

Complementarities and interlinkages between knowledge management and long term economic growth

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ABSTRACT

In information oriented societies, knowledge drives economic growth and development. Higher education is the main source of that knowledge – its production, dissemination and its absorption by any society. Economic growth currently depends on the capacity to produce knowledge based goods. However, the future of knowledge economies depends more on their capacity to produce knowledge through research and development rather than on knowledge-based goods. Higher education institutions are a major source for providing the human capital required for knowledge production. Higher education enables human beings to have a better quality of life in the sense that they are better equipped to appreciate and acquire culture in the widest sense of the term. India needs a shift in focus. Our priorities have to be changed and our form shifted from big dams and steel mills to knowledge creation and the generation of creative knowledge. The present scenario for knowledge creation in India is bleak. There is severe quality deterioration, lack of innovation and creativity. Giving livelihood jobs to millions are important, but more important become the chance to grab the opportunity of turning them into a qualified human resource.

Keywords: human capital, endogenous growth, digital revolution, knowledge production

1. INTRODUCTION

There is a general assumption among policy-makers that what is important for economic growth and development is literacy, primary education and, at best, secondary education rather than higher education. Higher education does not figure on the poverty-reduction agenda of many developing countries and is not reflected in the Millennium Development Goals. Yet, literacy and basic education rarely provide employment skills that can ensure a reasonable salary or standard of living. The demand for highly skilled workers is increasing, especially in the context of globalization, leading to better employment opportunities and enhanced wages for the university graduates. This has a direct influence on the demand for higher education as reflected through the gross enrolment ratios. Universities play a crucial role in generating new ideas, and in accumulating and transmitting knowledge, yet they have remained peripheral to development concerns. Although no longer the sole generators of knowledge needed for development, through their research and teaching they help to produce expertise, manage development, engineer social transformation, and preserve social values and cultural ethos.

The education system churns out students that are not immediately employable and skill up-gradation on the job is low; implying that a large section of the currently employed labour possesses outdated skills. The current skill training setup, comprising of ITIs and Polytechnics, caters to only 2.5 million people. This further compounds the demand-supply gap. Market outcomes are not favouring the expectations of the labour force. While 56 percent of the higher education institutes are devoted to arts, science and commerce, medical colleges, engineering and technology colleges and polytechnics comprise ten percent, seven percent and six percent of total institutes respectively. The dominance of general education has prevented the bulk of the population from acquiring skills required by the manufacturing and service industries.

A knowledge based economy is one in which production, distribution and use of knowledge are the main drivers of growth, of wealth creation and employment of all industries (OECD 1996). In its most basic form, the knowledge based economy should be qualitatively different from an industrial economy. This however is distinct from the knowledge economy which has now come to mean the economy centring around ICT. Higher education is the route through which India can move towards knowledge based economy.

There are three main ways in which education can improve growth performance:

- Education improves the quality of labour.
- Education has spill over effects on other sections of society.

- Education is one of the most important inputs into R&D and for attracting FDI.

The ease with which developed economies of the world entered into the trajectory of long run growth has been attributed to endogenous factors. Investment in human capital for long periods and in sufficient volumes has created built in capacity which led to continuous development in such countries. How far does this lead to ultimate convergence was the issue raised in Solow's model of growth. The importance given to education in the historical growth process of developed countries has invoked the response that investment in human capital may be as important as investment in physical capital in developing countries. A look into the theoretical discourses which relate the contribution of higher education to growth is essential.

2. THEORETICAL PERSPECTIVES

Let us now examine the factors that determine a country's rate of economic growth in the long run. The growth models of the 1960s assigned a significant role to human capital formation and in particular to education financed by the public sector (Arndt, 1987, ch. 3), but long-run growth was entirely an exogenous process due to technological progress, which was assumed as an unexplained time trend in labour productivity. In recent years, this approach has received renewed attention with the rise of a new line of research that explains the growth rate endogenously, assigning an important role to the private and public sectors in the formation of human capital, at both the aggregate and the individual levels. Within the new growth theory, economists have begun to study the influence of education spending on consumption-saving decisions in models which allow for the possibility of persistent growth (Glomm and Ravikumar, 1997). These recent developments have significant policy implications since public or private expenditures on education may influence long-run growth and social welfare. To the extent that formal schooling is a significant component of human capital investment, the institutions for schooling may be important for economic growth (Gradstein, Justman and Meyer 2005).

Public expenditure on education and returns to growth- the revival of interest in growth theory and analysis in the 1980s was marked by a paradigm shift towards a new outlook: endogenising the growth factors within the system. The endogenous growth perspective looks at growth. In the neoclassical growth model, the economy is 'assumed' to reach a steady state in which all macroeconomic variables grow at the same rate and in the absence of technological progress, per capita growth of these variables will eventually cease.

Endogenous growth theory states that human capital accumulation is a driver of economic growth. The belief, that education causes growth has led governments of many developing countries to make huge investments in the education sector. Paul Romer in 1986 published a paper called 'increasing returns and long run growth' in which he proposes a model in which economic growth is driven by the accumulation of knowledge. Endogenous growth theory focuses on education, job training and development of new technologies for the world market.

The assumption of diminishing returns to capital is abandoned in the endogenous growth theory. According to the traditional view, K includes only the economy's stock of plants and equipments then it is natural to assume diminishing returns. The advocates of endogenous growth theory argue that the assumption of constant returns to scale is more applicable if K is interpreted to include knowledge a part of capital. Knowledge is used in the production of goods and services and knowledge is used to produce new knowledge. Compared to other forms of capital, knowledge does not exhibit diminishing returns. The increasing pace of scientific and technological innovation over the past centuries has led economists to argue that there are increasing returns to knowledge. If we assume that knowledge is a type of capital, then endogenous growth model with the assumption of constant returns to scale provides an analysis of long run economic growth and sustainable development

Romer takes the example of an economy with two sectors: the manufacturing firm and the research universities. Manufacturing Firms produce goods and services which are used for consumption and investment. Universities produce a factor of production called knowledge, which is freely used in both sectors. The stock of knowledge determines the efficiency of labour in both manufacturing sector and universities. The growth of knowledge depends on the fraction of labour force in universities. The economy exhibits constant returns to scale as long as capital is broadly defined to include knowledge. If we double both physical capital K, and knowledge E, then we double the output of both sectors in the economy. Here persistent growth arises endogenously because the creation of knowledge in universities never slows down.

3. SOCIAL PERSPECTIVES

Apart from technical knowledge, and skills becoming factor inputs in production, there are many spill over benefits to the society at large, what we call as positive externalities. Higher education enables human beings to have a better quality of life in the sense that they are better equipped to appreciate and acquire culture in the widest sense of the term. Human beings have the right to be open to great paintings, great music, theatre, poetry and the arts. Their life will be richer, their appreciation of values keener and their awareness sharper, with education. Society moves forward with all the cultural and counter cultural trends generated in the process.

India needs a shift in focus. Our priorities have to be changed and our form shifted from big dams and steel mills to knowledge creation and the generation of creative knowledge. The emphasis should be on people with ideas and capabilities. Giving livelihood jobs to millions are important, but more important become the chance to grab the opportunity of turning them into a qualified human resource.

Creating an awareness regarding the dangers of losing environmental quality is one of the pressing needs in India. Environment as an amenity, a luxury and a necessity should be appreciated. Environment degeneration, in the interests of economic growth will soon lead to the stark reality that the economic growth is not sustainable. A high quality social infrastructure can be assured only with environmental protection. To realize this creation of a population with strong knowledge base and social awareness is a prerequisite.

4. HIGHER EDUCATION IN INDIA

India has more than 3,000 years of cultural evolution with a continuous tradition of pursuing higher education though the opportunity was confined to a select few. The University of Nalanda, established in the year 427 AD, is one of the first great universities in recorded history. The university in its halcyon days attracted students from Japan, China, Korea, Indonesia, Tibet, Persia, Turkey, and Ceylon. Even in modern education, India has nearly 150 years of experience starting with the establishment of universities in Kolkata, Mumbai, and Chennai (Calcutta, Bombay, and Madras).

The access to higher education is measured in term of gross enrolment ratio, (GER) which is a ratio of persons enrolled in higher education institutions to total population of the persons in age group of 18 to 23 years. The estimate of GER is generally based on the data collected by MHRD/UGC from the educational institutions. India ranks third in terms of enrolments with about 17 million students (UGC, 2012). With a Gross Enrolment Ratio (GER) of 15 per cent, India is still below the world average. With relatively stagnant growth of public sector, private sector now accounts for 63 per cent of the total higher education institutions and 52 per cent of the total enrolments in Indian higher education. Despite various intervention measures to address equity objectives, disparity still exists in terms of gender, ethnic groups, economic criteria and by location. In Indian higher education, about 86 per cent of students are enrolled at undergraduate level and only about 12 per cent are enrolled at post graduate level. It has been observed that the share of enrolment in traditional courses viz., humanities, social sciences and pure/natural sciences has declined during the last one decade. The inclination for professional courses and thereby enhanced enrolment is favoured by increased private providers and other stakeholders, who anticipate better job prospects. Further the Distance education accounts for 26 per cent of the total students' enrolments and the remaining 74 per cent is the share of classroom teaching in higher education (FICCI 2012).

Of various types of institutes, 47 per cent are State Universities, 20 per cent Deemed Universities, 16 per cent Private Universities, 7 per cent Central Universities, and other 10 per cent comprising of various Institutes of National Importance and other university level institutes (UGC, 2012). Thus the non-public sector accounts for a higher share than public sector. The contribution of India in research publication has increased during last one decade but compared to its contemporary developing nations its growth has not been appreciable.

In the period from 2001–2006 the unaided private higher education accounted for 63 per cent (from 43 per cent in 2001) of the total higher education institutes and 52 per cent (from 33% in 2001) of the total higher education enrolments (FICCI, 2012). Since 2005–2011, the State Private Universities have witnessed a fifteen-fold rise in the number of institutes from 6 to 94. Of the 130 Deemed Universities, 73 are in the private sector. About 1 per cent of colleges have been granted an autonomous status (FICCI, 2012). Most of this growth of private higher education has happened in the more marketable professional courses like engineering, medicine, management, computer applications, etc. ranging between 50 to 95 per cent. The per capita private expenditure on education almost quadrupled from 1.2 per cent in 1983 to 4.4 per cent in 2003 (Agarwal, 2006).

Though we can boast of a glorious past, the fact remains that the achievements of contemporary Indian universities are limited. The quality of higher education as judged by the list of 200 top ranking universities prepared by the There is not a single university in India in this list of the top 200 in the world. (Sen 2013). Singapore is small and lacks a natural resource base, but have universities which are ranked among the World's best. It is almost a

corollary that Singapore is also hailed as the best country to work in, the least corrupt with high environmental standards.

The present scenario for knowledge creation in India is bleak. There is severe quality deterioration, lack of innovation and creativity. The unholy nexus between political parties and private educational agencies has made education the best investment opportunity with high return and low risk. The government instead of ensuring the principles of inclusion, equity and access, left the students to the mercy of banks for finding funds for financing higher education in the private sector. Such policies certainly cannot lead to the formation of an egalitarian society. The neglect that Indian planners have shown towards knowledge creation is incomprehensible even in the context of the desire to provide universal literacy and free elementary education to children below fourteen. The level of literacy still remains high. Vast resources which should fruitfully move towards education, both higher and elementary is expended in wasteful and unproductive activities. India is slated to have one of the youngest populations, with the bulk of the population figuring in the working age. However, in order to utilize this demographic dividend effectively, India needs to impart adequate and appropriate skills to its workforce.

With the advent of information age there was a shift in knowledge creation and knowledge dissemination. Information was easily accessible. A person with minimum computer knowledge can now easily have access to all information. Knowledge was available literally, at finger tips. Digital Revolution marked the beginning of the information age. It implicitly refers to the sweeping changes brought about by digital computing and communication technology during the latter half of the 20th century. Central to this revolution is the mass production and widespread use of digital logistic circuits, and its derived technologies, including the computer, digital cellular phone, and fax machine. This is leading to a dramatic social and cultural transformation of our society, particularly in terms of economic and labour market structures.

Digital Inclusion aims at creating an informed society by including the digitally excluded as we proceed on the road to development. Accessing technology is an imperative to the whole process of bridging the digital divide and fomenting a digital cohesion that secures opportunity through internet, mobile services and computerization of processes. This is a challenge relating to access and the ability to effectively use information and communications technologies (ICTs) to address the needs of people disadvantaged due to education, age, gender, caste or location. Resource barriers to digital inclusion are real and can only be overcome through the provision of free access to and training in new technologies. But making ICT resources available is not enough to ensure digital inclusion. Hence, in addition to resources, people obviously need to acquire skills and knowledge in using digital technologies if they are to participate in the information society at any level. Building technological skills and building confidence go hand-in-hand, in a kind of virtuous circle. Thus, community-based training initiatives are effective in building confidence. For many, social and economic exclusion is associated with poor self-esteem and confidence in general. In such cases, enhanced confidence is a means to achieve greater digital inclusion with social inclusion more broadly. Many non-ICT users are 'excluded' from the information society because they do not realize how this technology is relevant to them.

5. CONCLUSION

Knowledge management in India has undergone a paradigm shift towards deregulation, liberalization, and internationalisation. The last decade or so has witnessed many changes and new trends in the field of higher education in India like the tremendous growth in professional and technical institutions, emergence of more deemed universities, increased role of private initiatives and movement towards quality assurance in higher education. India needs a shift in focus. Our priorities have to be changed and our form shifted from big dams and steel mills to knowledge creation and the generation of creative knowledge. The emphasis should be on people with ideas and capabilities. Giving livelihood jobs to millions are important, but more important become the chance to grab the opportunity of turning them into a qualified human resource. In a world where knowledge creation has assumed great importance, it is imperative that India should give priority to knowledge creation and knowledge management to achieve long term economic growth.

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