centre. While some ministries are responsible for education and training, for others need adequate numbers of skilled people for growth. The states are major stakeholders in terms provision as well as financing. At the same time, it is important that skilled manpower is available within the state for development. Therefore issue of skilled manpower is critical to large number of stakeholders. Despite its importance, efforts towards skills development lack focus, coordination and suffer from many implementation bottlenecks. Often public investment in schemes for skills development is either not monitored or is monitored only in terms of expenditure or disbursement with little focus on its end use and outcomes.

Proposal to set up a national mission for skills development is therefore timely and crucial. This mission may primarily have coordination, monitoring, advisory functions and could step in implementation only when a specific activity does not fall within the purview of a line ministry. Institutional arrangements proposed above or similar institutional arrangements may be thought of.

Summary and conclusion

Growth of higher education and developments in labor market for the qualified people in India has been tracked in this paper. It calls for the intervention by the state to make the connection between higher education and the jobs more efficient as a means for reducing unemployment and underemployment of graduates on one hand and addressing the problem of skill shortages on the other.

Employment structure in Indian economy has been impervious to economic growth and changing structure of Indian economy. Despite sharp decline of agriculture in terms of its share in GDP, the share of agriculture in employment dropped only marginally. Agriculture had continued to employ over sixty percent of the workforce for many decades.

The organized sector with the dominating presence of the government and the public sector has a limited potential to provide employment. With the opening of the Indian economy fueled by entrepreneurial spirit, there are large and varied private initiatives across different sectors in economy. Beginning with late 1990s, the employment pattern has however begun to change. Many non-agricultural sectors have grown rapidly. Apart from IT / ITES services, there is growth in trade and transport services, financial services, construction and health and education services. In recent years, there has been a feeling that the country's growth may come to a grinding halt unless it handles the problem of skill shortages.

Evidence of large and growing overall unemployment and underemployment and particularly amongst the youth and the educated people seem to suggest that such perceptions could be wrong and unnecessary alarmist. However a detailed examination of

the skill shortages based on the existing education and skill profile of the workforce taking into consideration the actual growth sector-by-sector and projecting the growth until 2010 shows that the skill shortages is real.

While, there may not an acute problem of graduates in terms of absolute numbers, yet because of uneven quality of a large majority of graduates, as the industry goes on to recruit a larger proportion of graduates, there is a sharp fall in quality. By the year 2010, 77 percent of the people with graduate and above qualifications will have to be in the workforce against 62 percent in the year 2001.

The skill shortages are also to be viewed in terms of the increased appetite of the industry. Higher education system that produces a much larger number of graduates than before cannot be blamed for it. It needs to be realized that education systems have momentum of their own. A very quick response is not easy to achieve particularly in a system with large public sector having permanent employment.

Analysis of growth pattern shows that from the 1980s higher education and training sector in India saw a surge in private provision. Private providers are now dominant providers for programs with occupational focus. Overall the country now has a good mix of public and private, formal and non-formal system of higher education and training. There is a need to further increase higher education capacity through diversified expansion.

However issue of enrolment expansion should be seen from point of view of the occupational structure of the Indian economy. More than enrolment expansion, the issue of skill shortages in India is an issue of quality and mismatch. Since the enrolment growth over the last two decades has been primarily in institutions set up through private initiatives. The growth has been slow but it was able to meet actual unmet demand. It appears more sustainable than the Chinese way of enrolment growth that disregards developments in the labour market.

In all, there is a need to enlarge the adaptive capacity of the higher education system so that it is more responsive to the changing world of work and meets the diversified needs of economy – both domestic and global. For that purpose diversification of the Indian higher education and training system has to be pursued as a goal. This can be achieved by having a proper mix of public and private, formal and non-formal institutions. Special initiatives are required to enhance employability. Curriculum and content has to be continually renewed through Teaching and Learning Support Networks and specific skill development network may be set up. Collection of data on job market trends, its analysis and dissemination is important.

More than setting up a few institutions that may produce a few hundred at best few thousand quality graduates at huge costs, interventions are required at the systemic level to alter the nature and quality of regulation for the private institutions and more investment in public institutions with an increased accountability mechanism.

There is a case for increasing public funding for higher education. However considering the limitations in this regard, it is important that public funds are strategically deployed to address equity issues and leverage change in public funded institutions.

Country's recent success in the global knowledge economy has been object of envy of not only the developing countries but even advanced countries. A fair amount of credit for this and rightly so is being given to the country's large pool of qualified manpower and as a corollary to its higher education system. The country's higher education system suffers from several problems that need to be addressed. Though efforts should be made to fix these problems, but focus has to be on not doing anything wrong that may compromise country's competitiveness in this sector.

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