Financial Chronicle ND 21/03/2014 P-9

The expanding IITs

Arunabha Bagchi

In the highly publicized speech to start his election campaign in the Ramlila Maidan, Narendra Modi promised to set up IIT and IIM in each state if he would become the Prime Minister of our country. In the same speech, he promised decentralization as a major plank of his domestic policy. These are clearly contradictory promises. How does Narendra Modi know whether a state prefers one IIT and one IIM, as opposed to many trade schools and basic training centres to run small-scale businesses? In an abjectly poor country like ours, it is the perennial gun versus butter dilemma of the first course in economics, albeit of a less dramatic kind. The economic implication of this dilemma for a country like ours is no less dramatic though.

I then read that K. Chandrasekhar Rao, the probable Chief Minister of Telengana, in his first meeting with Sonia Gandhi after the official creation of the new state demanded that an IIT and an AIIMS be set up in that state. I realized that Narendra Modi, as a long-standing chief minister himself, knows the psychology of all other (potential) chief ministers of our country. But why do they all think alike? One reason is the huge flow of central fund once the process of setting up such elite institutes starts in earnest. The other is the enormous prestige associated with these institutes, even at the international level. There is also the expectation that hi-tech investment is bound to follow once such institutes are set-up in a state.

I have great admiration for IIT B. Tech. degree holders like every other Indian. They belong to the best and the brightest of our country. They have been dramatically successful in Silicon Valley and played crucial roles in our internationally acclaimed IT industry. Similarly, IIM graduates occupy top-level management positions in many multinational corporations. IIT and IIM graduates are mainstay of many well-known engineering and management schools in the United States. They even became enormously successful in global finance and consulting industry in the West. Inside India, IITans are also in the IAS, IPS and other central government services. We even have one current chief minister, another just losing his chief minister's job and an important Union minister who are IIT graduates. The most striking is that at least two IITans are acclaimed writers in India in the English language.

Traditionally, successful engineers have been innovative designers who used their existing knowledge of science to solve some seemingly impossible design challenges. We boast of incredible success stories of IITans at home and abroad, but we rarely talk about highly accomplished engineering designers in India from among them. We do not know significant roles played by IIT graduates in enhancing our manufacturing sector and helping thereby the desperately needed employment growth in our country. Newspapers report proudly about the large number of IIM graduates hired by companies from abroad. All these bright young people help increase global wealth no doubt, but how much of that directly benefits India as a whole? I do not know any serious study of the cost benefit analysis of educating our children from high school all the way to graduating from IITs, IIMs and AIIMS, and the benefits the country gets from that investment. Is it not high time that we take a closer look at the current state of our overall economic development and devise educational strategy to achieve optimal economic growth in the future?

Despite our disproportionately high expenditure on engineering education, India has one of the lowest numbers of R&D personnel per million inhabitants. According to the R&D Statistics brought out the Department of Science and Technology, as cited in a recent article by Sunil Mani and Anant Kamath in The Economic and Political Weekly, this "density" is 164 for India, 863 for China, 668 for Brazil, 4963 for South Korea and 5139 for Japan. Massive brain drain of IIT graduates makes a large part of investment on them bearing dividends elsewhere. Whoever decides to stay in India prefers to do MBA and is lost to R&D forever. Most of our private engineering colleges turn out low quality, largely unemployable engineering graduates, and they are prohibitively expensive for many bright students from (lower) middle class families. Where would then our innovative engineers come from?

IIT Kharagpur was set-up in 1952. The five IITs, which gave us some modicum of respectability in the world ranking of universities, were all set-up before the end of the sixties. This is one success story of our much maligned "state planning" that no neoliberal economist wants to point out. Then some established engineering colleges of pre-independence days were christened as IITs. We have a narrow pool of scientific talent base in our country, as the vast majority of the underprivileged children remain untapped due to their lack of any decent school education. We may have exhausted our capacity to produce many more bright science students capable of following the demanding IIT curricula. Despite this supply constraint, politics opened a floodgate with the creation of 9 additional IITs. Now with Narendra Modi's election promise, we may be on the verge of a full-blown flood of IITs. The average quality of IIT graduates is bound to decrease at the same rate as that of the increase of the number of IITs in our country. The collective prestige of IITs is also expected to take a hit internationally.

The infrastructure and the running cost of maintaining even the existing IITs are prohibitively expensive. Very few of the IIT graduates remain in the mainstream engineering profession in their own country. Currently the enrolment in IIT M. Tech. courses is being beefed up by our central government. With IIT B. Tech. graduates already largely lost to the West, or to other professions, bright NIT graduates are flocking to the IIT M. Tech. studies. This is providing western universities with additional supply of potential Ph.D. candidates from India. There are two possible ways of circumventing this huge waste of our meagre resources. One is to massively develop engineering programmes in regular state run universities as in the United States. This is possible only by making all universities in India unitary, unburdening them from affiliated colleges and converting colleges and polytechnics into professional colleges/polytechnics as in the Germanic countries. The other is to develop full-fledged universities around all IITs. The massive land and infrastructure of IITs should make this effort very easy and cost effective. To keep the prestige of IITs intact, they might be given autonomous status within these universities. This must also be followed in the IIESTs and IISERs. Although not particularly important, this would make it possible for some of our universities to make their mark in the world university rankings in a reasonably short period of time. We would not have to lament about our misfortune each time one such ranking or the other makes the newspaper headline.

In a recent BBC interview our former Chief Economic Advisor and the current Chief Economist of the World Bank, Kaushik Basu, asserted that one of our economic strengths is that "India's intellectual, technical and engineering skills are very high." He did not give any proof of this assertion, except to mention "There is the large Indian presence in Silicon Valley, for example. About half the professional immigration to the US consists of Indians." He is absolutely right on the last point, of course. But the only logical conclusion that one could draw from this comment would be that this immigration policy is one of the strengths of the US economy. Where does Indian economy come into this picture?

The reason for India's very high intellectual, technical and engineering skills, according to Kaushik Basu, "is the fact that for a poor, emerging economy, India after Independence invested disproportionately in higher education, even though it did very poorly in terms of basic literacy." Judging by the experience of Japan, then of South Korea, and most recently, of China, one would tend to conclude that this fact has, in fact, been a source of weakness, rather than a strength, of our economy. The reason for this anti-people policy was the intense lobby of our upper caste, urban, middle class voters. Japan, South Korea and China started development with flat social structures resulting from long wars and terrible destruction. Did that make all the difference between their economic performance and ours?

THE WRITER IS FORMER DEAN AND EMERITUS PROFESSOR OF APPLIED MATHEMATICS, UNIVERSITY OF TWENTE, THE NETHERLANDS.

Times of India ND 21/03/2014 P-24

'Becoming Microsoft CEO beyond wildest dreams'

TIMES NEWS NETWORK

Bangalore: Becoming Microsoft CEO was beyond his wildest dreams, Satya Nadella said in a recorded video telecast at a conference organized by the computing giant here on Thursday.

Satya Nadella

"Having grown up in India, the idea that I would have the opportunity to talk to all of you as CEO of Microsoft was beyond my wildest dreams. Admittedly, my interests at that time were a bit more focused on cricket than on technology," he said, and went on to add, "It is amazing though, to think of the advancements in technology over the past few years and the opportunity for developers in India today."

Nadella, who was appointed CEO of the $78-billion company in February, talked about the enormous opportunities in cloud computing. He believes India is a cloud-first and mobile-first country, with cloud emerging as a potential game-changer to deliver applications on smart devices at a fraction of the cost of traditional computing. "We are at a pivotal time in our industry — living in and developing for a mobile-first, cloud-first world," he said

With over 100 million smartphones and 12 million PCs expected to be sold in the country this year, companies are increasingly relying on the power of cloud to deliver modern applications on connected devices. "Organizations require modern applications to deliver cloud-scale, while integrating with existing systems through hybrid cloud capabilities," he said.

Nadella said Microsoft's Azure is a powerful platform for the entire Indian ecosystem of IT professionals, developers and startups to bring their applications to market worldwide. "It helps Indian customers to leapfrog to the cloud and accrue significant cost savings," he said. Microsoft has 10,000 partners and engages with 1.6 million developers in India.

Globally, the company has invested $15 billion to build massive cloud infrastructure and it has 55% of Fortune 500 companies using Windows Azure. India is one of the fastest growth markets for Azure.

BITS to offer masters in engineering for B.Sc graduates

R. Ravikanth Reddy

HYDERABAD: The dream of degree students entering the portals of Birla Institute of Technology & Science will be fulfilled, with its Hyderabad campus soon starting a Master of Engineering programme for B.Sc. graduates.

BITS Hyderabad Director V.S. Rao said ME in Information Security, under computer sciences stream, would be offered to B.Sc. graduates.

This would be the only course open for science graduates, exclusively on the Hyderabad campus. All other programmes were either for students who passed Intermediate, or B.Tech or M. Tech graduates.

The course, with an intake of 40 students, can be completed within 36 months. Classes will be held even during the summer vacation. Students will get paid internship in the final year.

Prof. Rao said the Hyderabad campus would double its numbers by 2020.

IIT-Gandhinagar to reach out to community

Runa Mukherjee Parikh,TNN | Mar 21, 2014, 02.39 PM IST

AHMEDABAD: Indian Institute of Technology, Gandhinagar (IIT-Gn) is gearing up to promote entrepreneurship at the grassroots level in its neighbourhood. It will do so by cultivating a social entrepreneurial ecosystem among its faculty, staff and students.

To develop its outreach entrepreneurship programme, the institute signed a memorandum of understanding (MoU) with I Create India, a non-profit organization that has been offering entrepreneurship programmes to disadvantaged youth and women since 1999. The MoU was signed by Prof Sudhir K Jain, director of IIT-Gn, and Ulhas Kamat, CEO of I Create India.

Following the MoU, I Create India and IIT-Gn conducted an Entrepreneurship Awareness Programme (EAP) for the faculty and staff of IIT-Gn as well as Vishwakarma Government Engineering College and Saffrony Institute of Technology.

"IIT-Gn believes in being an involved member of the community and a good neighbour. We are constantly looking for ways to engage with and contribute to the local community. We are excited about our partnership with I Create India, which will help us in expanding our outreach efforts in the neighbourhood by empowering street vendors and cleaning staff and other small providers of goods and services with basic business and entrepreneurship skills," said Prof Jain.

"I Create's mission is economic empowerment of the disadvantaged through entrepreneurship training. For this, it has partnered with many like-minded organizations in the country. IIT Gandhinagar is the latest one," said Kamath.

Indians are 2nd largest users of MIT-Harvard online courses

Sujit John,TNN | Mar 21, 2014, 08.36 PM IST

The courses have been put together and are led by some of the finest professors in the world.

BANGALORE: Over 2.5 lakh Indians have registered for courses on edX, the massive open online course (Mooc) platform founded by Massachusetts Institute of Technology (MIT) and Harvard University in May 2012 to host online university-level courses.

This makes Indians the second largest community, after Americans, to register for these courses, said edX president Anant Agarwal, an Indian American who grew up in Mangalore and who has now been teaching the circuits & electronics course in MIT for 26 years.

The courses have been put together and are led by some of the finest professors in the world. Students require just an internet connection. The courses are free, can be normally completed within a duration of 4 weeks to 12 weeks, and those who complete them receive a certificate from the university that provides the course.

Some 2 million people from 196 countries have registered for edX courses, of which about 6 lakh are from the US, about 80,000 each from the UK and Brazil, and about 60,000 from China.

For Indians, the most popular courses have been those related to computer science, engineering, and public health. Globally and for Indians, the two most popular courses are `Introduction to computer science', led by Harvard faculty David J Malan and Rob Bowden, and the circuits & electronics course led by Agarwal.

"Some 2.2 lakh people are currently registered for the introduction to computer science course, and some 3.6 lakh have registered for this course in the past two years. The circuits & electronics course has had a total of 2.5 lakh students since it started. About 12% of the students in both courses are from India," said Agarwal.

Indians account for about 50% of the 70,000 enrolments in Harvard's public health course. Agarwal said this strong interest from Indians was thanks to the Medical Council of India spreading the word among doctors.

edX, a not-for-profit initiative, and Coursera, a for-profit initiative by two Stanford professors, are among the biggest Moocs providers. edX now offers some 160 courses including in science, engineering, business, law, history, social sciences, and artificial intelligence. MIT and Harvard have been joined by several other universities around the world, including IIT-Bombay, in offering courses on the platform.

But only around 6% of those who register for these courses complete them and go on to receive certificates. For this and other reasons, Moocs still has a lot of critics. Few think it can completely substitute classroom teaching. The big promise of Moocs is that it can take world-class education to those who are otherwise excluded for socioeconomic or geographic reasons. But a recent University of Pennsylvania study revealed that over 80% of surveyed people taking Moocs already hold college degrees.

Agarwal is unfazed by these arguments. Moocs he says are better than what you get in many universities, and particularly valuable for countries like India, for students who can't get into the top schools or can't afford them. "Today's generation is also used to watching videos. And our courses give a video game-like experience. So students are very engaged. We are planning a big push in India," he said.

He also noted instances of students benefiting from these courses. "One US student who took our software-as-a-service course added that to his LinkedIn profile and received a job interview call from a company in New York the very next day. Amol Bhave, a high school student in Jabalpur, took my course in circuits & electronics. He applied to MIT soon after and got in with financial aid," Agarwal said.