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Chakrabarty, Aritra

Symbiosis International University

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Role of Education and Skill Development for Sustainable Development

NAME: ARITRA CHAKRABARTY

EMAIL ID: chakrabarty_aritra@yahoo.co.in

MOBILE: +91 -9769382295

AFFILIATION-post-graduate student at Symbiosis School of Economics, (SIU),Pune

PROFESSIONAL EXPERIENCE

Period -May-June 2012: Labour Market Research Facility (LMRF), Tata Institute of Social Sciences (TISS)

Position –Research Intern

- Analyzed labour economics w.r.t labour market segmentation
- Attended lectures on Institutional economics, Strategic Management
- Was a part of field study under Corporate Social Responsibility
- Completed a project on Vocational Education and Economic Growth

EDUCATIONAL QUALIFICATION

Qualification	Year of Passing	University/Institute	Score
MSc(Economics) 1 st year	Pursuing 2011	Symbiosis School of Economics	3.715 (CGPA)
BA	2010	University of Mumbai	68%
CBSE 12 TH	2008	CBSE	82.0%
CBSE 10 TH	2006	CBSE	88.0%

Abstract

The Indian economy is widely expected to grow at sustained high rates over the next few decades and emerge as the second largest economy by 2050. These robust projections have much to do with the demographic profile of the country. 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.

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and skill up-gradation on the job is low; implying that a large section of the currently employed labor possesses outdated skills.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 favoring the expectations of the labor 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. The attempt of this paper will be to reconcile the empirical study of the education sector with the neoclassical literature on human capital as a determinant of sustained growth with special focus on skill development.

Keywords-education, human capital, demographics, sustainable growth, skill development

Introduction

1. Background of Vocational Education

Defining VET as a sector within the education system poses a number of difficulties. For the most part, general and academic education is seen as that which builds analytical skills, knowledge and critical thinking, while VET develops craftsmanship, practical experience and practical problem-solving. However, this simple definition and demarcation can mislead and cause academic drift of vocational education. To standardize vocational education, there are certain issues which hinder a globally acceptable and applicable format of VE.

Analytical issue- the etymology of vocational education hasn't been constant throughout the world over the ages. During the Industrial Revolution, 'vocational' referred to the type of education aimed at stable job and stable career in a respectable profession.

However, in the 20th century, “waves” of changes have moulded the institutions-religious, political, cultural, economic and social. As of today, vocational is at the bottom of a hierarchy of knowledge and value, it is a stream of learning available to the “lower achiever”, it is governed in a paternalistic way with highly circumscribed degrees of freedom over content and process, it is legitimated solely in industrial and other utilitarian terms, rather than in the connections among different kinds of meaning making, and it is preserved for occupations of lower status (Stevenson 2005, *ibid*, pp335-336).

Political issue- if one definition of VET is given preference over another, it might lead to certain provisions being left out or given more importance i.e. there will be favoritism. Of similar importance is the weightage of VET as compared to the formal education system. In India, vocational training is handled by multiple ministries, without the required level of coordination between themselves. Thus, there exists conflicting means and methods towards VET objective. This makes a standard implementation of VE a distant dream.

2. Labour Market reflections: India

According to the Economic Survey conducted in 2007-08, 64.8% of India’s population would be in the working age of 15-64 years in 2026 up from 62.9% in 2006. Other projections also indicate emergence of young India with 800 million in the productive age group by 2015 compared to 600 million in China.

According to a study conducted by Confederation of Indian Industry and Boston Consulting Group(CII & BCG) India has a large population base of 1.14 billion with demographic shift in favor of working age group (15-59 years) while the overall population is projected to grow at 1.4% over the next five years the working age is expected to grow at 2.15%. If the present trend continues, 109 million persons will attain working age during the period of 2007-2012. The net addition to workforce is, therefore, expected to grow to 89 million of which around 13 million are likely to be graduates/post graduates and about 57 million are likely to be school drop outs or illiterates.

It has been noted that statistics point to a significant share of incremental demand occurring for skilled labour – graduates and vocationally trained people. They are expected to account for 23% of incremental demand by 2012. The study further estimated that India is likely to witness a deficit of 5.25 million employable graduates and vocationally trained workforce by the end of this year. The emerging demographic trend of this country signals at the economy possessing one of the youngest populations in the world with the bulk of the population in the working-age bracket. By the 2026, 64.8 percent will be in this bracket.

Industry sectors like retail, textile and apparel will require about 90 percent of its recruits to be vocationally trained. Similarly, hospitality, healthcare and together will add additional 6 million to the current labour demand by 2013. With an average market size

comprising the above estimated at US\$100 billion, the demand side looks bright for skilled labour, especially those with vocational training.

On the supply-side, the size of the current technical training infrastructure is much smaller than what is required. India currently has the capacity for training 3.1 million people per year. This is insufficient, given that every year, 12.8 million new people enter the workforce.

The 11th Five-Year Plan had reported that only two percent of the workforce aged between 15 and 29 years receives formal technical training while another eight percent receives non-formal training. The situation is particularly miserable in rural areas. Hardly a quarter of the 12.8 million new entrants to the workforce receive formal education and training. This poses serious implications for the skills level of the workforce. The problem has a generic dimension since attendance rates in schools drop significantly after children hit 15 years of age due to multiple factors depending much on the region of living, which is also the time from when the workforce participation rates increase sharply.

The supply-side looks grim with skill shortage in the present working population and the industry demands not being met by the technical institutes or through vocational training. Thus we have a supply-demand gap created by institutional factors and persisting social infrastructure in general and particularly with respect to education.

The available literature on vocational education and training, so far has been inadequate to assess the importance of VET and its impact on economic growth. In this paper, we try to understand and analyze the role of education, particularly vocational education in India. Non-technical education in the formal system at higher levels hasn't met the skill requirements of the industry. In order to meet the growing needs of industry, skilled workforce is a basic requirement and the present workforce lacks the adequate skills.

Based on the information received and study of prior reports on VET and skill development, an attempt has been made at assessing the impact on economic growth and paving way for further research to be carried out- on how India can be transformed into a knowledge-economy, how social infrastructure needs upgradation and models to suggest the existence of a dual system of education. The paper also looks into some of the successful models existing in other countries and make recommendations on adopting the appropriate practices.

In the remaining sections of the paper, we'll first discuss relevant theory on role of education on labour market outcomes, provide the background of Industrial training Institutes in India and along with relevant evidences, discuss their current status. This will be followed by the present data and analysis of the same. The last section will assess the quality of vocational training provided; the roles of private sector in this set up and infer the future road map of VET in India

Section I

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.

This kind of neoclassical proposition has the resemblance with the philosophical contents of Ricardo and Malthus. The basic underlying assumption of the neo-classical philosophy is that diminishing returns to capital operates in the production process. But empirical evidences have not confirmed the tendency of convergence of growth rates and positive rates of per capita growths persist over a century or more for many economies without having a clear tendency to decline.

In 1986, Romer pioneered a new explanation wherein long-run growth was determined by endogenous factors. The simplest version of this view was the AK Growth model which assumed constant savings rate of the households in the economy and a fixed level of technology.

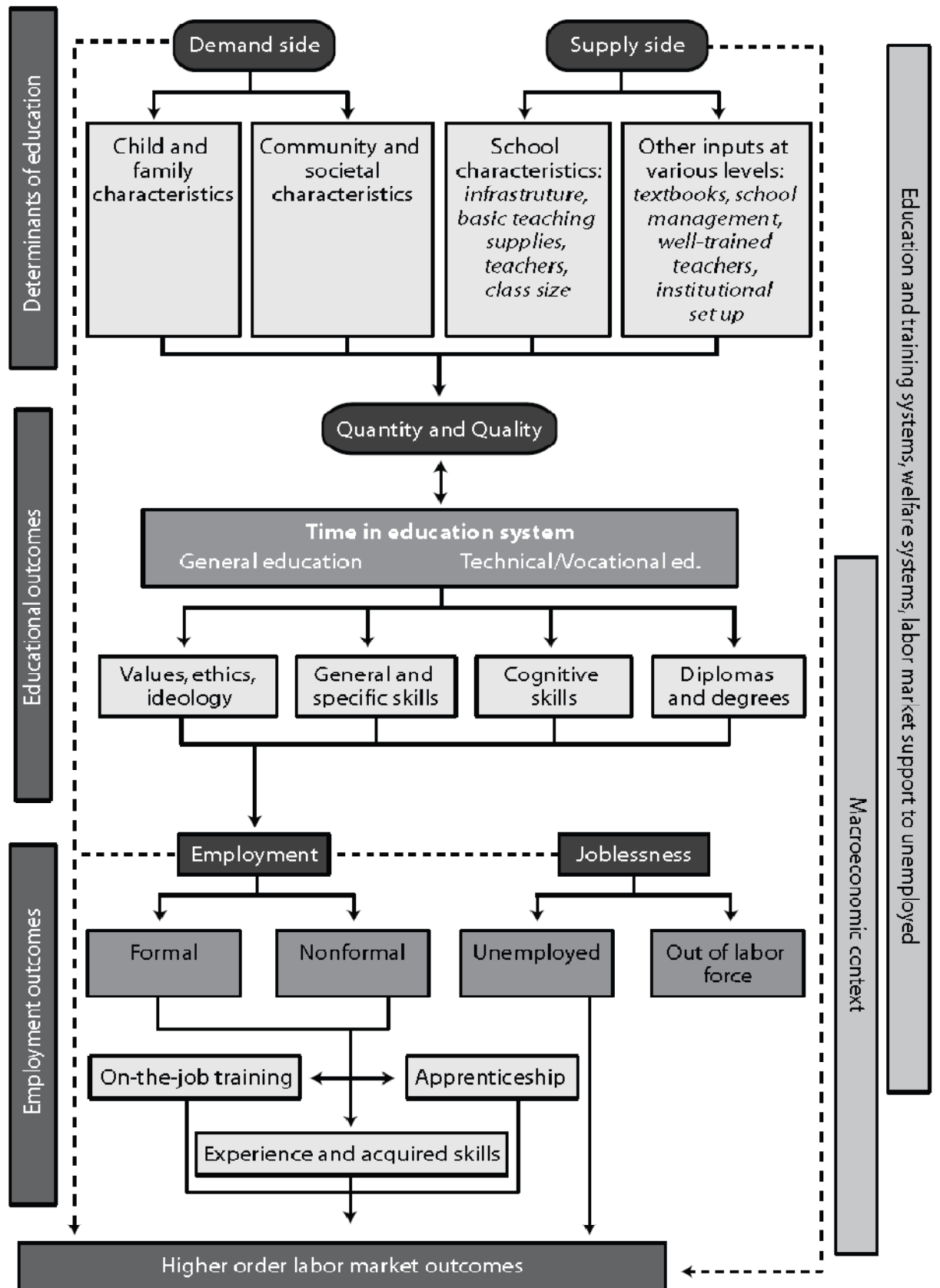
This renewed observation and explanation of growth pattern also witnessed interest among the researchers in verifying and understanding the linkages between fiscal policies and economic growth. Once we're looking at fiscal expenditure, education policy forms a significant part of social overhead capital. The motivation for education expenditure is that it is the key to sustained growth. Many papers in the endogenous growth literature have formalized a link between public education expenditure, human capital formation and long-run growth.

Most of the empirical work on measuring returns on education expenditure on growth uses years of schooling, government capital expenditure as the explanatory variables to determine the value of dependent variable GDP over time-series data. The results differ to a certain degree for developed and developing countries. For the former, the correlation is significant if we measure the quality of education provided as the independent variable whereas for the latter, the evidences deal with highest level of education attainment and/or enrollment ratios as the explanatory factor of growth.

Education, skilled-labour & Labour-market- At the most basic level, the linkages between education and the labor market can be defined as a three-tiered relationship: the determinants of education determine educational outcomes, which, in turn, determine the labor market outcomes of individuals. The relationship between the education “market” and labor markets is, however, much more intricate, with many players active at various

levels. This context includes welfare systems (for example, free education, incentives for education at different levels, the social protection system, and labor market support to the unemployed), as well as the overall macroeconomic context. Thus, it is akin to micro-based analysis of macroeconomic systems.

The figure (1) below displays the several layers of linkages and cause-effect relationships-the first tier of linkages-determinants of education for an individual include the demand as well as the supply side factors as listed in the figure. The demand includes community characteristics, family pattern and child behaviour while the supply side consists of school characteristics (costs, quality, location, etc) and other inputs. Governments can and do influence how these four determinants affect educational outcomes. Certain policies also affect demand-side determinants of educational outcomes.



At the second tier of educational outcomes, the quality and quantity of education are largely determined by the individual's family and community, school characteristics, time spent in the education system and the type of education received. In this context, a general versus technical or vocational education pursuit has strong repercussions on the labour market from both ends- the individual (supply-side) and the type of job available (demand-side).

There are three fundamental ways in which education affects employment. Firstly, those with fewer skills, less practical knowledge and lower level of education are less attractive to potential employers. Secondly, individuals who pursue technical or vocational education will enter different occupation than those emerging from the general education system. This creates a certain dichotomy in terms of market-signaling by a prospective employee to the employer. The third effect is routed through the quality of education which will determine the mobility of an employee in an organization once recruited.

The second possible initial labor market outcome is joblessness, a category that combines the unemployed (people who are not working, but available and seeking work) and those who are out of the labor force. Although unemployment may be a normal state during the job entry process, extended spells of inactivity tend to have strong associations with issues such as health problems, drug addiction, and social unrest (O'Higgins 2002), and therefore deserve special attention from policy makers.

Section II

1. Higher Education in India: the TVET issue

The eleventh five-year plan 2007-2012, was termed as the "education" plan by the Prime Minister and considered to be the second wave in the development of higher education. It consisted of setting a target of 15 percent gross enrollment ratio (GER) which was to be achieved by a fiscal quantum allocation of Rs. 46,449 crores, a jump from the previous 3294 crores for the tenth plan. Expansion in institutional capacity has been reflected in setting up of about 1464 new educational institutions-comprising 30 central universities, 8 IITs, 7 IIM, 20 NITs, and 20 IIIT's, 3 IISER, 2 Schools of Planning & Architecture, 374 model colleges and 1000 Polytechnics. Apart from the physical infrastructure aspect, other policy issues which were brought under consideration by the Ministry of HRD were increasing the gross enrollment rate to a targeted 30 percent, reforming the regulatory authority, reforms of the deemed university sector, checking the quality assessment mechanism (NAAC), promoting internationalization of higher education system, reforms of qualification framework for vocational and legal education, etc.

Over past six decades, India has covered a long distance on the path of expanding the institutional capacity in higher education (figure 2). In the year 1950, the country had just 25 university-level institutions; this figure has gone up to 417 in 2007, - nearly 17-fold increase. The growth of degree colleges during the period has been even larger, nearly 30-times. The number of colleges has gone up from 700 to 25,951.

Institutions of Higher Education and their Intake Capacity

Capacity Indicators	1950	1991	2004	2006	2009
No. of university level institutions	25	177	320	367	467
No. of colleges	700	7,346	16,885	18,064	25,951
No. of teachers (in thousands)	15	272	457	488	588
No. of students enrolled (in million)	0.1	4.9	9.95	11.2	13.6

The eleventh 5-year plan, touted as the “education” plan, involved a number of issues relating to higher education. The University Grants Commission prepared a blueprint for future strategy; the main focus was on four major issues. These included-

- expansion in higher education at the national and state level through higher enrollment incorporating equitable distribution over the states,
- equal access of education to all thus eliminating gender disparity, class and religious divides, including the backward sections in higher education, etc,
- promoting quality and excellence through the present structure of higher education and aiming it towards international standards and
- provision of relevant education thus bridging the gap of demand and supply

However, the growth rate of education institutions lags behind the GDP growth rate (2009-10 figures). There are other internal aspects which are absent in the UGC report-

- The rate of growth of teachers (faculty) was slower than the number of universities and colleges. This has created a shortage of qualified faculty in higher education institutions.
- Number of students has grown at a slower pace as compared to the number of universities and colleges. This has resulted in oversupply of seats and many of which remain vacant.
- Number of colleges have grown at a rate slower than the growth of GDP resulting in talent shortage and continued demand for talented and skilled workforce.

The missing link is the quality of education being provided which is not captured in statistics and numbers. Despite the growing needs of skilled workforce, there is an oversupply of seats in colleges. This implies that either students are not receiving information (signal) regarding the course of study and/or the courses offered are not what the industry demands.

2. Structure of ITI

Industrial Training Institutes (ITI) comes under the purview of Directorate General of Employment and Training (DGET) within the Ministry of Labour and Employment. Earlier private ITIs were called Industrial Training Centres; now all are uniformly known as ITIs.

- The National Council for Vocational Training (NCVT) grants permission to Companies like sole propriety, private / public limited, registered under companies act, societies & trusts registered as per act, and promoters of SEZs to open ITIs/ITCs as well as Trainers Training Institutes .
- The management of the institute is responsible for making all the necessary arrangements and infrastructural facilities for the proposed Trades/Units as prescribed by the NCVT.
- Neither the centre nor the respective state government has any provision for any financial grant being awarded to open/run an ITI. This proves to be a serious impediment for the functioning of the institutes.
- Government and Private ITIs seeking affiliation from NCVT must apply for a minimum of two units (or multiple of two units) of a trade at a time and appoint two instructors one for each unit, as per norms.

As mentioned, the setting up and functioning of ITI falls under the DGET and hence the responsibility of skill development in the country rests with this department under the Ministry of Labour and Employment.

The aim of skill development in the country is to support achieving rapid and inclusive growth.

The objectives of this policy are to:

- Promote commitment by all stakeholders to own skill development initiatives.
- Develop a high-quality skilled workforce/entrepreneur relevant to current and emerging employment market needs.
- Enable the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders.
- Enable effective coordination between different ministries, the Centre and the States and public and private providers.

The policy puts forth the target of achieving 500 million skilled people in the country by the year 2022. The emphasis will be on institution-based skill development through polytechnics, ITIs, vocational training centres, apprenticeship-training and training for self-employment and entrepreneurial ventures.

3. Analysis and Results

A comparative analysis of private and public ITI structure and conduct revealed the following-

- The type of infrastructure required; machines, tools, equipments, workshops, quality faculty to impart the best practices of the industry, industrial visits, upgraded technology to learn from- all of these cannot be accommodated within the meager earnings from tuition fees. And this is one of the glaring factors for the failure of many ITIs in the state (Maharashtra). The lackluster attitude of the authorities towards the continuum of the courses, dragging on with outdated teaching methodology and neglect towards the wards, dropout rates amongst the students are all the result of this undervalued fees. Neither the student, nor the teacher has an incentive to be involved in the training program
- The course structure is more flexible and favorable in the private-run ITI; what a student will be taught in 2-year time, the same will be covered in 6 months/1 year in an ITC. Field observations showed that most of the students prefer the private diploma in technical training as they are job ready within a year. The popularity is also reflected in rise in the number of intakes for the private diploma year after year. the medium of instruction is so designed that the institute can conduct more batches per day for the same trade; is a win-win situation for the both the institute and the student
- Partnerships with industrial firms and organizations are an important step on the part of the ITIs to avail the best practices for the students and also standard pay-packages. Firms like Volkswagen, Godrej, L&T, Tata Motors and other MNCs collaborate with private ITIs. This helps the institute to avail the latest technology for the students to work with, assure them of apprenticeships as per industry standards. Even on the placement front, government ITI fails to make an effort to partner with firms in getting market standard remuneration for their students.

Thus, the private-run ITI is better placed and better poised to cater to the needs of students in industrial training. They are well managed, the administrative structure takes due measures to keep updated with latest industry standards, have tie-ups with companies and firms in providing job-seekers and receiving technical support to run the trade-courses. In Maharashtra, the public ITI has been a laggard- in keeping up with the demands of the industry. It lacks manpower to run the courses, there is no incentive to put in efforts from the authorities and paucity of funds plagues the institutes.

Section III

What should have been a case of externality and spill-over effects as prescribed in theory is lacking in practice here. Given that India faces a skill-shortage, the demand for skilled labor is rising; the GoI has targets to meet the industry demands and coupled with that the demand-supply mismatch it would have been ideal for the ITIs to share common knowledge pool. But observations show that the success of one ITI doesn't replicate itself in another institute. This is a glaring issue that needs immediate redress. The main rationale behind this is the lack of information flow or asymmetric information between the two parties. The information available at one end isn't reaching the other end even though both have the same objectives to achieve.

Sectors such as Information Technology (IT), ITES, construction, electronics, and communication technology complain about the quality of students at the entry level in the labour market. The external labour force comprises of potential employees who lack practical training and shop-floor skill sets. Thus, firms have to invest on the training of their recruits which ranges from 3 weeks to 6 months as per the job requirements. A student opting for the ITI route to higher education will be assured of practical knowledge, technical training plus theory. This puts the student at an advantage over an Engineering graduate in the labour-market. This also saves the firm's employee expenditure on training at the entry-level. Firms then have the option of investing on skill upgradation and making use of better technology on its manpower.

Our analysis shows that industry-academia collaboration is a successful technique where both the partners have something to gain from the contract or agreement reached between them. As statistics point out to the ever expanding needs of skilled labour especially in the manufacturing, textile and apparel, partnerships with technology majors improves the standard of technical training, provides financial assistance to the institutes so that the institutes equip themselves with the required tools and machines of trade and in return, the institute provides with skilled workforce.

One important finding from our analysis is that private management is better equipped to run an Industrial Training Institute on all parameters explored and inspected. This raises the question-should TVET be handled completely by the private bodies with no government involvement? To understand the aspect of private involvement, we look for examples of Technical training in other countries

Germany- endorsing 'on-the-job' training and dual education system; learning on the job is a traditional component of its education system. All vocational training is aimed at imparting comprehensive professional competency. Vocational training in Germany is not only guided by industry demands but also by the need of the individual to acquire skills, knowledge and competencies that enable them to successfully to prove themselves better in the labour market.

The permeability of the education system is steadily being improved. Existing barriers between individual areas of education are being dismantled. They are currently making rapid progress with the development of an interdisciplinary National Qualifications Framework (NQF), to make it easier for qualifications and learning outcomes to be recognized across all areas of education.

Vocational school as place of learning

- In the dual system, the vocational school is an autonomous place of learning. Vocational schools decide on how to allocate teaching in consultation with training enterprises, the schools inspectorate and the competent industrial bodies. The aim of the various organizational forms is to ensure that trainees spend as much time in the enterprise as possible while, at the same time, allocating teaching in a way that is tenable in terms of both pedagogies and the psychology of learning.

Strengths of the dual system

- Low-cost trainee for the industry for a fixed time frame
- Assured availability of the next generation of skilled workers for employers
- Students trained on updated industry infrastructure
- Trainees paid by the industry and vocational training funded by the government

Singapore-Singapore's vocational education training system has evolved through phases of development, with the most important being upgrading of vocational training to a post-secondary qualification under the Institute of Technical Education, set up in 1992. The ITE system is a government funded post-secondary initiative that is focused on providing vocational technical education.

Features of this System-

- ITE functions as the principal provider of career-focused technical education in Singapore at the technical or semi-professional level and is the principal authority for National Occupation Skills Certificate and setting standards
- It offers pre-employment training to school pass outs in two mode system-full time on the job training in any ITE institute and an apprenticeship training in any of the partner companies
- According to national targets, 25 percent students proceed to junior colleges after completing secondary schooling, 40 percent to polytechnics and 25 percent to ITE's technical institutes. These students receive training on a wide-range of full time ITE certified courses in engineering, communication technology, applied and health sciences, and business and services.

The ITEs are unique in the sense that they cater to lower 25%-30% segment of secondary school students and have been responding effectively to the dynamic changes and challenges impacting VET. From the above two VET examples, there are certain key issues which come into highlight-

- Private sector involvement in vocational training improves the standard of education as it is more demand-driven. India can adopt the PPP route-collaboration of both public and private in TVET set up. While the government should look after the monitoring and regulation of ITI, private sector will provide the expertise to conduct the programs and deal with employment.
- There should be a third-party to monitor the quality of education being provided. Given that every economy has a different bureaucratic structure and where government as an institution plays the important role of guiding our rationality, a third party to monitor the terms of the PPP agreement is a needed call.
- The dual education system of Germany provides the highest level of flexibility to the students and high degree of opportunities. It is one of the best models that is student-oriented and focuses on an individual's strengths, interests and likes in any trade. We could incorporate some of the concepts of this model to provide room for learning in multidisciplinary skills for students completing secondary schooling and engaging them in a holistic learning set up.

4. Future Road-Map

The basic theme of our research was to place the importance of Vocational Education in the context of the Growth story of India. On a nation-wide context, the role of TVET is explained through how it impacts the labour market. Placing the demand-supply mechanism on a national perspective will complete the whole gamut of research set out in this paper. Thus, there lie vast unexplored horizons yet under the theme of this research. What we have achieved here is just the speck of reality.

Another sub-theme which emerges out from this research is Can Technicality be introduced in Non-technical Education? Pointed out early in the beginning, the majority share in higher education belongs to the general streams of study. This forms a very important domain of study which could have ripple effects across the education sector. Stating the present condition of higher education, it is observed that graduates are finding it difficult to get placed- the demand side is not reacting to the supply because they lack practical skills and "hands-on" training. Companies are refraining from training of employees to maintain their bottom lines. So the responsibility to make the working-age population an asset for the economy rests on the education sector. This calls for greater public spending (investment) on education as a part of social infrastructure. Theory points out to the effects of fiscal policy on growth- a positive fiscal policy implies higher returns on investment through multiplier process. This task involves deeper observation of student perception of the education system, the view of academicians, public and private models of education system, the role of private funding, and other issues.

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