Key Indicators of Labor Market Flexibility & Skill Shortages

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The paper examines skill shortage among management graduates in India and explores the specific labor market dynamics that underlines skill shortage in Indian firms. The paper critiques the neoclassical perspective which dominates current discourses on skill shortage in the firm. A structured schedule is used to interview key decision makers from 102 firms, drawn from three Indian metropolises: Mumbai, Bangalore and Hyderabad. Firms need to adapt to the constraints of skill shortage by hiring management graduates who can be trained in employable skills requiring firm to invest more on human capital formation. The study unraveled strategic implications that emanate from three diverse contexts: vacancies, skill shortage vacancies and hard to fill vacancies.

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Introduction

Over the last two decades, the diminishing walls of international trade and investment have led to a more integrated and interdependent framework of business. As a result, today employers operate in an environment that demands new and constantly developing skills to retain global competitiveness. India is emerging as a potential economic and social power the wheels of which are in the hands of the Indian youth whose skills need to be upgraded to compete in the global scenario. The skills development initiative[1] is designed to leverage the potential of the youth population (19% of India's population is in the age group of 15-24 years)[2] by developing their employability related skills. However, the challenge remains developing the right skill

[1] Skill development initiative is a formal program under Directorate General of Employment & Training, Ministry of Labor & Employment, Government of India. The primary objective of the program is to improve the employability by optimally utilizing the infrastructure available in govt., private institutions and the industry.

[2] Page viii, Population Projections for India and States, 2001-2026, Report of the Technical group on Population projections constituted by the National Commission on Population, May 2006

sets among the youth matching global standards with significance to both local and global job markets. Only right skill sets will ensure that Indian enterprises remain globally competitive. The growth of management education in India is phenomenal but it is striving to maintain expected quality levels.

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The increasing mismatch between supply and demand is a concern for Indian industry. Despite being acknowledged as one of the foremost success stories in higher education over the last 30 years, business schools are at crossroads in their development (Pfeffer & Fong, 2002). They currently face an image and identity crisis and have been subject to a wide range of critical reviews about their societal status as academic and professional schools (Bennis & O'Toole, 2005; Mintzberg & Gosling, 2002). This raises the question: does the problem lie in attracting and/or retaining management graduates? Or problem emanates from supply side? As mentioned above, there have been much speculation and heated supply-side vs. demand-side debate over the actual causes of the current (perilous) skills shortage situation. These debates which have been mediated and published in the Indian press and in academia over the past few years are the Brain-Drain, the supply of management graduates and the increased demand for management professionals in the Indian labor market. Moreover, Indian media echoes concerns about current skills shortages and the negative impact this might have on local economic expansion.

Recent Literature

The neo-classical economic account of labor and labor markets as an 'imaginary marketplace' has not gone unchallenged as these three citations demonstrate: first, "Among economists, it is not obvious at all that labor as a commodity is sufficiently different from artichokes and rental apartments to require a different mode of analysis" (Ackerman et al, 1998). Second, "labor markets are not natural, universal phenomenon" (Tilly & Tilly, 1998). Third, labor markets in fact, "are different", (Ackerman et al, 1998) and has changed over time. Drawing views from these, this paper argues that labor markets are spatially differentiated and not homogenous. Therefore, each labor market needs to be examined specifically and differently. The theoretical landscape and framework for understanding labor markets has been dominated by the paradigms such as Neoclassical, Marxist and the Institutionalist.

The field of labor economics, predominantly mainstream economics, has been dominated by the neo-classical market paradigm. This paradigm assumes that labor is an abstract commodity of the capitalist economy. It is no different from any other commodity that may be bought or sold in the market and whose price is set by supply and demand

(Marshall, King & Briggs, 1980). In short, the neo-classical perspective reduces work processes to a matter of individual maximizing behavior over a narrow set of quantifiable choices. The basic premise of the neo-classical version is: each person gets paid the value of the marginal product of the input (labor, capital, land) they provide (Tilly & Tilly, 1998).

While, neo-classical theorists speak of individual preferences, Marxists of class consciousness and institutionalists of group norms, Crompton, Gallie & Purcell (1996) argued that these theories have not made great progress in assessing the post-fordist[3] labor market of the latter half of the twentieth century. In an attempt to account for the changes in the organization of work, firm works on satisfying lose lane even at the cost of skill formation. However, this exploration was a critically assessed scholarly lineage which appears to have motivated the researchers to work on over the decades.[4]

Despite peculiarity, there seems no consensual method for measuring skill shortages.

[3] Post-fordism refers to a shift from the predominance of economies driven by manufacturing industries characterized by a mass, relatively homogenous, semi-skilled workforce (Fordism) towards economies dominated by employment in services, associated with a more homogenous, fragmented workforce vis-a-vis post-fordist.

[4] To name a few– Taylor (1947); Becker (1964); Bell (1974); Braverman (1974); Smith (1976); Sabel (1982); Crompton & Jones (1984); Drucker (1993); Esping-Anderson (1993); Crompton Gallie & Purcell (1996).

Despite peculiarity, there seems no consensual method for measuring skill shortages (Brown, Green & Lauder, 2001; Cohen & Zaidi, 2002). Some authors argue that the evidence of skill shortages is tricky to interpret: first, because results are very sensitive to the economic cycle; second, because they rely on employers' perception(Green, Machin & Wilkinson, 1998; Brown, Green & Lauder, 2001) and third, because there are various restrictions that are always imposed by labor market conditions, the peculiarities of specific occupations and the availability and reliability of the data (Cohen & Zaidi, 2002).

These methods are normally adopted in isolation from one another. The findings of the chosen method would then be used to determine and assess skill shortages in the labor market. As suggested above, these approaches quantify the skill shortage situation in labor markets. However, they do not provide measurements incorporating the social, cultural and historical elements (Tilly & Tilly, 1998). The study argues that it is not that such measurements do not explain a 'skill shortage' rather these measures focus on the 'external' economic problems contributing to the skill shortage. As already suggested above, an empirically grounded understanding of skill shortages in labor markets is needed to better identify, understand and explain the specific labor market dynamics that contributes to a skill shortage. This should involve examining the internal and external nature of each labor market in which the shortage is being experienced.

Methodology

The aim of the paper is to understand the key sources of labor market information on skill-shortage and skill gaps, which form a crucial part of the evidence to inform skills across industry. This study focuses on the firms in India who hire management graduates at global and local levels. The list of firms was identified through the Capitaline database[5]. Based on the proximity and total number of firms, the study decided to choose Mumbai, Bangalore and Hyderabad which are ideal locations for the study. All three are global cities[6] and concentration of firms in these cities is the highest when compared to other global cities of India. The three cities were seen as different group to allow proportional representation of enterprises across. After grouping, random method was employed in selecting the companies to avoid researcher's biases in the selection. The statistically acceptable sample size is determined by employing a formula devised by Daniel (1999)[7] to justify the responsive sample size of the survey. Due to long interview schedule some of the participants (representatives from firm) were interested in online survey. Each schedule includes a letter of introduction and a schedule. Subsequently 102 interview schedules[8] were completed of which 76 (74.5 per cent) were administered face-to-face and 26 (25.5 per cent) by online survey form. The study is exploratory in nature and makes use of descriptive framework of analysis. The study focuses on the skill shortage among management graduates. The unit of analysis is firm. In this study, two methods are used for analyzing quantitative data: Uni-variate analysis and Bi-variate analysis.

Results

Respondent firms were asked, "During the financial year, did this firm had any vacancies for management graduates?" Overall, 82.4 per cent of the firms stated that they had posted a vacancy for management graduates. It can

[5] Capitaline Database which covers more than 22,000 Indian listed and unlisted companies, classified under more than 300 industries, along with powerful analytic tools.

[6] Saskia Sassen (1991)

[7] To calculate an appropriate sample size, we applied the following formulae: $n = \frac{NZ^2(1-P)}{d^2(N-1)+Z^2(N-1)}$ where n delineates sample size drawing from the finite population (N), Z represents Z statistic for 95% confidence level, P is the expected proportion that we are going to calculate, d indicates precision (Daniel, 1999). It should be noted that the Z value is set at 1.96 for 95% confidence level. Interestingly, P (expected proportion) varies between 0 and 1, and the sample size is a variant of P. It is important to note that the P is taken in proportion of one, i.e., if expected proportion or prevalence is 40% then P is equal to 0.4. Smaller d implies good precision or smaller error of estimate and it should be in proportion of one (Naing et al. 2006). Interestingly, although there is not a precise rule to choose an appropriate d, Naing et al (2006) shows that if P is less than 10% (0.1) then d should be half of P, i.e., 0.05. On the other hand, if P is greater than 90% (0.9) d would be 0.5 (1-P). Of course, a larger or smaller d can be set depending on the availability of resources. If P is between 0.1 and 0.9 then it is appropriate to choose 5% precision (0.5). In this study, P=0.5 and d=0.1., the sample size is 96.

[8] For face to face interview, schedules were used and parallel to schedule, an online tool was developed.

be seen from Table 1 that the likelihood of posting a vacancy increases with greater number of employees and firm size. The firms stating hard-to-fill vacancies are 56.86 per cent and those stating skill-shortage vacancies are 64.70 per cent. It is evident and surprising that skill shortage vacancies are higher than the hard to fill vacancies. Although, there is scarcity of adequately skilled management workforce, firms appear to compromise expected skill level and go on recruiting.

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Table 1 Vacancies, Hard-to-fill and Skill Shortage Vacancies (n=102) (%)

	Firm Size				
	< 50 Employees	50 - 500 Employees	500 – 1000 Employees	>1000 Employees	Overall
Vacancies	100	59.4	100	86.8	82.4
Hard-to-fill Vacancies	71.4	50	64	55.3	56.9
Skill Shortage Vacancies	42.9	65.6	72	63.2	64.7

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012

Respondent firms that stated that they had posted vacancies for management graduates year were asked a follow-up question: 'during the financial year, how many vacancies this firm had for a different function?' The responses to this question are shown in Table 2. While 57 per cent of respondents said that they had vacancy for human resource, only 33 per cent had vacancy in finance. Quite interestingly, across firm's size human resource emerged as mode category varying from 34 per cent to 86 per cent, except for firm with 50-500 employees' size.

Table 2 Businesses Reporting Vacancies (n=84) (%)

	Firm Size				
Function	< 50 Employees	50 - 500 Employees	500 – 1000 Employees	>1000 Employees	Overall
Human Resources	85.7	34.4	84	52.6	56.9
Marketing	71.4	28.1	64	34.2	42.2
Finance	42.9	34.4	48	21.1	33.3
Operation	57.1	37.5	52	28.9	39.2
Others	14.3	3.1	16	15.8	11.8

Source: Field survey carried out in Hyderabad, Bangalore and Mumbai in 2012

Methods Used to Fill Vacancies

Table 3 explains the methods used by firms to fill the vacancies. The most common methods used to fill the vacancies by employers are: referencing (85.29 per cent), using private recruitment agencies (75.49 per cent), cam-

pus recruitment (58.82 per cent), advertising on the internet (56.86 per cent) and internal recruitment services (56.86 per cent). On the whole, 44.12 per cent of enterprises advertise in local/national newspapers, 19.61 per cent of firms were also using transfer of their employes and 9.80 per cent of firms advertise in trade/specialist journals to fill the vacancies.

Table 3 Methods Used to Fill Vacancies (n*=102)

Methods of Recruitment	Total (%)
Referencing	85.29
Private recruitment agencies	75.49
Campus Recruitment	58.82
Advertising on the internet	56.86
Internal recruitment service	56.86
Adverts in local/national newspapers	44.12
Waiting for transfer of staff	19.61
Adverts in trade/specialist journals	9.80

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Time Taken to Fill the Vacancies

The interview schedule also has a question to understand the search duration or time taken to fill the vacancies within and across various sectors of the economy. Table 4 presents the patterns, 35.29 per cent of enterprises took less than 2 weeks time to fill the positions, while 43.14 per cent of the firms took around 2 weeks to a month to fill the vacancies and 21.56 per cent of firms took around a month to three months to fill the vacancies.

Table 4 Time Taken to Fill the Vacancies as per Size of the Enterprises (n*=102)(%)

Size of Firms	Time taken to fill the Vacancies			Total
	Less than 2 weeks	2 weeks to 1 month	1 to 3 months	
< 50 Employees	0.98	4.90	0.98	6.86
50 - 500 Employees	9.80	13.72	7.84	31.37
500 - 999 Employees	10.78	9.80	3.92	24.51
>1000 Employees	13.73	14.70	8.82	37.25
Total	35.29	43.14	21.56	100

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Hard-to-Fill Vacancies

Respondents representing firms were asked: 'During the last financial year, was this business easily able to fill all vacancies of management graduates with suitable applicants?' Those answered 'no' to this question were classified as having a hard-to-fill vacancy. The first row of Table 5 summarizes the results. Over half

of firms that have vacancies find them hard to fill (56.86%). Again, as the size of the firms increases, so the chance of having a hard-to-fill vacancy increases.

Table 5 Hard-to-Fill Vacancies as per Size of Firms (n*=102) (%)

	Firms Size				
	< 50 Employees	50 - 500 Employees	500 – 1000 Employees	>1000 Employees	Overall
Hard-to-fill	4.90	15.69	15.69	20.59	56.86
Not Hard-to-fill	1.96	15.96	8.82	16.67	43.14
Total	6.86	31.37	24.51	37.25	100

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Reasons for Hard-to-Fill Vacancies

Skill Shortage Vacancies (SSVs) have been defined as those caused by a low number of applicants with the required skills or work experience or qualifications. Table 6 looks further at the range of reasons explaining Hard-to-Fill Vacancy (HtFVs) including those not related to skills issues and also examines the balance within SSVs between lack of skills, qualifications and experience. The reasons cited by employers are broadly similar to different studies with

The lack of qualifications and experience to meet expectation of firms presumably might be contributing to Skill Shortage Vacancies.

Table 6 Reasons for Hard-to-Fill Vacancies (n*=102)

Reasons for hard-to-fill vacancies	Responses (%)
Lack of skills the company demands	63.73
Low number of applicants with the required attitude, motivation or personality	44.12
Applicants lack basic ability to build upon	32.35
Lack of qualifications the company demands	31.37
Lack of work experience the company demands	31.37
Too much competition from other employers	28.43
Benefits trap/problem wage/benefits	21.57
Unattractive/poor terms and conditions of employment	13.73
Wages lower than other firms	10.78
Location of the firm/poor public transport	9.80
Low number of applicants generally	6.86
No particular reason	6.86
Not enough people interested in this type of work	3.92
Lack of poor career progression	3.92
Job entails shift work /long/unsocial/irregular hours	3.92
Don't know	3.92

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

regard to skills-related issues. The lack of qualifications and experience to meet expectation of firms presumably might be contributing to Skill Shortage Vacancies.

Impact of Hard-to-Fill Vacancies

Firms with SSVs experience a greater number of different impacts than those with non-skills-related hard-to-fill vacancies (HtFVs). Those firms with hard-to-fill vacancies generate discernible impacts. As given in table 7, the principal impact includes 'difficulties meeting customer service objectives' (45 per cent), 'loss of business or orders to competitors'(32 per cent), 'increased operating / running costs' (30 per cent) and 'delays developing new products/services' (22 per cent).

Table 7 Impact of Hard-to-Fill Vacancies (n*=102)

Impact of Hard-to-Fill Vacancies	Responses (%)
Difficulties meeting customer service objectives	45.10
Loss of business or orders to competitors	32.35
Increased operating / running costs	30.39
Delays developing new products/ services	21.57
Difficulties introducing new working practices	18.63
To withdraw from offering certain products or services altogether	17.65
No particular problems	13.73
Difficulties introducing technological change	11.76
Difficulties meeting required quality standards	7.84
Others	6.86

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Actions Taken

Employers appear to respond to impacts emanating from hard-to-fill vacancies (Table 8) by choices such as considering a wider range of applicants (31 per cent), using more extensive range of recruitment channels than normal (30 per cent), retraining existing staff (27 per cent), more training to less qualified recruits (22 per cent), offering higher pay or more incentives than normal (18 per cent), building links with schools/colleges/ universities (18 per cent) and offering enhanced terms and conditions (15 per cent).

Skill Shortage Vacancies

Respondent firms with hard-to-fill vacancies were asked: 'For which of the following reasons did this business find it hard to fill vacancies?' They were given twelve categories from which they could choose as many as they wished. Those who replied 'applicants lack the work experience the business demands' or 'applicants lack the qualifications or skills the business demands' were defined as having skill shortage vacancies (SSVs). The final row of Table 9 summarizes the data on skill shortage vacancies which is broken down into two constituent parts i.e. by firm size and industry. There are some differences between the two fac-

Table 8 Actions Taken to Overcome Hard-to-Fill Vacancies (n*=102)

Actions taken to overcome HtFV	Responses (%)
Considered a wider range of applicants	31.37
Used more extensive range of recruitment channels than normal	30.39
Retrain existing staff	27.45
Been prepared to provide more training to less qualified recruits	21.57
Offered higher pay or more incentives than normal	17.65
Built links with schools/colleges/universities	17.65
Offered enhanced terms and conditions	14.71
Spent more on recruitment or used more expensive methods	13.73
Hired contract staff	9.80
Hired part-time staff	7.84
Changed the job specification by giving some of the tasks to other staff	6.86
Changed the job specification by automating some of the tasks	3.92

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

tors of skill shortage vacancies across business size and across industry. In 'Information Technology' ,'Financial Services', 'Fast Moving Consumer Goods' and 'Construction', it is lack of qualification or skills that is causing the problem. For 'Pharmaceuticals' it is lack of experienced workforce that is causing the greater problem. For some industries it is certification gained in institutions or on-the-job which is important, for others they do not play this role.

Table 9 Skill-Related Reasons for Hard-to-Fill Vacancies, by Size and Industry (n*=102)

Firms size	Applicants lack work experience (%)	Applicants lack qualifications or skills (%)
< 50 Employees	42.86	35.71
50 - 500 Employees	21.88	48.44
500 – 1000 Employees	36.00	50.00
>1000 Employees	34.21	47.37
Industry		
Management Consulting	38.46	36.01
Manufacturing	22.73	35.17
Information Technology	42.11	64.98
Financial Services	23.08	52.99
Fast Moving Consumer Goods	22.22	46.03
Construction	14.29	78.57
Pharmaceuticals	66.67	53.13
Others	37.50	38.30
Over all	31.37	47.54

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Causes of Skill Gaps

The main causes of skill gap of employees are given in Table 10. Close to half of the respondents view that skill gap emanates from high staff turnover and recruitment problems (49 per cent),

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while another half sees it emanates from failure to train and develop staff by the employer (48 per cent). Lack of experience of staff who were recently recruited emerged as an important factor (47 per cent). Other major factors include inability of workforce to keep up with change (37 per cent) and training programs only partially completed (18 per cent).

Table 10 Main Causes of Skills Gaps (n*=102)

Main causes of Skills Gaps	Responses (%)
High staff turnover & recruitment problems	49.02
Failure to train and develop staff	48.04
Lack of experience or staff being recently recruited	47.06
Inability of workforce to keep up with change	37.25
No particular reason	21.57
Training programs only partially completed	17.65
Others	3.92

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Factors Contributing to Skill Gap

Table 11 presents the factor contributing to skill gap. Some of the key areas where particular factors have specific skill issues are highlighted here. In one out of two cases introduction of new working practices is a factor for skill gap. In one out of three cases employers believe that the introduction of new technology is an important factor contributing to skill gap.

Table 11 Factors Contributing to Skill Set (n*=102)

Factors	Responses (%)
The introduction of new working practices	50.98
The introduction of new technology	34.31
Others	33.33
The developments of new products and services	20.58

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Impact of skill Gaps

In the study respondent firms who reported any skill gap were asked which of the potential impacts they had experienced. Table 13 illustrates the nature of the impacts experienced by employers reporting skills gaps. About half of employers with skill gaps (45 per cent) reported difficulties meeting customer service objectives as a consequence of having employees who are not fully proficient. While one out of three employers witnessed loss of business or orders to

competitors (32 per cent) increased operating / running costs reported by every third employer (30 per cent). Employers experienced delays developing new products (22 per cent). It was observed that propensity to mention most of the impacts of skills gaps seems to increase with size of establishment.

Table 12 Nature of the Impact due to Skill Gaps (n*=102)

Nature of the impact due to skills gaps	Responses (%)
Difficulties meeting customer service objectives	45.10
Loss of business or orders to competitors	32.35
Increased operating / running costs	30.39
Delays developing new products	21.57
Difficulties introducing new working practices	18.63
To withdraw from offering certain products or services altogether	17.65
No particular problems	13.73
Difficulties introducing technological change	11.76
Difficulties meeting required quality standards	7.84
Others	6.86

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Overcoming Skills Gaps

Table 13 illustrates the actions taken to overcome skill gaps. More than half of the employers (62 per cent) with skills gaps had responded to the skill deficiencies in their workforce by either changing working practices or providing further training/development (54 per cent). These employers could increase their training activity from low levels and can undertake less training than the average employer but the survey results suggest that this is not the case. Among employers responding to skill gaps there has been an increase in their training activity. It has been reported that six out of ten of their employees (58 per cent) received training in the last 12 months. The next most common response to skill gaps involves increase/expand training programs (35 per cent), reallocating work within

Table 13 Actions Overcome Skills Gaps (n* =102)

Actions taken to overcome skills gaps	Responses (%)
Changing working practices	61.76
Providing further training/development	53.92
Increase/expand trainee programmes	35.29
Reallocating work within the company	33.33
Expand recruitment channels	28.43
Increased recruitment	20.59
Any other	3.92
Don't Know	2.94

Source: Field Survey carried out in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

the company (33 per cent), thereby broadly using the experience of existing employees to oversee and assist those lacking skills.

Barriers to Future

Table 14 illustrates the barriers to overcome skill gaps. Employers most frequently cited the high staff turnover (28 per cent) or lack of funding for training (24 per cent) as the main barriers to overcome skill gaps. Both these barriers, along with employers having lack of suitable courses in the area (22 per cent), lack of time for training (22 per cent), unwillingness of staff to undertake training (19 per cent) and lack of cover for training (9 per cent) are partly internal to establishments (though training being unaffordable is also partly a function of the prices providers charge). External barriers to providing further training were less frequently reported. Most common amongst these external barriers was lack of appropriate training or qualifications in the subject areas employers needed. In addition to the contrast between internal and external barriers they can also be grouped into four broad themes: expense, time, training supply and other barriers. Time and expense are the most common of these themes (both accounts to more than 50 per cent).

Table 14 Barriers to Overcome Skill Gaps (n*=102)

Barriers to overcome skill gaps	Responses (%)
High staff turnover	28.43
Lack of funding for training	24.51
Any other	24.51
Lack of suitable courses in my area	21.57
Lack of suitable courses generally	21.57
Lack of time for training	21.57
Unwillingness of staff to undertake training	18.63
Don't Know	9.80
Lack of cover for training	6.86
No particular measures taken	3.92

Source: Field Survey carried in Hyderabad, Bangalore and Mumbai in 2012
*n represents the total number of sample enterprises

Conclusion

The paper investigated the influences on firms posting vacancies for management graduates and whether these prove difficult to fill. The study considered the determinants of external skill gaps or 'skill shortage vacancies'. It is apparent from the study that there has been a high degree of innovation and/or experimentation, especially in relation to recruitment, where the existing channels of recruitment are unlikely to supply the skills needed. Nonetheless, the impact of skill deficiencies can be serious. However, it needs to be born in mind that firms need to be more active to face skill deficiencies and consider number of measures to overcome. In many cases skill deficiencies occur as a consequence of firms pursuing profit maximization

rather than cost reduction strategies. In this regard, skill deficiencies may be seen as a natural outcome of short run rather than long run growth.

Higher rates of innovation and diffusion would demand significant increase in skill levels.

The results of the study exhibit the potentially significant role that skill gaps may play in the economy. There is also great support for the hypothesis that higher rates of innovation and diffusion would demand significant increase in skill levels. The paper argues that skill gaps may be as significant as reported and there is need for policy interventions to make employers better aware of the importance of skills for their long term business performance and to help them in addressing these imbalances. There is a need for a closer interface between industry and academia to bridge the gap. Industry should take leadership role in skill training, qualification and assessment as in many of the developed countries. This strategy is relevant if training had to deliver at job-level skills in an increasingly globalised world.

Overall, the evidence points to skill deficiencies impeding economic performance. Perhaps it is necessary to use range of indicators to ensure an accurate estimation of skill shortage. Moreover, no single measure of skill shortages is sufficient, this has been confirmed by several studies, to name a few (Veneri, 1999); (Clarke, Geserich & Toft, 2004); (Shah & Burke, 2005) and (Infometrics, 2006).

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