

Vocational Education and Training: A review of Theory, Evidence and Policy Recommendations

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Constant efforts are being made the world over to enhance the quality of human capital. In order to accomplish this goal, the process of accumulation of human capital has been brought under scrutiny. The objective of human capital accumulation is, on the one hand, to improve human productivity, and on the other, to help enhance the standards of living for an individual. Quality education and training facilities are the key determinants for human capital.

An important aspect of human capital formation is providing skills to individuals to enhance their opportunities in the labour market. The accumulation of human capital through skill training can be carried out in a traditional setup of general education through schools and colleges, or separate institutes designated for imparting skills, called Vocational Education and Training (VET). Alternatively, the training can be imparted in non-education institutional setups like firms where workers engage in learning by doing (on-the-job training) or through apprenticeship (Kuruscu, 2006). As per Euler (2013), VET provides the ability to undertake “vocational tasks.” Vocation training not only caters to the current business/job needs but also develops abilities to cater to the needs beyond the present job. Adding to this explanation, Witte and Kalleberg (1995) entrust VET with the task of providing social skills and develop self-esteem among the recipients of the training, along with acting as an alternate succour for the marginalized section, otherwise vulnerable to delinquencies. However, some are of the view that vocational education provides knowledge/skills which are only temporarily required (Zwick, 2005).

Literature provides several advantages of vocation training. For the employees, training (either given by the employers themselves or attained from elsewhere) helps to increase the productivity of the employee. It also acts as a screening device in many firms to decide the promotion of employees, and enhances the flexibility of employees, and allow firms to meet

the skill lacking in the workers to complete a certain task (Zwick, 2005). For the workers, it helps in enhancing their mobility and expands their employment opportunities. Training also helps employees to improve their adaptability with changing market conditions (Euler, 2013).

As per Barrera-Osorio, Kugler, and Silliman (2020), these training programs are also often credited for smoothening the transitions from school to employment. To smoothen the transition, Zimmermann et al. (2013) highlights the need for improving the vocation elements in the general schooling system in order to bridge the gap between labours' supply and market demand of skills.

In this paper, we are interested in developing an overall narrative around vocational training. Having mentioned the importance of skill and training for human capital, our focus is to understand how economic literature and policymakers are dealing with the issues of skill development through VET, especially in the case of India. We initiate the discussion with giving a brief history of vocational education and training in Europe and India. The following section discusses the extant literature on skill training across the world and delineates the best practices in the field of VET. The literature provides us insight on the type of skills, the impact of training on labour market outcomes, skills supply and demand mismatch, and the ways for efficient provisioning of VET. The subsequent section delineates the case of VET in India, followed by policy recommendations. The final section concludes.

History and Evolution of Vocational Training

The trend to pursue university education (with a major focus on general education) is not more than seven decades old. Earlier, the majority of students used to attain basic school education and then find employment or join formal vocational training institutes or work as an apprentice (Bosch and Charest, 2008).

The memory of vocational training goes back to Europe of the medieval era with the presence of the guild system. The guild system was a form of economic organization with a training system akin to present-day apprenticeship, where amateur/ beginner artisans/ merchants would engage in training under the master craftsmen (Fudenberg and Rayo, 2019). The

middle ages practice of vocational training has continued to remain in importance in many European countries like Germany, the UK, Romania, to name a few. It is still a common practice that employees new to a career (like hotel industry workers, lawyers, mechanics, chartered accountants) would undergo training under their employer (Deissinger, 1996; Barber, 2004).

These training programs were not untouched by a flair for exploitation. As Fudenberg and Rayo (2019) quote:

“Master craftsmen and tradesmen took in young learners and gave them menial tasks that make filing and photocopying look plush.” They were subjected to strict discipline, and progress to a higher-order task came across as granting of a privilege. This type of exploitation, in less severe form, has persisted to the present century as well. As Fudenberg and Rayo (2019) notes, often the employers may extract more work/efforts from the trainees than the socially optimal level and subject them to prolonged training periods than strictly needed for a given training. This conjecture is in tandem with the experience of the author of the present paper, where he experienced that many hotel industry workers, for example, are made to slog for long hours during their training, which may extend to more than 10 hours a day. A rationale behind sub-standard working conditions of these trainees is often the development of strict decorum among them (Fudenberg and Rayo, 2019).

Germany has always had a strong presence of the institution of vocational training. The German system of vocation training has consistently been buttressed by the legal institutions and has undergone significant changes during the industrial revolution and world wars. The model has evolved over time to become the present model of modern “Dual system” of education in Germany (for details refer Deissinger, 1996).

The Indian counterpart of the guild system is seen in the existence of the *Shrenis System*. Regarded as the form of the ancient Indian knowledge system, *Shrenis* are economic and social organizations of professionals (craftsmen, merchants, carpenters, weavers, etc.) located at a place. Apart from providing training for the perpetuation of their skills over generations, they also acted as unions to safeguard the interest of their members, and market their products. On the training front, parents used to give their custody to the master-craftsmen for the apprenticeship. Each guild had its own style of production and transferred

the skills from the master to the trainees over centuries. Roy (2008) delineates the guild system in medieval and modern India. In medieval India, *Karkhana* (workshop) was the place where craftsmen or other professionals used to commission their projects and provide training to the young learners. The *karkhanas* generally flourished under the patronage of the regional kingdoms. Similarly, there was a multitude of trade guilds who were involved in commerce across kingdoms of the Indian subcontinent and maritime trade in South East Asia and beyond. The economic mode of operation of the medieval guilds included a master (*ustad*) who would train the apprentices and issue license to become an *ustad* after completion of training. The fee charged by *ustads* was often tokenistic in nature, many a times paid in kind as well. Often the scope of apprentice work involved catering to the family of the *ustad* as well. Thus, we see a lot of seemingly non-market-oriented activities existed, with the existence of informal relations between the *ustad* and the trainee, and *ustad* may occupy the role of a mentor and guardian, and not just a trainer. The new graduates of the apprenticeship system often did not part their masters during the initial stages of their careers till they develop enough expertise and are able to signal out their ability to undertake independent contracts in the market. Thus, it can be gauged that association with the established master was a market mechanism to reduce the problem of adverse selection.

However, over the due course, we see the emergence of formalized education institutions imparting training along with the existence of small guilds in the form of regional weaver communities, for example.

Vocational Education: Best Practices

Most of the studies on vocational training are conducted in the context of European nations. This stems from the well-established system since the middle ages, as mentioned in the previous section. The present section highlights some of the best practices in vocational training (Witte and Kalleberg, 1995; Bosch and Charest, 2008).

The German education system has been regarded worldwide for various reasons., It has been considered as a model to follow in order to eliminate the inefficiencies in the education system by the United States. However, as explained in subsequent sections, it can also be used as a model to follow for the Indian context (Mehrotra et al., 2014). The highlight of the

German vocational education system is the “dual system.” It is a combination of part-time vocational schooling with a training/ apprenticeship program of practical training with a company. The dual system was established under the Vocational Training Act of 1969 (amended in 2005), and established synergistic alliances between government-run vocational schools and small and medium-sized firms. The dual training programs usually last 2-3.5 years. The system involves employers providing training in return for productive labour at lower than minimum wage. The satisfactory performance may render trainees with the placement offer with the firm. The program has been credited for a lower rate of youth unemployment in Germany. Moreover, the system solves the mismatch in the demand of skills by the firms and supply of skills by the workers in the labour market.

Using the German Socio-Economic Panel, Witte and Kalleberg (1995) showed that most of the employees possess jobs that fit their vocational training. They found that around 50 to 60 percent of people in the age between 16 to 19 join the dual system, and the demand registered an increase in the 70s and 80s. However, the concern emerged that many of the increased numbers of apprenticeships were in the field with bleak chances of employment in the future. However, a critic of the dual system has been that employers may create apprenticeship positions only to extract cheap labour, without rewarding good work with regular employment¹ (Witte and Kalleberg, 1995).

¹ The German Vocational Training System-BMBF website

Theoretical and Empirical evidence of Skilling

In most of the empirical work, skills (and returns to skills) have been measured using the proxy of the number of years of schooling. However, Ingram and Neumann (2006), in their work, raise a question on such a practices. They contend that there exists heterogeneity in terms of skills provided by courses. For example, the skill imparted by the Batch program is not comparable to the skill provided by a degree in Literature, even if the years of education are the same. In addition to their contention, it should be noted that skills involve vocational training as well, which again would enhance the abilities of an individual. An additional year of vocation skill is not comparable to an extra year of general education. Hence, understanding the heterogeneity impact of the education program is essential. These claims are buttressed by the findings of Ingram and Neumann (2006) that returns to skills (measured as years of education) have not increased since the 1970s. Thus, they use other direct measures of skills like mathematical ability, verbal ability, motor coordination, etc., to understand the relation with wages, and found these skills accounted for increased dispersion in income among the cohorts of college-educated, rise in wage dispersion of among those who did not have a college certificate in the US labour market. They found that during the period of their study, those who did not invest in acquiring specific skills other than attending college have a relatively “flat income growth”. Acemoglu and Pischke (1999) argue that on the job training can be a source of skill accumulation as many of the specific skills required by occupations are not provided by general education training.

However, a study conducted in the Romania by Malamud and Pop-Eleches (2010) investigates if individuals with VET are less adaptable to change than those with general education in the transitional economies like Romania. Using a regression discontinuity design and cross-sectional data, they found that post the introduction of reforms, which increased the years of attainment of general education for all (thus shortening the duration of VET), the chances of individuals with VET to be unemployed and have lower wages were higher.

Similarly, empirical evidence from Suriname and the UK indicated better labour market outcomes from general education than vocational education. A stream of research on developing countries like Egypt and Tanzania highlights the importance of a mix of general

and vocational education. Whereas, in Thailand, where richer households prefer vocational training over general education, it reveals better outcomes from VET than general education (Horowitz and Schenzler, 1999; El-Hamidi, 2006, Kahyarara and Teal, 2008; Moenjak and Worswick, 2003).

However, the conundrum is not whether to go for vocational or general education *pe se*. Two stylized facts emerge. 1. The quality of vocational training is substandard in many countries; 2. Most of the youth are devoid of market-oriented skill training. If the countries upgrade their training programs (as in the case of Germany) or make it accessible for most of the population, VET would become a viable option for many students, and its labour market outcomes will also improve.

Though matching or fit between acquired skill training and employment is considered desirable, Witte and Kalleberg (1995) point out the case is more nuanced than it appears to be, as the close fit may rather indicate a constraint in career progress as well, and hence the fit is not the end in itself. The upward mobility in the job generally provides an individual with a position where initial skills may not be applied. For example, the person may build up in their training and rise up to say attain a managerial or supervisory position on those who are new entrants with similar sets of skills. The fit varies as the person progresses the career path with VET. Thus, initial vocational training may vary from being prominent to employment in the initial years of careers to less important as the career grows. It may diminish in importance when the person climbs up the mobility in a career (owing to work experience), or initial training becomes obsolete with the change in technology. Their study found that fit does decline over time for both men and women. Thus, the data showing that the majority of German men and women are involved in jobs that are not in tandem with their original VET is not worrisome *pe se*.

Holzer (2015) highlights a change in the middle-skilled labour demand in the US labour market. They found using the US Bureau of Labor Statistics data that middle-skills jobs in the field of construction, production, and clerical jobs which require low levels of education are on the decline whereas the middle-skill jobs combined with postsecondary education or training in health care, mechanical maintenance etc. are on the rise. Thus, it indicates a trend of increasing requirement of skills even in conventionally unskilled jobs, with a combination

of skills along with higher levels of education required by the employees. Contrary to the European education system, especially Germany, the importance of imparting skill has been traditionally very low in the US education system.

The literature agrees that lower-level skills are responsible for a higher incidence of unemployment in many countries. Pauw, Oosthuizen, and Van Der Westhuizen (2008) Points out that the unemployed in South Africa possess lower skills than required by the market. Moreover, contrary to the traditional belief, the problem of graduate unemployment among many developing countries has been quite severe. Thus, they found that not only unskilled workers face unemployment, but there also exist market failures in the form of issue of skill shortage among graduates as well. The research finds out that a lack of soft skills and the gap between graduate degree training and skills required in the job are the reasons behind graduate unemployment. Moreover, the low levels of workplace experience dis-incentivizes the firms to higher fresh graduates. In this regard, a policy recommendation can be following the model similar to the Dual system of Germany. Some form of an apprenticeship program can help graduates get exposure to the workplace and, in due course, invest in soft skills. This paper investigates the nature of this phenomenon. Evidence suggests that learners are inadequately prepared for both tertiary studies and entry into the labour market. Lack of, or inadequate career guidance means that they do not choose fields of study and types of qualifications with good employment prospects. In addition, a lack of soft skills and workplace experience means that employers are reluctant to employ graduates, preferring more experienced people instead. Bosch and Charest (2008) assert that the signalling effect of vocational certificates may vary from nation to nation. In some countries like India, vocational training may be a succour for those not interested in tertiary education, while in other countries like Germany, Austria, Switzerland, etc. it, might signal the candidates' ability to undertake complex tasks.

Much of the literature focuses on public or private provisioning of skill training. Though traditionally, government intervention was considered undesirable, the posterior empirical work asks for public provisioning of VET.

The distinction between general and specific skills is attributed to Gary Becker, where general skills are the skills useful by all employers, whereas specific skills enhance productivity in only specific jobs. For example, whereas certain soft skills may be endemic to say the hotel industry, likewise certain accounting skills may be required by only an accounting firm, whereas the general nature of skills like the knowledge of computer and fluency in language can be considered as general skills required across the board. Becker notes that because of the generic nature of the general skills, the incentive to invest in them lies mostly on the workers themselves in a perfect competition setup as the benefits also accrue to them only. This is mostly practiced by the workers in the form of apprenticeship training where they are paid less than market wages (or legally set minimum wages) and, in a way, pay the cost of improvement for their general skills (Acemoglu and Pischke, 1999).

Firms may be unwilling to invest in generic skills as they are not able to ensure perpetual returns from the enhanced productivity due to the skilling of workers. On the other hand, firms prefer to train in specific skills as the returns to specific skills mostly accrue to the specific firm itself. The Becker's model is free from market failure as workers pay for their training till they find it equivalent to the marginal returns from it. Thus, in case the market failure arises because of resource constraints on the part of workers to sustain their training period, the credit market should be made the loans available. There is no place for government intervention in the form of subsidies.

On the lines of Becker, we can say that individuals would invest in the accumulation of skills while maximizing the time periods over which they can reap the benefits of their investment. As per Arulampalam, and Booth (1998), if the firms or employees believe that their engagement is short-lived like contract jobs or part-time employment, the party bearing the cost of training would have chosen to minimize its payments for training. Using the British Household Panel Survey (BHPS), they confirmed these findings that that individual on short stints is significantly less likely to receive training in that job than a permanent employee. Lechner (2000) points out towards the inefficacy of the public sponsored VET programs in East Germany. However, the study is too spatially and temporally contextual to be generalised.

In Acemoglu and Pischke (1999), they analyze the importance of firm-sponsored training in the case of imperfect labour markets to meet the firms' needs for specific skills. They found the willingness among firms to pay for general training of the employees because of the presence of non-competitive labour market may lead to issues like wage compression. They suggest that lower education level endows lower skills to the US workers leading to lower employment. This issue can be solved with the presence of on the job training for them. They point on the need to determine the optimal mix of schooling (general-purpose education) and vocational training (specific skill training) in non-competitive setups. They conclude that the on-the-job-training is the best measure to enhance productivity in any occupation.

Some empirical evidence establishing the benefits of VET exists in developing countries. Given the importance of specialised skills in low and middle-income countries, many Latin American nations have introduced training programs for marginalized sections. Attanasio, Kugler, and Meghir (2011) use randomized control experiment to investigate the efficacy of one such program in Columbia. The program, similar to the dual system approach of Germany with three months of classroom and three months of on-the-job training to youth, was put to the test. They found a higher probability of employment and higher wages of the treatment group, along with improving the chances of getting formal contracts and employment. The impact has been higher for women than for men, highlighting the additional significance of training programs for women.

A case for provisioning of general training by employers, as opposed to Becker's thesis, has been made by many researchers (Schonewille, 2001). They present a theoretical model showing that training has a positive bearing on productivity. However, they could not distinguish between the impact of on-the-job training from off-the-job training.

Barrera-Osorio, Kugler, and Silliman (2020) conducted an RCT in Columbia to understand the impact of hard and soft skills on labour market outcomes. Apart from confirming the positive impact of VET on formal employment and wages on both men and women, they found that employees with emphasis on training in soft skills were able to increase their employment and wages over a longer time period than those with only technical skills. Thus, they confirm the existence of soft-skill premium. The resource constraints can prove to be an obstacle. Hence, they found that the provision of financial support (transportation, meal, stipend, etc.)

will enable resource constraint individuals to continue the training programs. They also point out that benefits of VET may be accrued to top the individuals over long periods, along with more importance of soft skills over a long period. Moreover, they make a case of subsidizing VET in developing countries because of the substandard credit market in these economies.

Fudenberg and Rayo (2019) develop a theoretical model with a cash constrained agent (apprentice) dependent on the principle (firm) to obtain knowledge. They limit the capacity of the principle to overwork the agent or extract payment for training by enabling the apprentice to walk out freely. The agent is asked to either engage in skilled tasks or menial/unskilled tasks. To reduce the outside option (or to make the walk out decision less attractive) of the agent, the principle may have an incentive to proceed with the training at a slower pace, thus reducing apprentices' productivity in the near time interval. It essentially implies that with a controlled pace of knowledge growth, employer ensures that they extract work from them over a long period of time and prevent agents' exit. This is well resonated in the real world practices where apprentices are given menial tasks independent of their knowledge, in the initial days and overtime as they acquire more skills, their productivity enhances. We can also say that employer controls the productivity of the employee in the initial periods. Apprenticeship in professions like bakers, chefs, carpentry, etc. often operates in a similar fashion.

The outside option of the trained employee or their mobility, which Green, et al. (2000) call the "poaching problem" has been the factor making firms reluctant to provide training. The mobility not only makes their investment in training a sunk cost, it also increases their search cost to find new employees and at the same time increase their relative marginal cost (with respect to their competitors). In this regard, it is essential to differentiate training based on transferability. They conducted their study in the UK and found that training would lead to less mobility if skill is less transferable and is sponsored by firms. However, the practical knowledge tells us many times the firm gets a contract/ bond signed by the employees deterring them from exiting for a stipulated time. These contracts raise their cost to exiting by asking the employees to pay a fraction of their salary if they decide to leave.

An important stream of discussion in the sphere of VET is acknowledging further differentiation in the types of skills. Brunello and Schlotter (2011) focus on the measurement of non-cognitive abilities/ skills. It has been widely recognised that along with cognitive abilities; the employers also look for interpersonal skills, leadership skills, etc. in their employees. The non-cognitive skills are now considered to have the same impact on school and labour market outcomes as the cognitive ones. However, the problem of measuring non-cognitive skills like motivation, leadership skills, still remains a task at the aggregate level. However, using a socio-psychometric test, they can be gauged at the individual/ firm level. Apart from technical skills, another type of skill demanded in modern firms has been embodied by the “aesthetic labour”. Aesthetic skills are often related to the production of conspicuous style and revolve around the “people skills” of the employees. These people skill include soft skills of interpersonal, communication, and social skills. Often called soft skills, their importance can be gauged from the findings that lack of soft skills is one of the reasons for the low employment of South African graduate youth (Nickson, Warhurst, Cullen, and Watt, 2003; Pauw, Oosthuizen, and Van Der Westhuizen, 2008).

Vocational Education in India

Emphasis on VET has been varying across the Asian nations. In India, the vocational training is provided into major ways: Either as a part of formal education in secondary or higher secondary classes, or in institutes like polytechnics, ITIs, etc. or it may fall outside the purview of the informal avenues, provided in the form of apprenticeships/ on-the-job training. Where the first form has gained popularity in India and Sri Lanka, the latter is famous in the East Asian economies. The VET has not been successful in South Asian economies of Afghanistan, Bangladesh, India, and Pakistan and has been low in the scale of relevance, adequacy, and quality (Zimmermann et al. 2013; Mehrotra, et al. 2014; for more on VET in Asia, refer Tilak, 2003, Agrawal, 2013).

The vocational education conundrum in India has existed since the colonial times. Though a major work in the field by academician Philip Foster criticised VET by giving the term “Vocational Education Fallacy”, national leaders like Mahatma Gandhi have been in favour of vocational training (Tilak, 2003).

There has been a significant expansion of academic education, and vocational education has been limited to the informal sector and training for craft-related occupations. Moreover, the curriculum of the formal vocational institutes is not in tandem with the changing market demands (Mehrotra, et al. 2014; Zimmermann et al. 2013). Though Vocational training and technical training are given different definitions, UNESCO doesn't differentiate between the two; neither do we for this paper.

The findings from the primary survey conducted by Mehrotra, et al. (2014) reveal that the companies have shown the enthusiasm to bridge the gap by offering to undertake cluster-based training. There has been demand for reforms in the system in order to improve the dismal state of VET in India. Companies have asked for amendments in the Apprenticeship Act (1961) to render it more flexible in terms of remuneration and training duration. However, as per Apprenticeship Act (amendment 2014), hours of work and leave will be as per the discretion or policy of the employer. The findings of Mehrotra, et al. (2014) point out that the link between the theory of curricula of VET and the practical application is very weak. The report recognizes the need to apply the Dual system of Germany in the Indian education space. They suggest replicating the dual system in India, with popularising VET at the secondary level and collaboration with private companies to provide practical hands-on experience to the students. Given the popularity of Public-Private Partnership models (PPP) in India, authors suggest private players should also play their role in the development of the curricula so that the theory is in line with the demand of the market. The report suggests the institutionalisation of VET in India in similar lines as that in Germany by taking legislative measures towards introducing a Vocational Education and Training Act.

There is a paucity of rigorous academic endeavors (whether empirical or theoretical) in determining the impact and provisioning VET in the Indian Education Space. Using the National Sample Survey Organization's 68th round survey employment and unemployment (July 2011 to June 2012), we presents the data showing the dismal condition of VET in India. NSSO report categorizes VET depending on its source. It is divided into formal sources for Vocational Training (VT) that is, schools, ITIs, polytechnics, etc. Informal sources include hereditary training where the knowledge is transferred from one generation to the next in a household. As mentioned earlier, this is one of the ancient forms of skill transmission

institutions. It may also include self-exposure to the task and on-the-job training, a case study of which is mentioned in Barber (2004). Self-learning involves ones own efforts to acquire skills with no training under any person or organisation. On-the -training involves informal training by the employer or organisation. Other sources may include learning of skills from friends or other extended family or household. The majority of the sample possesses no formal or informal training. A small number of around 3 percent depends on formal VT, whereas hereditary and on-the-job training accounts for a much higher fraction of vocational training. Female participation in Vocational education in much lower than that of males in both formal and informal vocational training.

Table 1: Sex-wise VOC training in India

Sex wise VOC training (in percentage)			
Vocational Training	Male	Female	Total
Receiving Formal VT	1.12	0.6	0.87
Received Formal VT	2.64	1.65	2.16
Non-Formal: Hereditary	4.02	1.99	3.02
Non-Formal: Self-learning	2.09	1.27	1.69
Non-Formal: On-the-Job	5.46	1.46	3.49
Non-Formal: Others	0.38	0.43	0.4
None	84.29	92.61	88.38
Total	100	100	100

Source: Author's computation using NSSO 68th round (2011-12)

An interesting work appears in literature in the Indian in the informal sector. Barber (2004) conducted an ethnographic study of motor mechanics in small towns of India. The study is significant as it engages with the informal sector, which employs the majority of the Indian labour force. The author points out that the source of training for mechanics is informal learning in the workshop itself. Through their informal training develops a high level of innovations, they face the issues of adaptability and safety consideration at work. Similarly, as expected, participation in formal training is higher from urban areas as compared to rural areas (Agrawal and Agrawal, 2017).

One of the empirical works in the field is given by Agrawal and Agrawal (2017). Using the National Sample Survey Organization's 68th round survey, employment and unemployment, they confirm returns to vocational education are positive and higher than general education in both rural as well as urban India. This indicates the rising skilled labour demands in the country.

They also show that majority of the vocational training is imparted through non-formal channels, and formally trained ones are highly unemployed. The matching of skills with the current occupation among the samples has been around 66 percent. However, as mentioned earlier, matching is (not the end in itself and hence enthusiasm with matching should be taken with a pinch of salt).

The NSSO data classifies fields of vocational training. The fields, for example, include training in mechanical trade, computer trade, textile, photography, hotel industry, crafts, and related activities, to name a few. Present paper attempts to divide these fields, depending on their characteristics like tangibility and intangibility, into 5 categories. Trade in technical good includes trade related to engineering and technical goods and computers; production activities include training in production in the primary sector (agriculture and allied) and secondary sector (civil manufacturing). Services include intangible services involved in the tertiary sector like the hospitality sector, medical and child care, photography, journalism, cosmetics, etc. (NSSO, 2014). This categorisation gives a broad idea of which field is the most preferred by the students for training. As Table 2 shows, trade in technical goods is of the highest importance, followed by trade in services in both males and females. Though males outnumber females in all the fields except textile and allied work, and others. Textile and allied include textile and leather related work, and here females significantly outnumber males. The table provides a direction of which fields are more revealed preferred ver others and which fields need more policy focus.

Table 2: Sex-wise distribution in various categories

Categories of VET	Male	Female	Total
Trade in Technical Goods	51.42	30.53	43.77
Textiles and allied work	2.49	25.29	10.84
Production activities	6.52	4.67	5.85
Services	30.73	28.06	29.77
Others	8.83	11.43	9.78
Total	100	100	100

Source: Author's categorisation and computation using NSSO 68th round (2011-12)

It is important to ponder over the reason for unemployment of the high number of formally trained youth. There can be multiple reasons for the same, including: 1. Lack of job opportunities in the market; 2. The skill may be obsolete because of a change in technology or the market's skill demand; 3. Personal/ exogenous reasons which can't be taken into account.

If the second point is the reason, then the contention of Mehrotra et al. (2014) with skill supply and demand mismatch needs to be taken seriously, and policy intervention suggested by them should be considered.

NDeavours

Policy Recommendations

Though Gary Becker stresses on the private provisioning of vocational training in a competitive setup, it has been recognized that in an imperfect labour market, or the case of missing markets for credit or human capital formation (such as the absence of quality training institutes), the government intervention has been a welcome step. This is echoed in the empirical results produced by (Attanasio, Kugler and Meghir, 2011; Barrera-Osorio, Kugler, and Silliman, 2020). The need for government intervention for better provisioning has also been highlighted in the (Pauw, Oosthuizen, and Van Der Westhuizen, 2008), and the case for reforming training to match the quality of Germany in the developed nation like the US and the UK has been raised by (Meager, 2009).

A strong case for building non-cognitive skills (interpersonal, communication, and other soft skills) using policy interventions has been made by (Brunello and Schlotter, 2011). As mentioned by Fudenberg and Rayo, (2019), the soft skills may not reap higher payoffs immediately but would show their impact over due course. It has also been suggested that focus on non-cognitive skills should be integrated into the early stages, say from initial years of general education. Even in the Indian context, the desirability of social/ soft skills has been highlighted by Agrawal and Agrawal (2017).

A major issue with VET is the bias against it among the general public. In the present context, enrolment in VET is perceived as indicative of the low ability of an individual (Malamud and Pop-Eleches, 2010; Mehrotra, et al. 2014; Agrawal and Agrawal, 2017). The literature indicates that intervention has to be made to: first, increase awareness about VET and their benefits by providing information to students and parents during school years; second, changing the way it is perceived through improvement in its quality, third, updating the modules of VET to meet the market needs. A case for legislative interventions in VET space and encouraging more of PPP models for its advancement (Mehrotra, et al. 2014; Mehrotra, 2014). The importance of VET has been highlighted in the recently introduced New Education Policy (2020). The policy realizes the need to expand the VET in the country. In order to counter the undesirable perception of VET as low quality, the policy recommends:

“no hard separations between arts and sciences, between curricular and extra-curricular activities, between vocational and academic streams, etc. in order to eliminate harmful hierarchies among, and silos between different areas of learning.” (NEP, 2020)

The policy stresses on providing holistic education, which includes academic as well as vocational aspects of education for all classes. This can be operationalized by introducing flexibility into the system in terms of choice of subjects, including vocational skills to enable students to design their own path. The policy also introduces to introduce fun courses in secondary classes to provide exposure to vocational crafts, such as carpentry, electric work, metalwork, gardening, pottery making, etc. This is similar to existing SUPW courses in the education system. The policy proposes a 10-day bagless period sometime during Grades 6-8, where they intern with local vocational experts such as carpenters, gardeners, potters, artists, etc. Moreover, such exposure to vocational training would be made available to students secondary and senior secondary students during holiday periods.

The report recognizes that vocational education has until now focused only on Grades 11–12 and on students dropping out in class 8 and above. Though vocational streams are available as an option for class 11 and 12 students, its after-school prospects are not well defined, and this career paths remain precarious. This has been highlighted by the National Skills Qualifications Framework (NSQF) in 2013. Thus, the policy calls for re-imagining vocational education. The policies regarding vocational education , in essence, are trying to raise the standard of VET from a marginalised stream opted only by academically marginalized students by integrating it into the mainstream and marketing it as a lucrative career path for all. Through this, the policy intends to expose at least 50% of students to vocational education by 2025 in tandem with the Sustainable Development Goal 4.4. This is essential for exploiting the benefits emerging from the demographic dividend of the Indian population, expected to last till 2040 (Mehrotra, Gandhi, and Sahoo, 2013). Thus, the literature recommends both qualitative and quantitative expansion of vocational education. The policy also throws light on the mainstreaming of ITIs, polytechnics, local industry, etc. by establishing synergistic collaboration with secondary schooling. The hint of the Dual system of Germany and the PPP model can be gauged from the policy intents to allow higher education institutions to offer vocational education on their own or in partnership with industry and NGOs. As the literature

highlights the long-term importance of developing soft skills, the policy enables higher educational institutes to conduct short-term certificate courses in various skills, including soft skills.

The local flair has to be included in VET to make to eliminate the matching problem. This can be done by policy's recommendation to determine focal skill depending on skills gap in a particular region and determining opportunities in the local economy.

Though no Act has been proposed, a separate body under MHRD named the National Committee for the Integration of Vocational Education (NCIVE) has been proposed. Its task has been proposed to collaborate experts in vocational education and representatives of different Ministries and industries to supervise the expansion of VET. It also recommends further detailing of The National Skills Qualifications Framework for all vocational disciplines. However, the major shortfall of the policy is that it hardly throws any light on the current state of apprenticeship / on-the-job training and recommendation to improve it, given the empirical evidence favouring on-the-job training. This may be because NEP limits itself to recommendations on skills developed under the ambit of the formal education system. Though the policy does not mention anything about the Skill India program. The program has been established with an aim to provide vocational training and certification of Indian youth for a better livelihood and respect in the society. Launched in 2015, various programs are operational under the banner of skill India. It also provides opportunity for e-skilling, that is, obtaining skills through online vocational training, thus overcoming the resource and mobility constraints of the students or facilitators. However, the impact in terms of employment opportunities and reach has to be empirically tested.

To gain competitiveness through skilled labour, a lot of scope lies in strengthening international collaborations. On such measure has been taken by the signing of MoU between India and Japan. As per the MoU, Indian technical interns will be sent to on-the-job training in Japan under Technical Internship Training Programme and implementing the same at a larger scale as it has the potential to increase employment opportunities for youth, an official statement said. Such collaborations are measures to gain accumulate human capital through best quality training and thus gain a comparative advantage. Such programmes also produce

a signalling effect on labour, indicating their quality through world-class training. This shows the realisation on the part of the government to provide more exposure to obtain high-quality skills for workers. At last, we can say that more emphasis on-the-job training and effective implementation of NEP policy recommendations are needed to change the fate of VET in India.

Conclusion

The paper explores the literature related to Vocational training worldwide. The theoretical models explain how vocational education decisions on how much efforts and money to invest in VET are taken. The empirical work stresses on the importance of vocational education for improving labour market outcomes in both developing and developed countries. Critical issues like the dilemma between the choice of general or vocational education remain unsolved. However, as the literature recommends, an optimum combination of the two is highly desirable, though no work determining what constitutes an optimum mix has been done as yet. This leaves a lot of scope for theoretical and empirical work in the future. However, this can be said with more confidence that lack of market-oriented skills and particularly soft skills has been responsible for graduate unemployment. The paper also delineates the history of vocational education, best practices like the Dual system of Germany, and discusses the dismal case of vocational training in India. Finally, the paper provides policy recommendations with special attention to NEP 2020 recommendations for improving the scenario of Vocational Education in India.

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