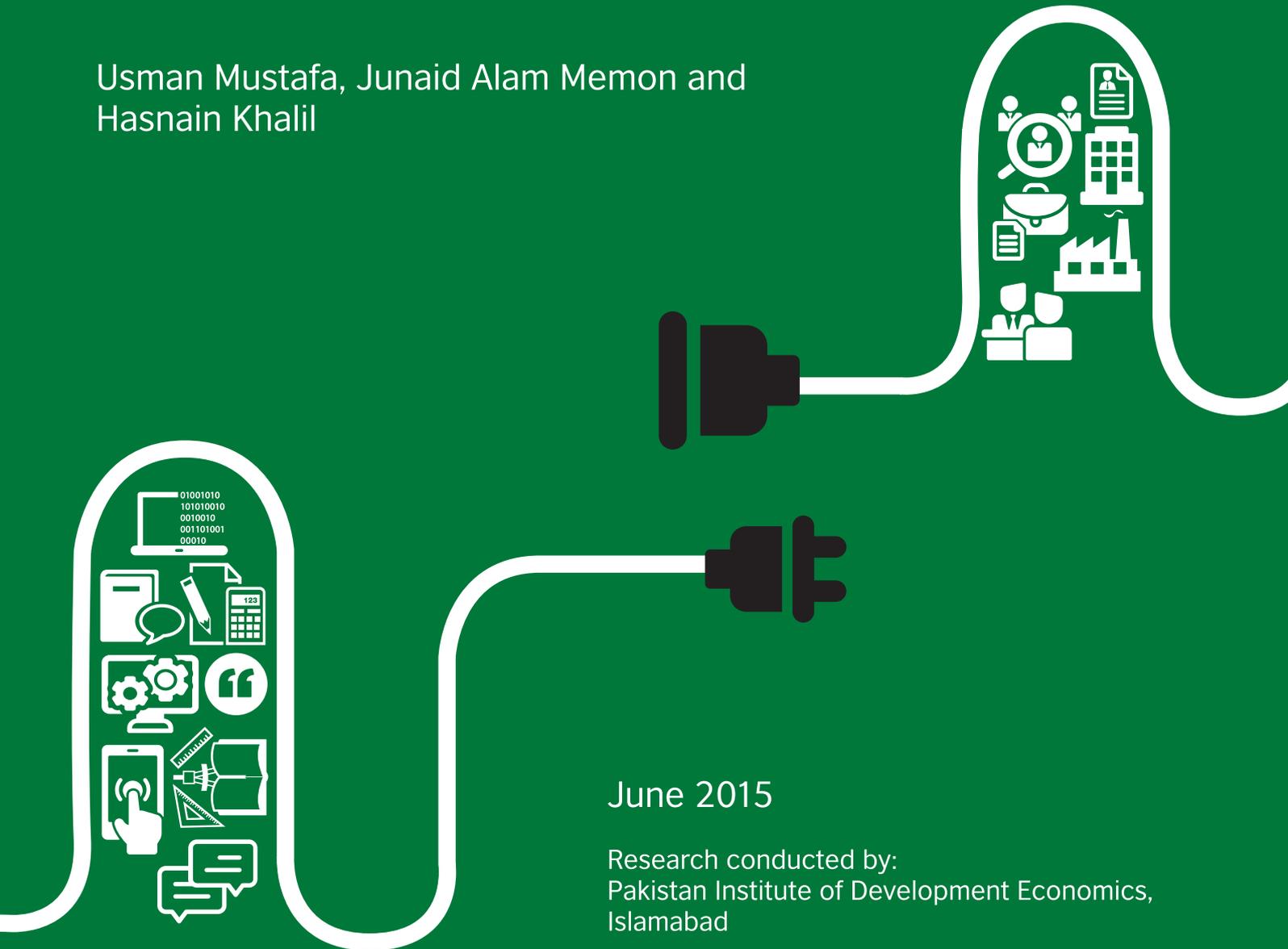

SKILL DISCONNECT IN SINDH

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LIST OF ABBREVIATIONS

(in alphabetical order)

NVATTC	National Vocational and Technical Training Commission
PIDE	Pakistan Institute of Development Economics
REMU	Research, Evaluation, Monitoring Unit
STEVTA	Sindh Technical Education and Vocational Training Authority
TVET	Technical and Vocational Education and Training

FOREWORD

Pakistan's demographics and rapid population growth are presented as a national dividend by optimists and as a looming disaster by pessimists. Regardless of whether one subscribes to either prophecy, there are obvious implications for policy makers. With more than 40 percent of the population under the age of 18, it is crucial that those entering the Pakistani workforce are able to cope in the increasingly competitive global market. (EIU/British Council, 2015). Our research shows that there are evident skills gaps across Pakistan; and in Sindh in particular. A graduate unemployment rate of nearly 30% suggests that young people in Pakistan are often ill equipped for the workforce; lacking the technical skills required for better paid jobs, as well as more general skills and behaviours expected by employers (Ibid.). In this study, we have shown that there is a gap between these skills and those being taught by training institutes.

We believe that Pakistan should capitalise on its immense potential of one of Asia's youngest populations and its close proximity to large regional markets, and it goes without saying that economic growth is underpinned by skills development. This will be the primary driver for increasing productivity, improving the balance of payment

through export growth, attracting foreign investment, and for developing new technologies and economic sectors. Pakistan's future competitiveness depends on how well it can develop its young people.

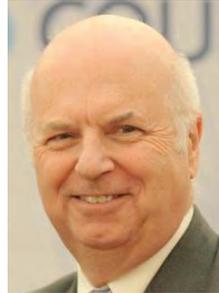
In its recently published National Policy for Technical and Vocational Education and Training (TVET), the Federal Government of Pakistan acknowledged this need and pledged to increase the number and quality of training opportunities offered nationwide. The policy sets out aims of training 20% of all school-leavers in addition to enhancing the skills of existing workers by 2025 (Ministry of Federal Education, 2015, p.20). Our research shows that more needs to be done.

We recognise that bridging the gap between the skills demanded and supplied in a labour market is a challenge for every economy. Nonetheless, we see this as one of Pakistan's utmost priorities for its future prosperity, security and social development. Skill Disconnect in Sindh examines the gap between the skills that employers require in Sindh and the skills available to them. We find that employers across Sindh rate the current skills in the labour market inadequate to meet their needs (EIU/British Council, 2015).

Skills Disconnect in Sindh identifies four major skill gaps that are hindering economic growth in Sindh: English; Computer and Information technology; Numeracy and Computational skills; and proficiency in updated technologies.

Our research identified four major skill gaps inhibiting economic growth in Sindh. Specifically, English; Computer and Information technology; Numeracy and Computational skills; and proficiency in updated technologies. The report highlights that behind these disparities is a lack of focus on the skills required by employers and employers' lack of confidence in the abilities of the graduates of TVET institutes.

The study concludes that enhanced skill attainment, especially English skills, would allow the country's labour force to access more lucrative labour markets. Its recommendations shed light on the importance of improving the efficiency and effectiveness of the TVET system and how the Sindh labour force can adapt to be more competitive.



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March 2015

EXECUTIVE SUMMARY

This study aims to identify disparities between skills demanded and skills required by the labour market and the skills available in the young adult population in Sindh, one of the four provinces of Pakistan. We considered a wide variety of soft and hard skills desirable to small and medium-sized enterprises across different sectors. It also investigates how much focus different skill institutes (which we use here interchangeably with Technical and Vocational Education and Training [TVET] institutes) place on this same set of skills. The aim here is to discern whether TVET institutes are focusing on the skills where supply does not meet demand.

This study collected data from employers, skills institutes, and graduates of skills institutes. Questions asked of each respondent type are provided in the table below (Table 0.1).

For each question a respondent was asked to provide a rating on a scale between one and five, whereby one and

five signified very poor and excellent, respectively. For the analysis, scores of one and two, and of four and five were interpreted as low and high, respectively. However, Employers and skills institutes Graduates were only asked to provide ratings if the skill was deemed applicable or required by the respondent. Skill deficits were determined by comparing the scores provided by those scoring the importance or level of demand of a skill with the scores given in response to questions related to the supply of the skill. How much focus different skills institutes placed on different skills was also gauged through these comparisons. In total, 157 employers, 120 graduates, and 161 skill institutes were surveyed. The survey was carried out in Karachi, Hyderabad, and Sukkur.

Table 0.1 Questions for each respondent type

<i>Respondent type</i>	<i>Questions</i>			
Employers	Skill applicability	Importance of skill	Availability of skill	Skill quality in the available labour
Graduates		Skill importance at workplace	Confidence in skill attainment	Emphasis by skill institution
Skill institutes		Demand in the job market	Satisfaction with quality produced	Your emphasis on it

SKILL DISCONNECT

The study analysed the overall skills deficit and identified four major skill gaps. The overall skills disconnect is summarised by Table 0.2 below. It clearly shows that the principal problem is the quality or level of the skills that the students have developed. This is not only shown by employers' assessment of skill quality in the available labour force; but also by graduates' ratings of confidence in attainment levels and skill institutes' satisfaction ratings with the quality of the skill produced. Employers also report that the availability of skills is deficient to begin with. Nonetheless,

graduates report that within skills institutes, the focus on training in these areas is generally below par. In turn, skills institutes report that they emphasise and encourage the skills that are required by the job market. However, self-assessments typically incorporate a positive bias. Hence not only is there an overall skill deficit in Sindh but the skills institutes appear to not focus on the most important skills. These problems are also largely relevant to the four major skill gaps i.e. English skills, Computer and Information Technology (IT) skills, Numeracy and computational skills, and proficiency in updated technology.

Figure 0.1 High scores as a percentage of total responses

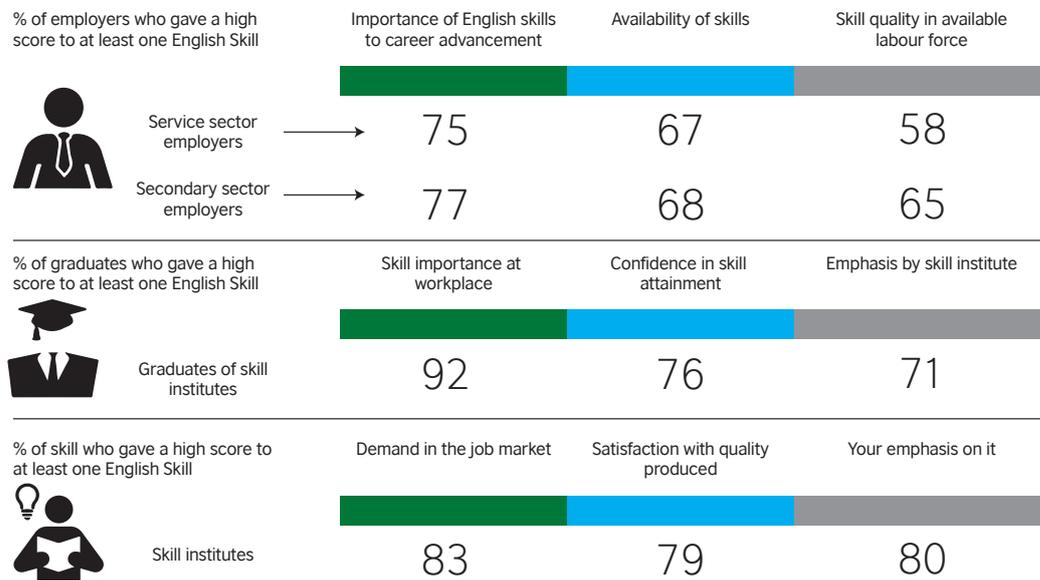


Major skill gaps in Sindh – English skills

Table 0.3 below illustrates the gap between the demand and supply of English skills – meaning the ability to read, write and speak English. For each English skill, importance to employers was measured for three different career stages: job entry, routine tasks, and career advancement. Employers, especially service-sector employers, report all English skills to be particularly important for career advancement. However, all three types of respondents report that the quality of English skills is generally low. Employers also report that

availability of English skills is a significant problem, especially with regard to speaking skills. Graduates rate skill institutes' emphasis on English skills as insufficient. Ratings from skills institutes' appeared to agree with this assessment, although to a significantly lesser degree.

Figure 0.2 Major skill gaps in Sindh – English skills

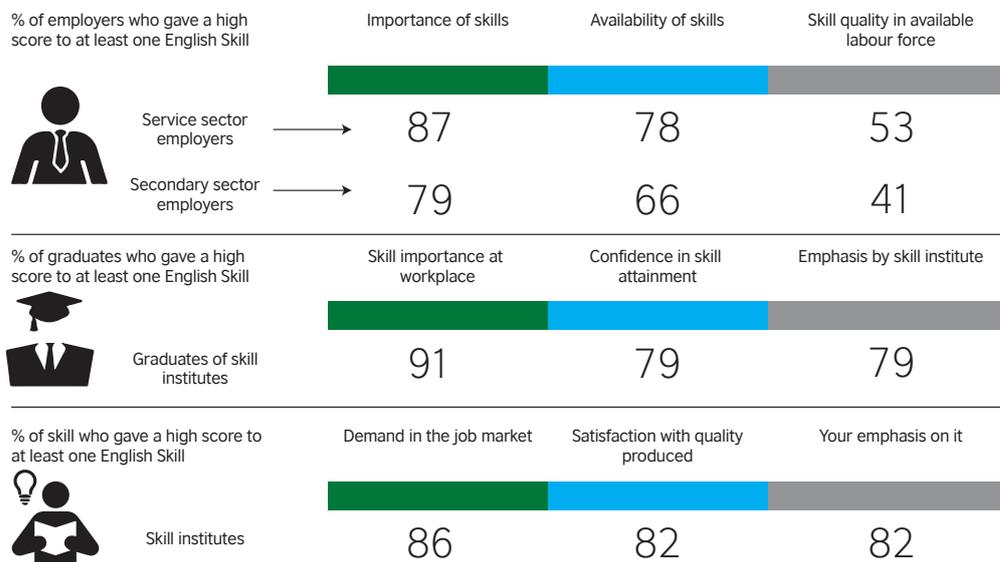


Major skill gaps in Sindh – Computer and IT skills

Figure 0.3 below illustrates the gap between the supply and demand of Computer and IT skills, which refer specifically to computer literacy, internet browsing and emailing. It clearly shows

that the same skill deficiencies (i.e. insufficient quality, quantity, and training opportunities) mentioned above also apply to computer and IT skills.

Figure 0.3 Major skill gaps in Sindh – Computer and IT skills

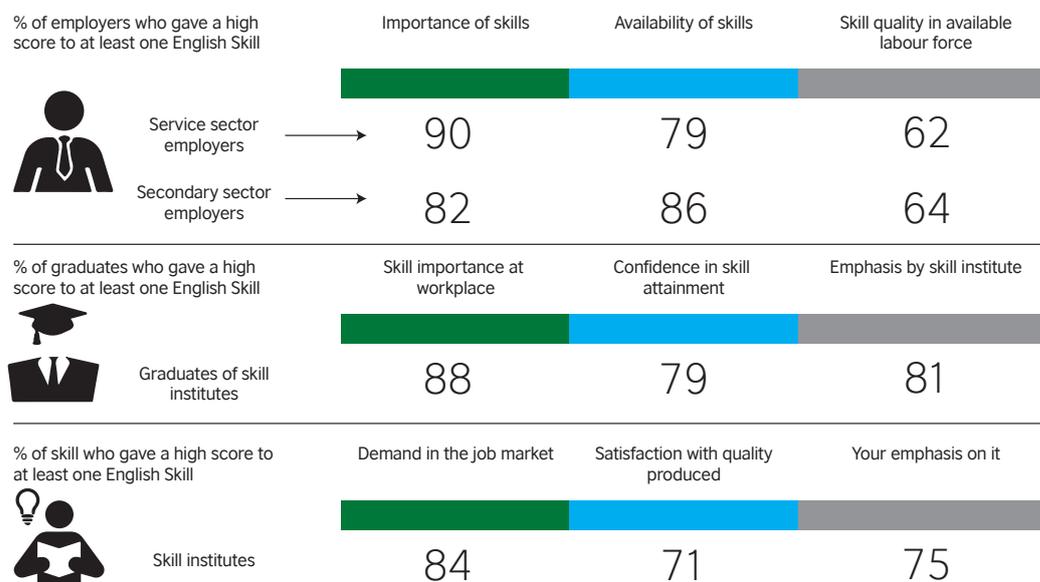


Major skill gaps in Sindh – Numeracy and computational skills

Figure 0.4 below illustrates the gap between the supply and demand of numeracy and computational skills, which refer to basic arithmetic, using calculators, and working with spreadsheets. Once again the same deficiencies identified with reference to

the other specific skills areas have been highlighted: insufficient quality, quantity, and training opportunities. However such skills seem to be sufficiently available for secondary-sector employers. A much greater percentage of skills institutes report a lack of emphasis on this skillset in their curricula: 25% compared with 18% and 20% in Computer and IT skills and English skills, respectively.

Figure 0.4 Major skill gaps in Sindh – Numeracy and computational skills



Finally proficiency in updated technology was rated as a fourth significant skill gap. 82% of employers and 81% of graduates gave its importance a high score; whilst 75% of skill institutes provided the same score to its demand in the market. However, as shown by the figures below, quality remains an issue:

- 59% of employers gave quality in the available labour force a high score.

- 67% of graduates gave confidence in skill attainment a high score.
- 69% of skill institutes gave satisfaction with quality produced a high score.

When rating skill institutes' emphasis on the skill, only 67% of graduates provided it with a high score.

RECOMMENDATIONS

Improving efficiency of the Sindh TVET system:

To make the TVET sector more responsive to the commercial needs of the Sindh economy, Sindh Technical Education and Vocational Training Authority (STEVTA) needs to support greater collaboration with other relevant agencies, such as:

- Higher, Technical Education, Research and School Education Department
- Labour and Human Resources Department
- National Vocational and Technical Training Commission (NVATTC) industry representatives
- 500+ TVET institutes across the province.

Furthermore, there is a need to integrate the TVET sector and the education system. The province should adopt a long-term view of skills development. Many of the skills identified in this research need to be taught from an early age. Therefore TVET should be closely aligned with the secondary and university education sectors.

Finally benchmarking the standards of TVET education both nationally and internationally will ensure Sindhi TVET education is producing graduates capable of competing in the job market globally.

Continued monitoring and evaluation in the TVET system:

This is essential for ensuring the efficacy of the skills training and to ascertain the efficiency of resource allocation. This should be supported with a frequent review of the TVET curricula to continually ensure that it is fit for purpose.

Promotion of the value of TVET:

This can be supported by the introduction of accredited and rigorously assessed qualifications. It is also important to improve the teaching quality in these institutions. This could be achieved by capacity building for existing teachers or increasing teacher's salaries to attract more qualified applicants. In addition, continual professional development for teachers, including knowledge exchanges between industry and the classroom, would ensure the teachers can master the skills they teach and that their course design is relevant to the needs of the employers.

Incorporate English language training into TVET curricula:

English should be seen a complementary skill for most of the subjects taught at TVET institutes; and thus should be incorporated into most of the courses offered. This should be an integrated approach across schools, institutes and employer training centres.

1. BACKGROUND AND INTRODUCTION

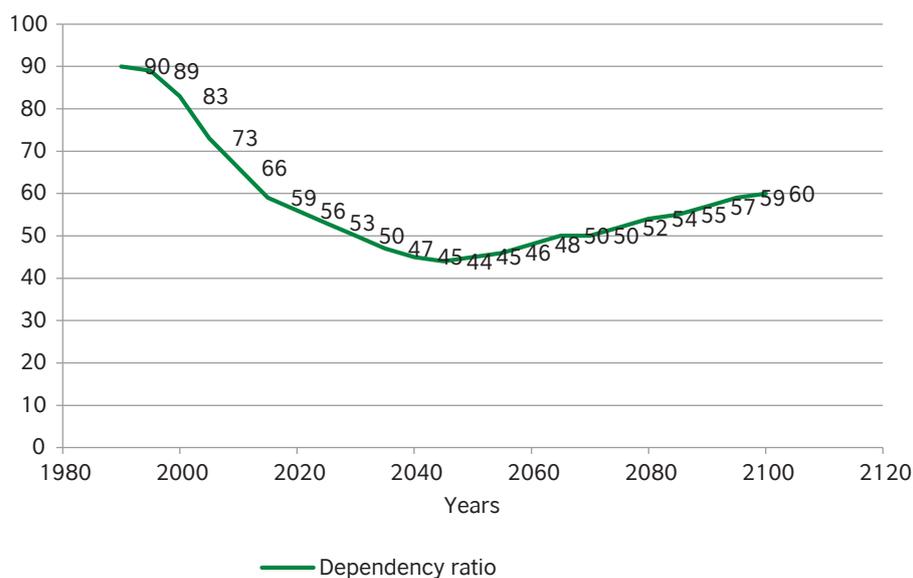
The British Council creates international opportunities for the people of the United Kingdom and other countries, and builds trust between them worldwide. We call this work cultural relations. Our work includes creating greater educational and employment opportunities by supporting the development of skills to meet labour market demands and learner needs - particularly in countries with large populations of young people.

This study aims to identify disparities between labour market demands and skills available in the labour market in Sindh, one of the four provinces of Pakistan. A wide variety of soft and hard skills that are relevant to small and medium sized enterprises were considered. Firms in this category are the primary focus of the study as they are typically a greater source of employment than large firms. The study focuses on Sindh as this province is often overlooked in this regard. It also investigates the focus of skill institutes, which we use interchangeably with

Technical and Vocational Education and Training (TVET) institutes, on the same set of skills. The aim is to discern whether skill institutes are focused on the skills for which supply does not meet demand.

The focus on Pakistan is based on the country's large and expanding youth population and labour force in general. In fact as shown in the graph below (figure 1.1), its labour force has been increasing faster than the population dependent upon it since 1990; and this trend is expected to continue until 2045 (UN, 2013). However, the graph also shows that this trend will eventually pause and reverse (Ibid). Greater economic and social development is expected while the dependency ratio is falling as resources are freed up for investment and people of working ages accumulate assets for life after retirement (IMF, 2015). To capitalise on these 'demographic dividends', it is imperative that the skill development of Pakistan's labour force is in line with labour market demands.

Figure 1.1 Pakistan's dependency ratio (1990-2100)



This study collected data from employers/firms, skill institutes, and graduates of skill institutes. Each employer and skill institute was represented by an employee. The aim was to interview employees who were well-positioned to adequately represent the firm.

Questions asked of each respondent type are provided in table 1.1 below. For each question a respondent was

asked to provide a rating on a scale between one and five, where one and five signified very poor and excellent, respectively. For the analysis, scores of one and two and scores of four and five were interpreted as low and high, respectively. However, employers and skills institute graduates were only asked to provide ratings if the skill was deemed applicable or required by the respondent.

Table 1.1 Questions for each respondent type

<i>Respondent type</i>	<i>Questions</i>			
Employers	Skill applicability	Importance of skill	Availability of skill	Skill quality in the available labour
Graduates		Skill importance at workplace	Confidence in skill attainment	Emphasis by skill institution
Skill institutes		Demand in the job market	Satisfaction with quality produced	Your emphasis on it

A convenience sample was collected for each respondent type. This approach was selected due to resource constraints. The limitation this approach poses is that the sample is not representative of the population. Rather, it represents those who are conveniently accessible and proximate to the researcher.

The data collection took place in three regions i.e. Karachi, Hyderabad, and Sukkur. The total sample size for each respondent type and their regional breakdowns are given in Table 1.2 below.

Table 1.2 Questions for each respondent type

<i>Regions</i>	<i>Employers</i>	<i>Skill institutions</i>	<i>Graduates of skill institutes</i>
Karachi	81	51	67
Hyderabad	50	45	60
Sukkur	26	24	34
Total	157	120	161

The report is subsequently organised into two broad chapters: Survey results and Recommendations. The former primarily summarises the skill gaps

identified, while the latter provides recommendations to address their causes.

2. SURVEY RESULTS

This chapter summarises the findings of the survey. Here we begin by providing a brief overview of the types of respondents interviewed for the study; and then proceed to investigate skill deficits.

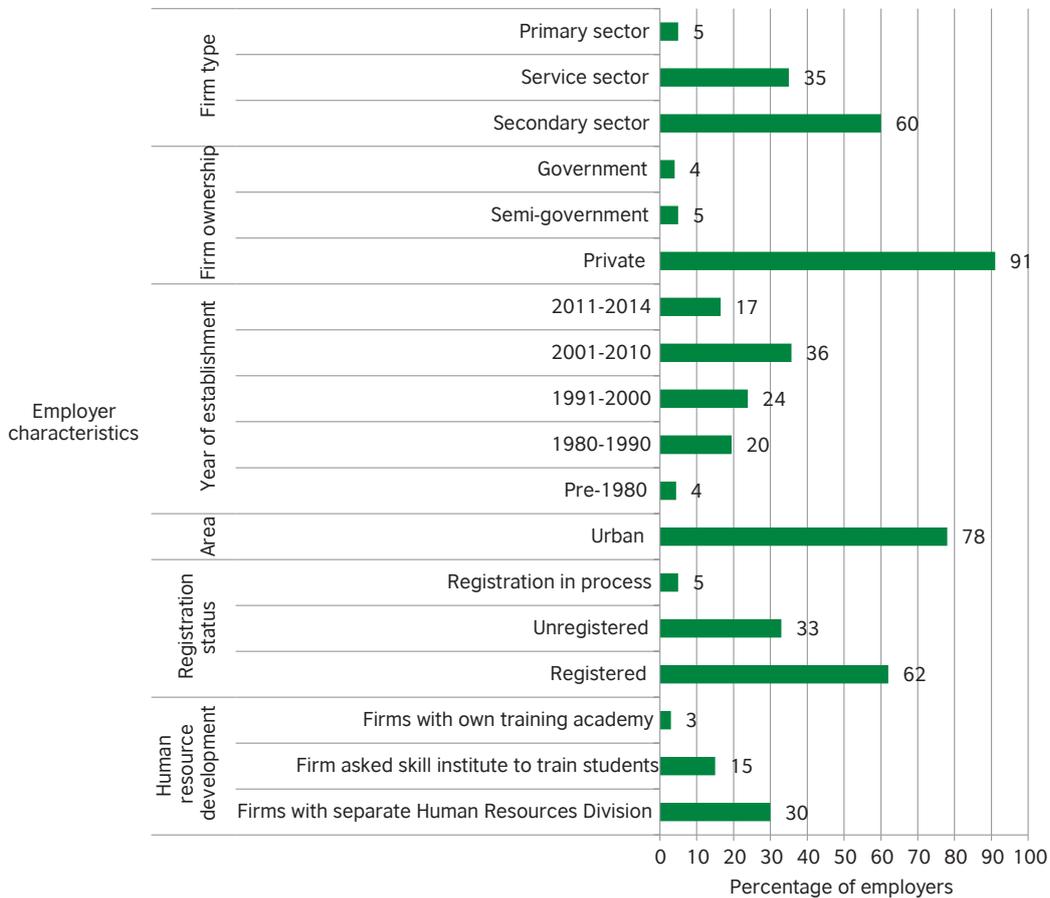
Executive Officers (9%), and Human Resource Managers (9%). The remaining were managers/directors of different departments. The aim was to interview personnel who could adequately represent their firms. These designations show that this was broadly achieved in most cases.

2.1. KEY CHARACTERISTICS OF EMPLOYERS, GRADUATES, AND SKILL INSTITUTES

2.1.1. Employers

In order to categorise interviewees, they were asked their designations. Most respondents identified as Administration Managers (46%), followed by Chief

Figure 2.1 Employer characteristics



Specific characteristics of the employers interviewed in the study can be seen in Figure 2.1. Firms were largely urban area, privately owned, registered secondary and service sector firms (for details of firm type, see Annex 5). The year of establishment of these firms is fairly evenly spread across the time-period of 1980-2014. It is interesting to note that most of these firms do not make significant investment in human resources. In addition to this, as so few primary-sector firms were surveyed, this sector was not analysed in subsequent chapters. Data regarding firm size was not collected.

two graphs below (Figures 2.2 and 2.3, respectively). Figure 2.2 shows that more than one-third of the graduates actually fell into the 'about-to-graduate' category. Moreover a considerable proportion were either unemployed or economically inactive. In fact, the majority of the alumni are either unemployed or economically inactive. This suggests that most skill institute graduates are unlikely to gain employment; at least not soon after they graduate. Thus in the analysis of skill deficits, where graduates are asked to assess workplace requirements, it should be borne in mind that most graduates' responses may not necessarily be based on experience.

2.1.2. Graduates

Graduates' employment status and other characteristics are shown in the

Figure 2.2 Employment status

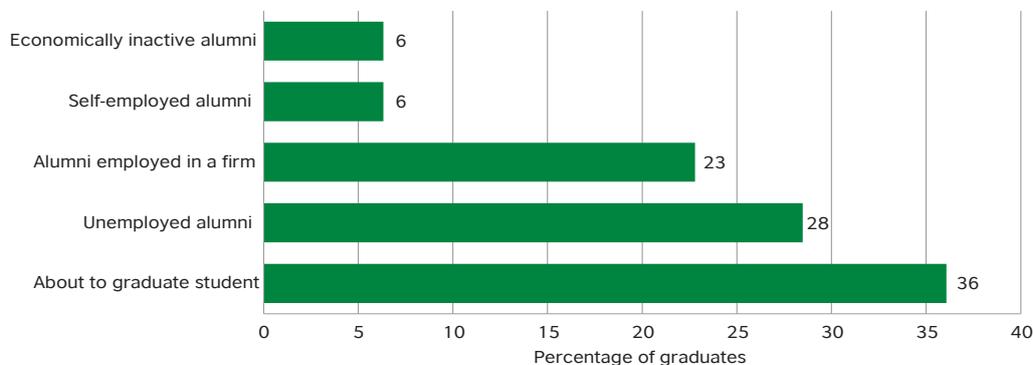
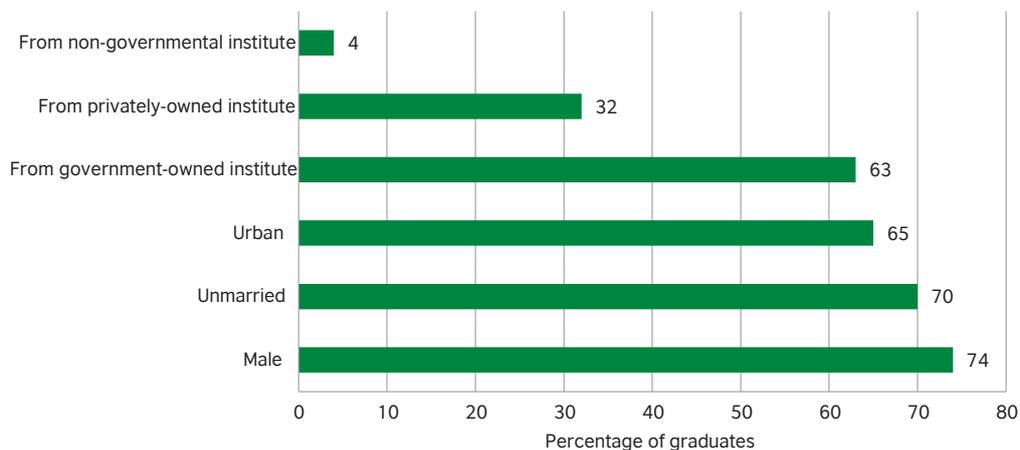


Figure 2.3 Graduate characteristics



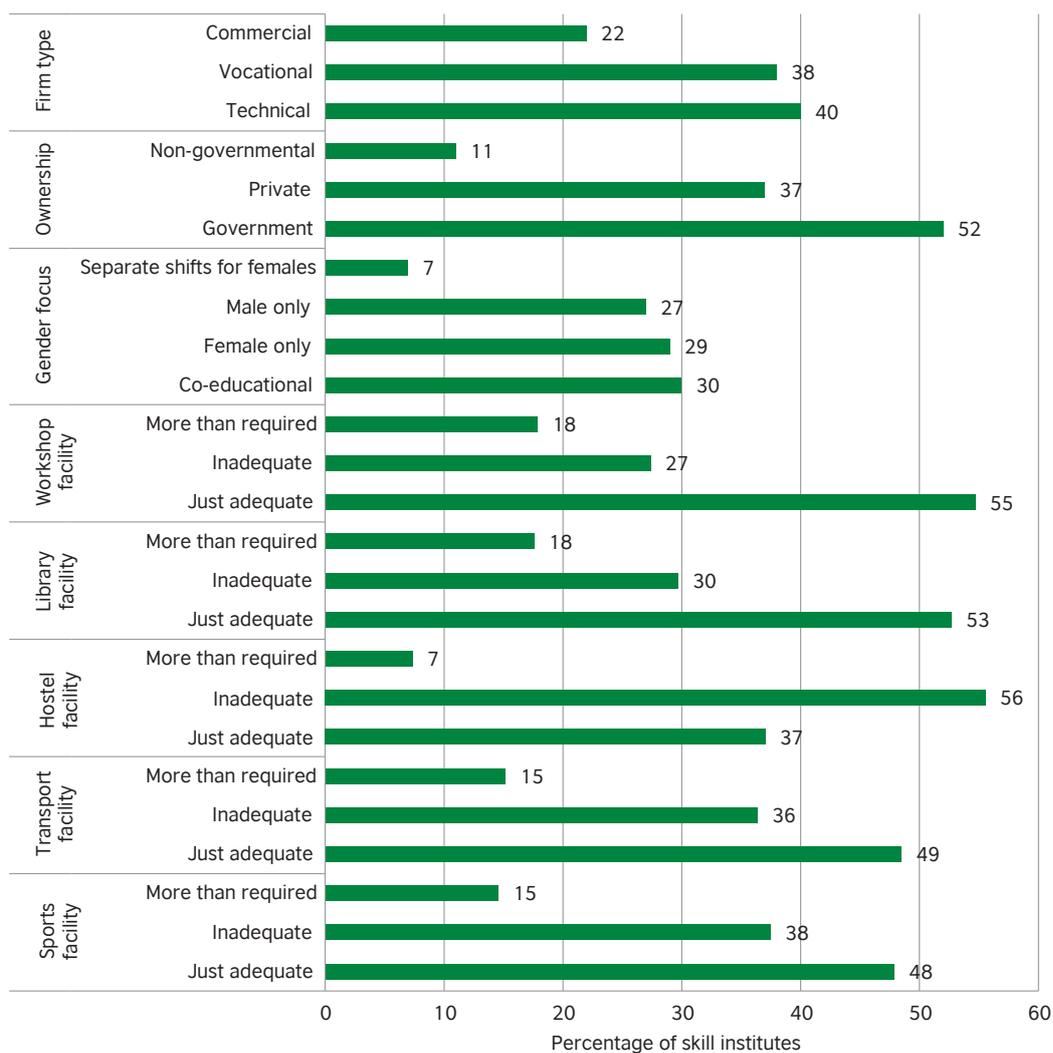
In addition to this, Figure 2.3 shows that the sample is skewed in favour of urban, male, unmarried individuals from government-owned institutions. The average respondent age is 26 completed years, with no meaningful disparity between males and females.

2.1.3. Skill Institutes

In order to characterise interviewees, they were asked their designations. Most respondents identified as Principal/

Head Master or Mistress (47%), followed by Admin Officer (28%), and Lecturer/ Instructor (13%). The remaining held various positions such as Director, Chief Executive Officer, Coordinator, Clerk etc. The aim was to interview personnel who could adequately represent their institutions. Once again these designations show that this was broadly achieved in most cases.

Figure 2.4 Skill institutes' characteristics



Specific characteristics of the skills institutes surveyed can be found in Figure 2.4. It shows that skill institutes surveyed were largely government-owned technical or vocational institutes, mostly inclusive of women. Furthermore the graph shows a scarcity of facilities: only 60% have library facilities, 40% sports facilities, 28% transport facilities, 23% hostel facilities, and 21% workshop facilities. In addition to this, a substantial proportion of these facilities have been deemed 'inadequate' by a high number of respondents. Finally skill institutes on average covered three fields, with a range of one to ten (10).

2.2 SKILL DISCONNECT

This section on skill disconnect briefly explores skill deficit at the aggregate or 'all skills' level before proceeding to significant skill gaps. This section will not analyse each skill which respondents were asked about and report whether or not a deficit exists. For details regarding

individual skills see Annexes 1-4.

2.2.1. All skills

This section explores skill deficit at the aggregate level by analysing all responses, irrespective of skill. Before proceeding to skill deficits, it is pertinent to note the percentage of responses that specified skills discussed as applicable:

- Employer: 81%
- Graduates: 84%

This shows that the skills asked about were largely applicable or required by the respondents.

Figure 2.5 and Table 2.1 summarise the responses of employers. They show that the largest disparity is between skill quality in the available labour force and importance of skill. There is also a disparity between availability and importance of skill, but it is not as pronounced.

Figure 2.5 Employers

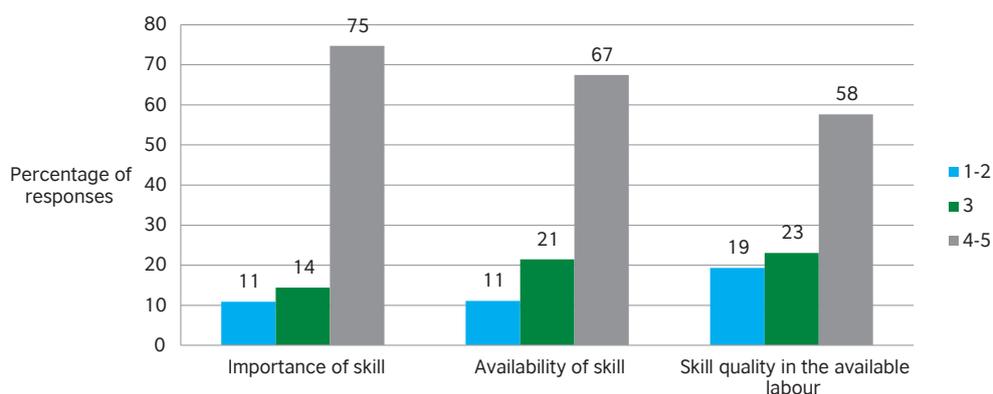


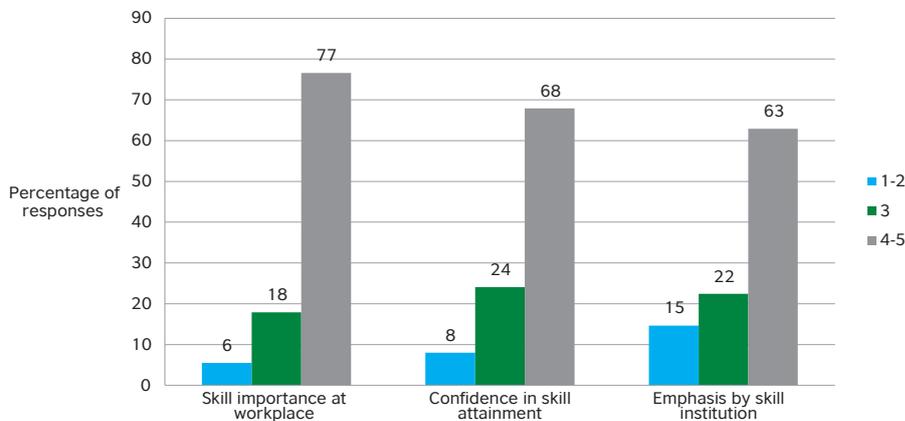
Table 2.1 The difference between skill quality and importance

	<i>Importance of skill</i>	<i>Skill quality in available labour</i>
% of employers who provided a high (4-5) score to at least one skill	88	71
% of employers who provided a high (4-5) score to all skills	4.4	0.9

Figure 2.6 below summarises the results of graduate responses. It shows that ratings of confidence in skill attainment are generally lower than skill importance. It is important to note that the results are possibly concealing even lower levels of self-confidence as self-assessments tend to involve positive bias. This reinforces

employers' reservations regarding the quality of the skills available in the labour force. Overall the difference between graduates' ratings of their skill institute's emphasis on a skill, and that skill's importance is very high. This shows that graduates' perceived performance of their skill institutes is below par.

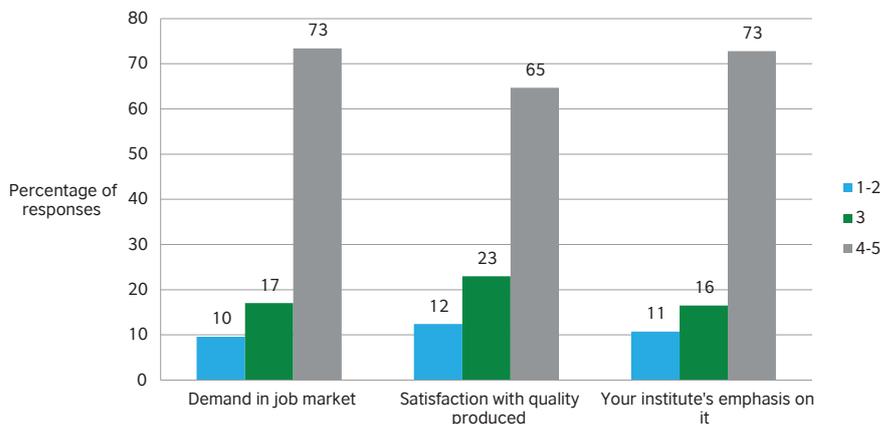
Figure 2.6 Graduates



Finally figure 2.7 (below) summarises responses by representatives of skill institutes. It clearly shows that skill institutes are satisfied in their performance but not in the quality produced. This suggests that they believe that factors other than their instruction influenced the quality of graduates. Although it cannot be claimed that this perception is without merit,

it is also important to note that self-assessments typically involve positive bias. The perception of skill institutes regarding quality produced, those of graduates regarding self-confidence, and those of employers regarding quality of skill in available labour force reinforce one another and clearly show that skill quality is the primary area of concern.

Figure 2.7 Skill Institutes



2.2.2. Major skill gaps

Major skill gaps were identified for three skillsets and one individual skill (i.e.

proficiency in updated technologies). The skills that constitute the three skillsets are given in Table 2.2. below:

Table 2.2 Skillset and skills

<i>Skillset</i>	<i>Skills</i>
English communication skills	Reading, writing, and speaking English
Computer and Information Technology (IT) skills	Computer literacy, internet browsing, and emailing.
Numeracy and computational skills	Basic arithmetic, skill to use calculators, skill to use spreadsheets.

2.2.2.1. English communication skills

Most service-sector employers and graduates report that they require English skills. 90% of service-sector employers state that they require this skillset while the percentage of graduates who require it is given below in terms of different career stages:

- Finding a job: 94%
- Career advancement: 93%
- At the workplace: 88%

70% of all employers but only 59% of secondary-sector firms require the skill set.

To identify skill deficits, employers were asked to rate the importance of each English skill for three different career stages – job entry, routine tasks, and career advancement; the availability of each English skill in the market; and the quality of each English skill in the available labour force.

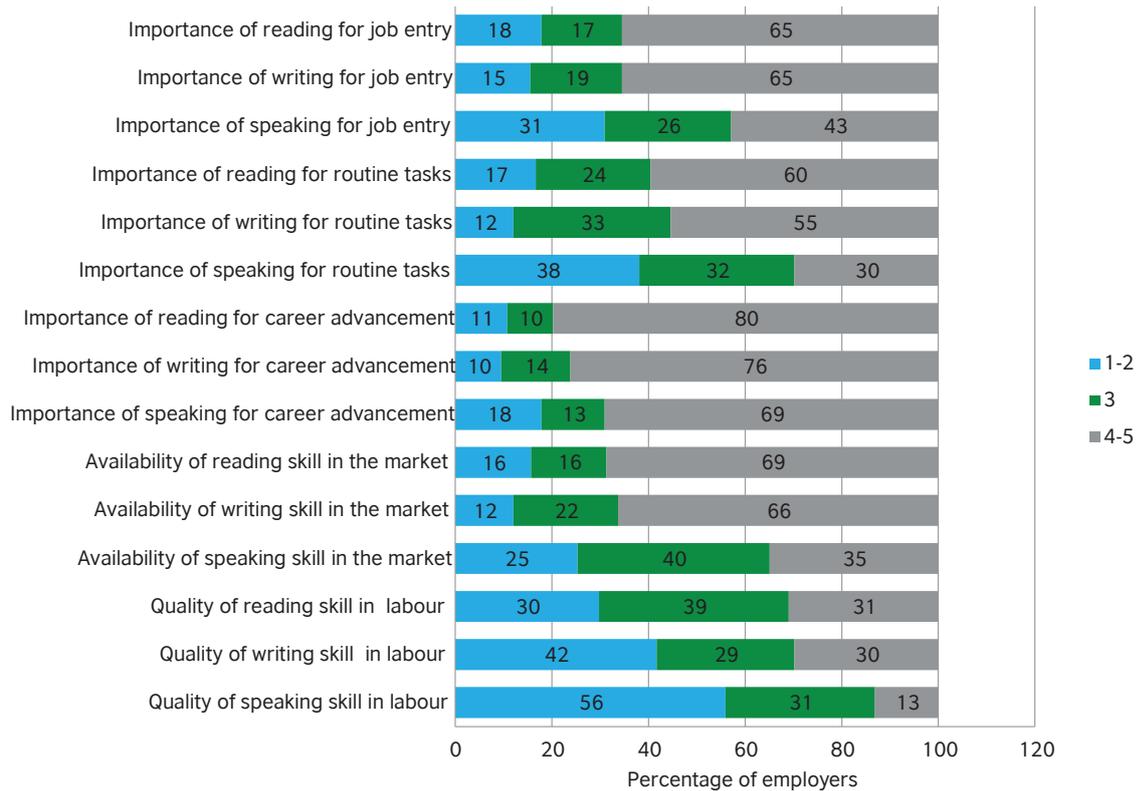
The graph below (Figure 2.8) illustrates the results. It shows that reading and writing English are important skills for all career stages, whilst speaking English is important for career advancement.

Indeed, each English skill is accorded the highest importance for career advancement.

In comparison, availability of each English skill is lower than its importance for career advancement. The availability of English speaking skills is also lower than its importance for job entry. This deficit is the largest for English speaking skills. On average, the largest difference in rating between the importance of a skill and its availability was found with English speaking skills. Its average importance for career advancement is four and its average for availability is three.

However, the quality of English skills in the available labour force is the primary area of concern, particularly bearing in mind the importance of all English skills for career advancement. This deficit is even more prominent for service-sector employers. To further illustrate this point, 84% of all employers and 94% of service-sector employers find at least one English skill to be highly important for career advancement. 64% of all employers and 81% of service-sector employers find all English skills are highly important for career advancement.

Figure 2.8 Employers ratings of the importance and available quantity and quality of English communication skills

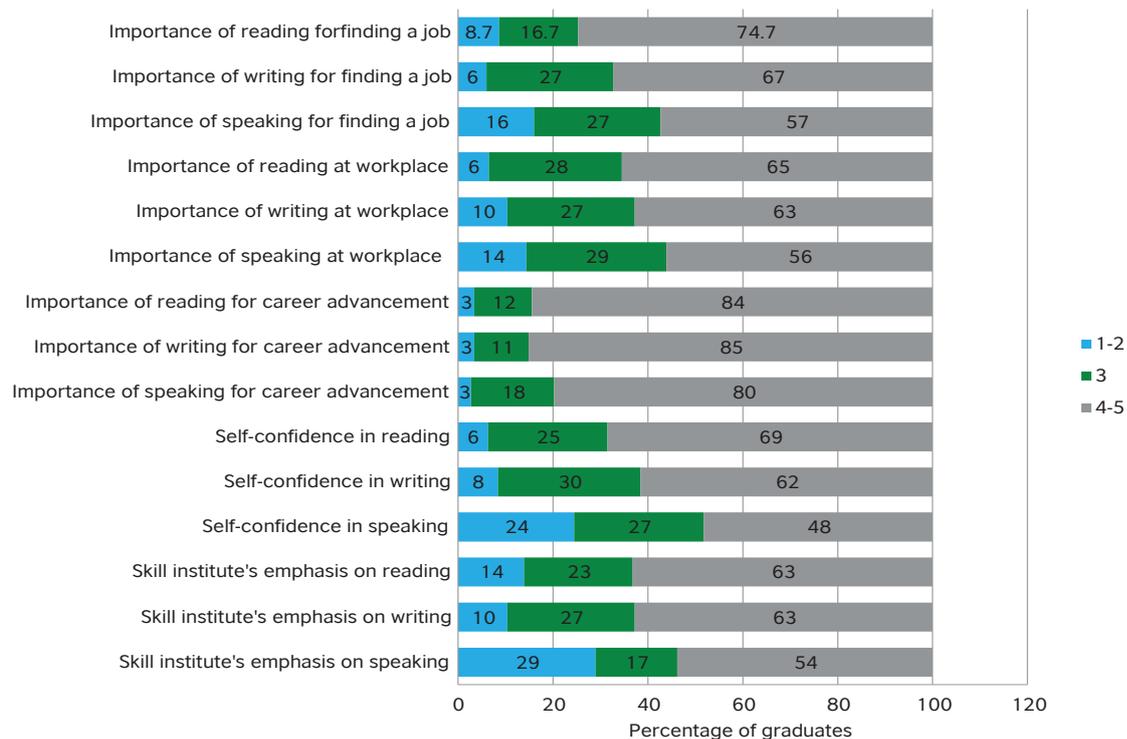


On the other hand, only 37% of employers report the quality of at least one English skill in the available labour force as high. A mere 8% of employers perceive the quality of all English skills in the available labour force as high. In addition, 57% of employers state that the quality of at least one English skill is low. 29% of employers consider the quality of all English skills as low.

Graduates were asked to rate the following: the importance of each English skill for three different career stages (i.e. finding a job, at the workplace, and career advancement); self-confidence in each English skill; and their skills institution's emphasis on each English skill.

Their responses are illustrated in the graph below (Figure 2.9). Graduates' responses regarding the importance of English skills for different career stages largely mirror those of employers. Their responses regarding self-confidence reinforce employers' perceptions regarding the available quality of English skills. Graduates' self-confidence when it comes to speaking English is lower than the two other English skills. Graduates also score their self-confidence speaking English lower than the importance of speaking English for all of the career stages, particularly career advancement. Self confidence in reading and writing English also scored lower than the perceived importance of these skills for two career stages: career advancement and finding a job.

Figure 2.9 Graduates ratings of the importance, their self-confidence, and skill institute’s emphasis regarding English communication skills



To further illustrate the disparity between the importance of English skills and graduates’ self-confidence, it is important to note that 92% of graduates reported that at least one such skill is highly important for career advancement. 70% of graduates reported that all English skills are highly important for career advancement. On the other hand, only 76% of graduates reported that their self-confidence in at least one English skill is high. 41% of graduates reported that their self-confidence in all English skills is high. Moreover, 29% reported that their self-confidence in at least one English skill is low.

The graph also shows that skill institutes are putting inadequate emphasis on English reading and writing skills with regard to two career stages – career advancement and finding a job. It also

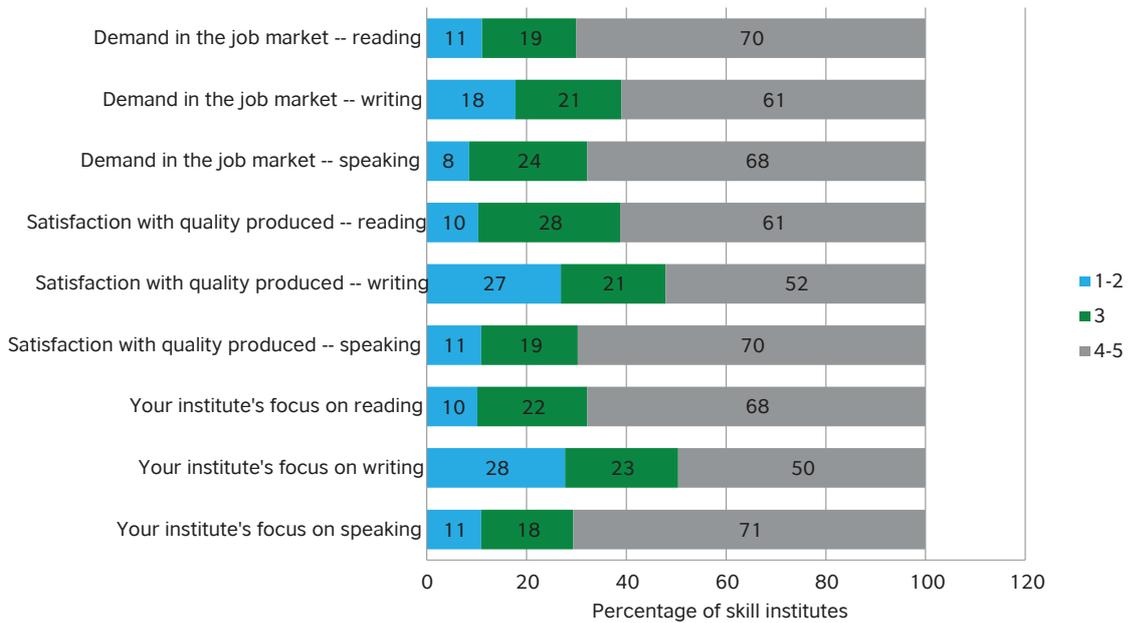
shows that skill institutes’ emphasis on the skill to speak English is below par with regard to career advancement. However, it is important to note that skill institutes put the least emphasis on the skill to speak English. As noted above, the gap between the importance of a skill and graduates’ self-confidence is at its largest with reference to this skill. Overall, 35% graduates report that their skill institute’s emphasis on at least one English skill is low. 8% of them report that their skill institute’s emphasis on all English skills is low.

For each English skill, skill institutes were asked to rate the following: demand in the job market, their satisfaction with quality produced, and their focus on it. The graph below (Figure 2.10) shows that they rated satisfaction with quality produced lower than the demand in

the job market for two English skills i.e. reading and writing. This is in line with

the responses given by the employers and graduates.

Figure 2.10 Skill institutes ratings of the demand in the job market, their satisfaction with quality produced, and their focus regarding English communication skills



However, ratings from skill institutes differ with the other respondent types regarding English speaking skills. Their satisfaction with quality produced is in fact higher than its demand in the job market. Skill institutes also report their focus on the skill to write English is lower than the demand in the job market. This is surprising insofar as skill institutes typically rate their focus as at least equal to the demand in the job market.

2.2.2.2. Computer and IT skills

A majority of service-sector employers and graduates specified computer and IT skills as relevant and important. Overall, two-thirds (66%) of employers report that they require employees who have computer and IT skills. This figure increases to 74% for service-sector employers. The percentage of graduates who require computer and IT skills is

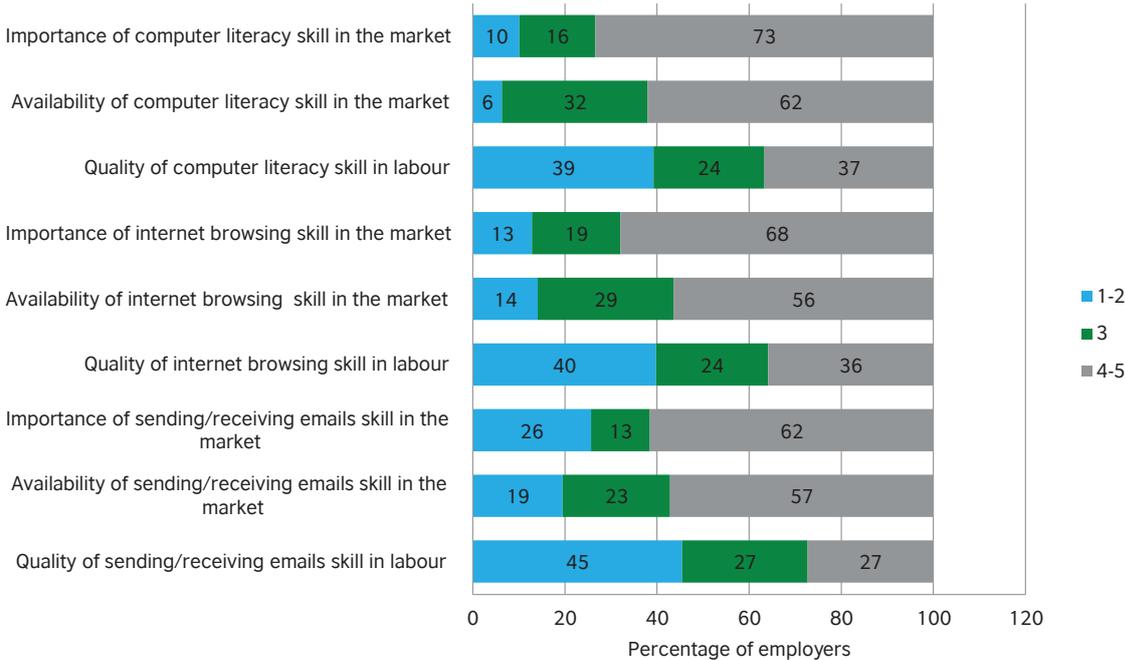
given below.

- Computer literacy: 91%
- Internet browsing: 90%
- Sending/Receiving emails: 89%

To identify skill deficits for each computer and IT skill, employers were asked to rate importance, availability in the market, and the quality of skill in the available labour force. The graph below (Figure 2.11) summarises the results.

It shows that computer literacy was followed by internet browsing and emailing skills as highest rated in importance by employers. Deficits in terms of skill availability are also highest for computer literacy followed by internet browsing and emailing skills.

Figure 2.11 Employers ratings of the importance and available quantity and quality of computer and IT skills



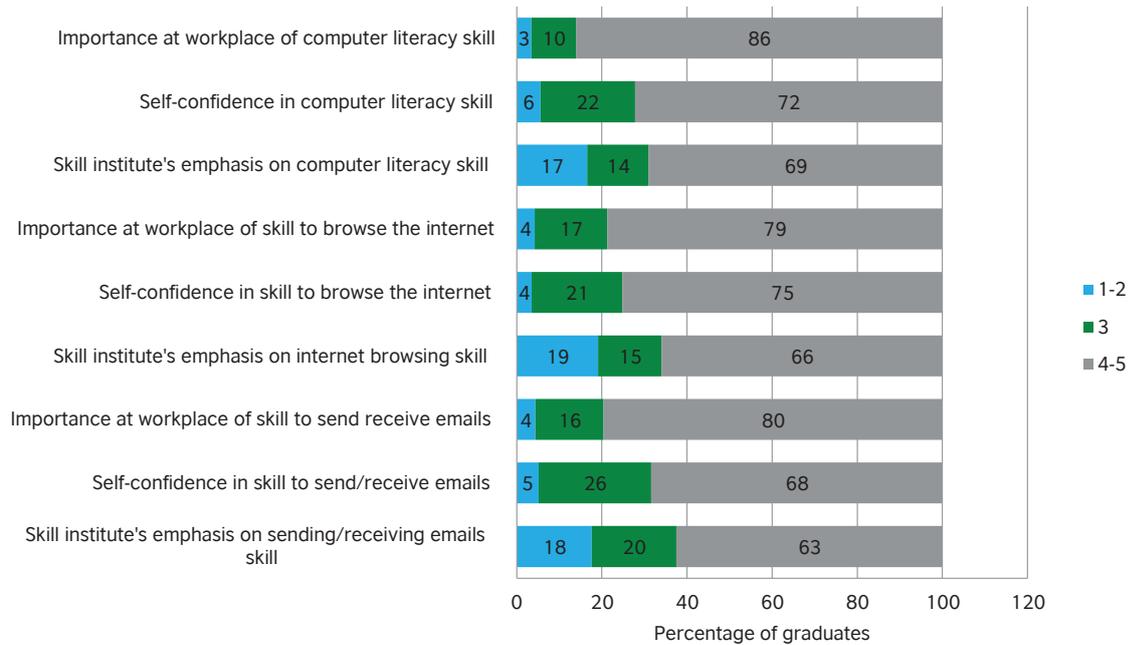
The quality of computer and IT skills in the available labour force is again the primary area of concern. Skill deficits are largest for computer literacy followed by emailing and internet browsing skills. The quality of emailing skills is particularly low, although the importance ascribed to it is the lowest amongst the three computer and IT skills.

The gap between the importance of this skillset and its available quality is even more pronounced for service-sector firms. 87% of all employers and 91% of service-sector employers find at least one computer and IT skill as highly important. 56% of all employers and 67% of service-sector employers find all computer and IT skills as highly important. On the other hand, only 44% of employers report the quality of at least one computer and IT skill in the available labour force as high. 23% of employers perceive the quality of all computer and

IT skills in the available labour force as high. In addition, 53% of employers state that the quality of at least one computer and IT skill is low. 23% of employers consider the quality of all computer and IT skills as low.

For each computer and IT skill, graduates were asked to rate the importance of the skill in the workplace; their self-confidence in the ability and their skill institute’s emphasis on it. The graph below (figure 2.12) summarises the results. All skills were given high importance by a large proportion of the graduates. Graduates’ self-confidence ratings are lower than importance at the workplace for every skill. Graduates’ confidence ratings in computer literacy and emailing skills are markedly lower than the importance ascribed to these skills. These results reinforce employers’ reservations regarding the quality available for this skillset.

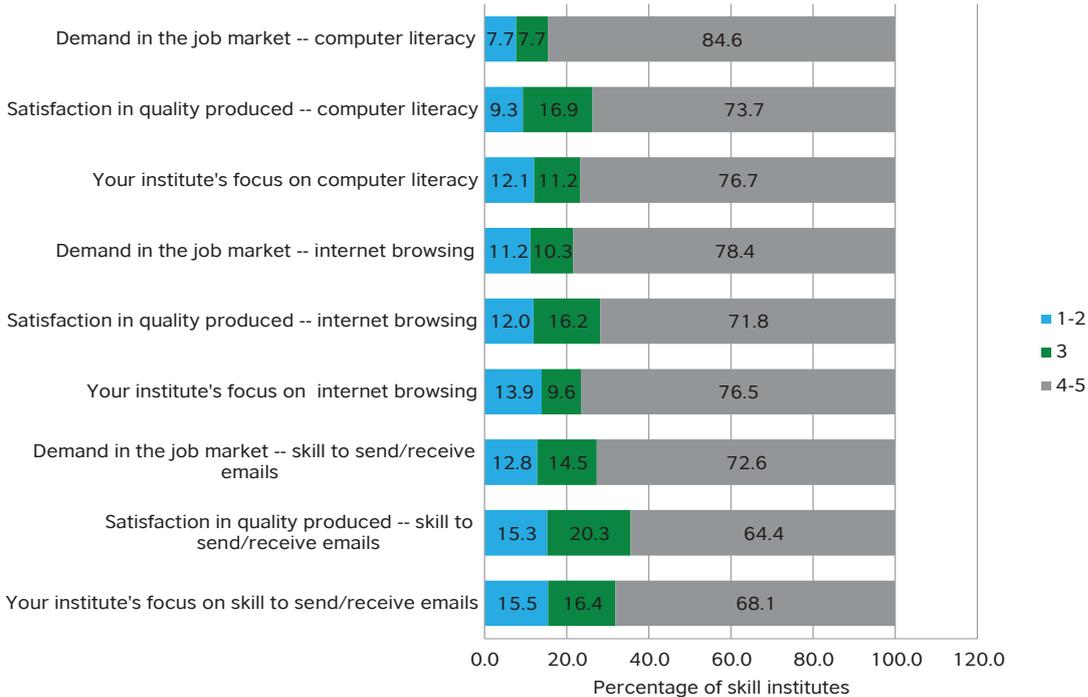
Figure 2.12 Graduates ratings of the importance, their self-confidence, and skill institute's emphasis regarding computer and IT skills



To further illustrate this gap, it is important to note that 91% of graduates reported that at least one such skill is highly important. 69% of graduates reported that all computer and IT skills are highly important. On the other hand, 79% of graduates reported that their self-confidence in at least one computer and IT skill is high. 49% of graduates reported that their self-confidence in all computer and IT skills is high. Moreover, 30% reported that their self-confidence in at least one computer and IT skill is low.

Figure 2.12 also shows that skills institutes are putting inadequate emphasis on computer literacy and emailing skills - the two computer and IT skills for which graduates reported markedly deficient self-confidence. It also shows that skill institutes' emphasis on the internet browsing skills is also insufficient but to a lesser extent. Overall, 30% graduates report that their institution's emphasis on at least one computer and IT skill is low. 8% of them report that their skill institute's emphasis on all computer and IT skills is low.

Figure 2.13 Skill institutes ratings of the demand in the job market, their satisfaction with quality produced, and their emphasis regarding computer and IT skills



Skill institutes were asked to rate, for each computer and IT skill, the demand in the job market, their satisfaction with quality produced, and their focus on them. Figure 2.13 (see above) shows that they rated satisfaction with quality produced noticeably lower than the demand in the job market for computer literacy followed by emailing and internet browsing skills. This is in line with the responses given by the employers and graduates in this regard.

Skill institutes also report their focus on the computer literacy skill is lower than its demand in the job market. The same gap exists with reference to internet browsing and emailing skills, although to a lesser extent. This is surprising as skill institutes typically rate their focus as at least equal to its demand in the job market.

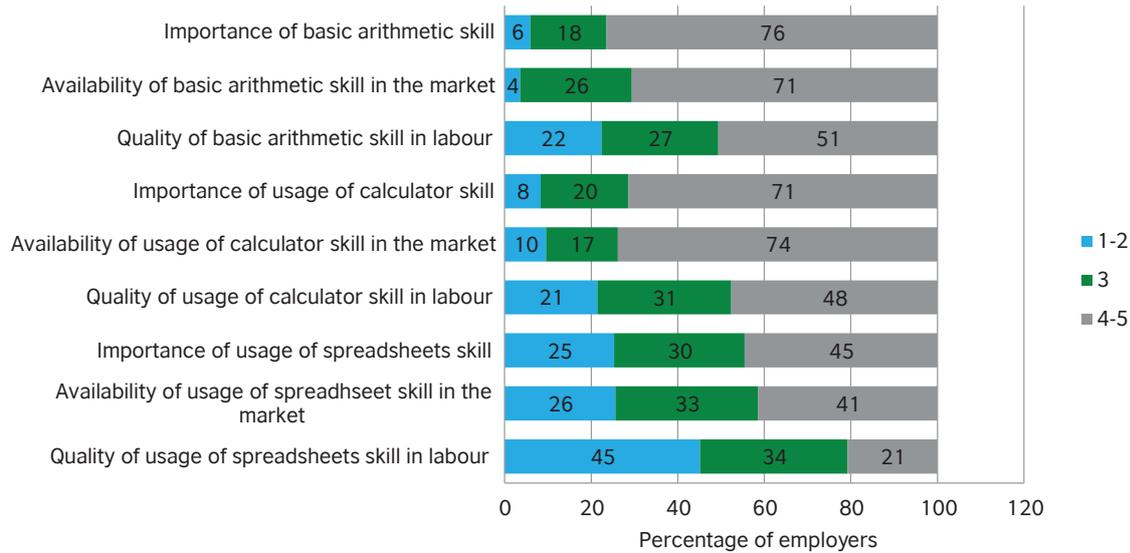
2.2.2.3. Numeracy and computational skills

Most employers and graduates report that they require numeracy and computational skills. 75% of employers report that they require the skillset and there is no significant difference between service and primary sector employers. The percentage of graduates who state that they require the skill is as follows:

- Basic arithmetic: 82%
- Usage of calculators: 76%
- Usage of spreadsheets: 75%

To identify skill deficits, for each numeracy and computational skill, employers were asked to rate importance, availability in the market, the quality of skill in the available labour force. Figure 2.14 (below) summarises the results.

Figure 2.14 Employers ratings of the importance and available quantity and quality of numeracy and computational skills



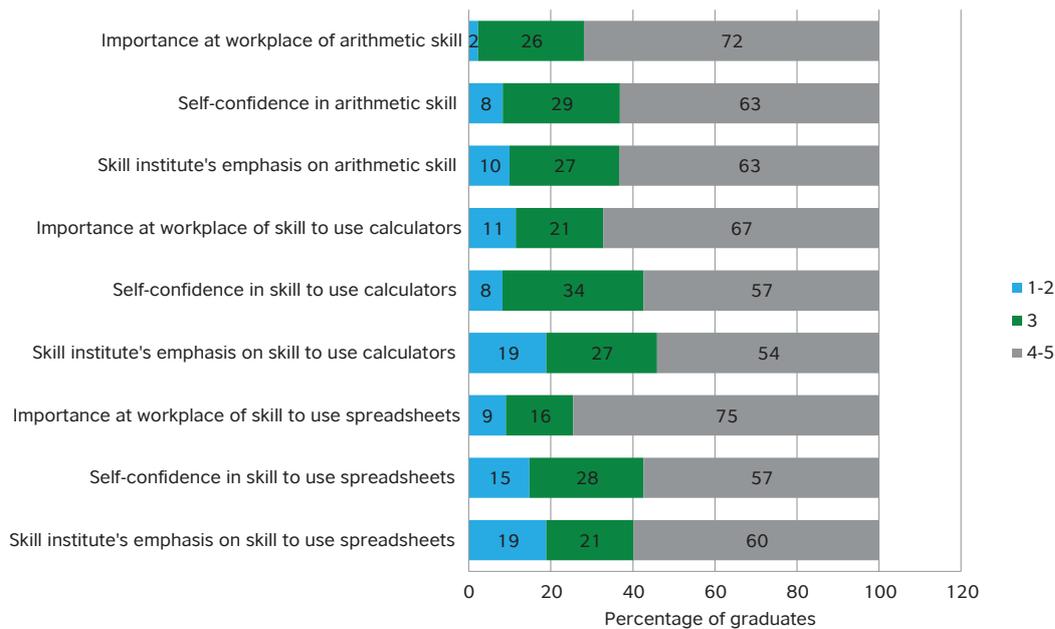
It shows that basic arithmetic and usage of calculators are significantly important numeracy and computational skills. The importance of the skill to use spreadsheets is markedly less. There is a gap between the importance of basic arithmetic and the ability to use spreadsheets and the availability of these skills on the job market however this difference is not significant. Rather, the primary concern is the quality of numeracy and computational skills in the available labour force. The deficit in this regard is high and similar across all skills in the respective category. When the low level of importance given to the skill to use spreadsheets is considered, the magnitude of the relevant deficit seems striking. Certainly, the quality of this skill available in the labour force is extremely low. The gaps between the importance of this skillset and its available quality are even more pronounced for service-sector firms.

To further illustrate this deficit between importance and quality available, 84% of

all employers and 90% of service-sector employers find at least one such skill as highly important. 39% of all employers and 57% of service-sector employers find all numeracy and computational skills as highly important. On the other hand, only 61% of employers report the quality of at least one such skill in the available labour force as high. 16% of employers perceive the quality of all numeracy and computational skills in the available labour force as high. In addition, 48% of employers state that the quality of at least one such skill is low. 18% of employers consider the quality of all numeracy and computational skills as low.

For each numeracy and computational skill, graduates were asked to rate its importance at the workplace, their self-confidence in ability, and their skill institute's emphasis on it. Figure 2.15 below summarises the results.

Figure 2.15 Graduates ratings on the importance, their self-confidence, and skill institute's emphasis on numeracy and computational skills



Graduates reported level of self-confidence is clearly lower than the importance at the workplace for all skills. It is most significant with using spreadsheets, followed by basic arithmetic, and the skill to use calculators. However, the deficit is largely similar across the three respective skills. This reinforces employers' reservations regarding the quality of numeracy and computational skills in the available labour force.

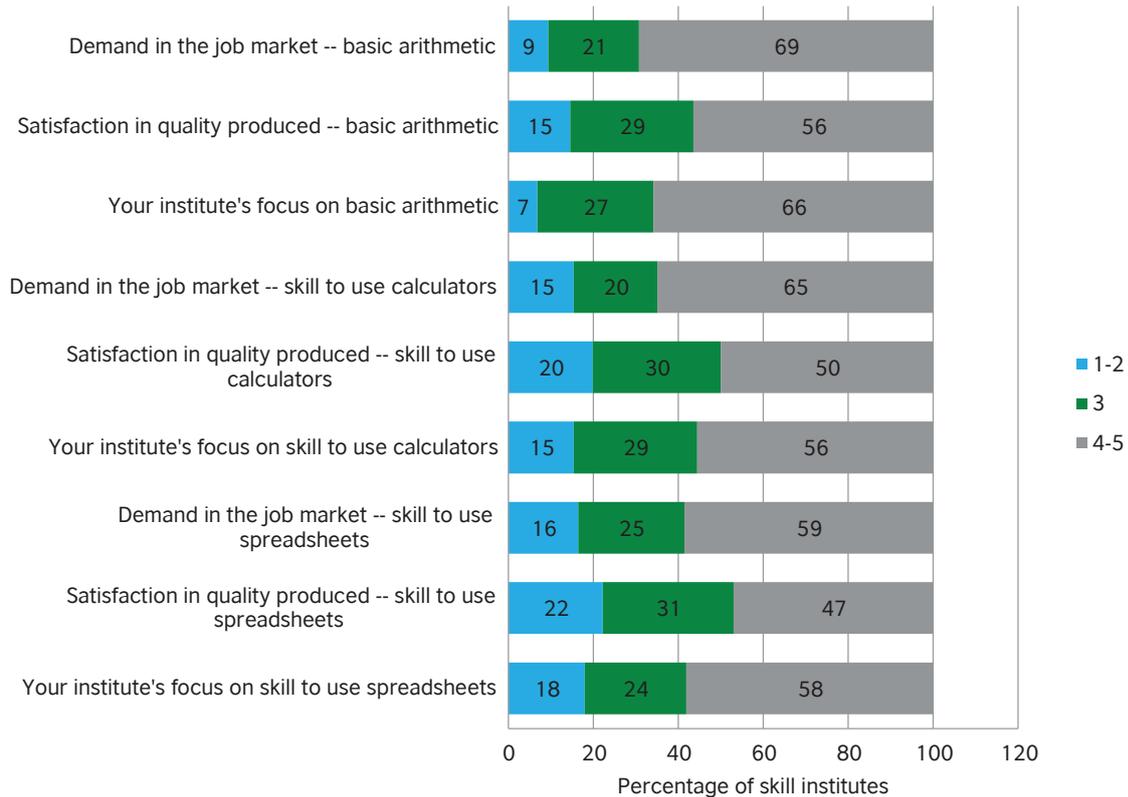
To further illustrate this gap, it is important to note that 88% of graduates reported that at least one such skill is highly important. 52% of graduates reported that all numeracy and computational skills are highly important. On the other hand, 79% of graduates reported that their self-confidence in at least one such skill is high. 34% of graduates reported that their self-confidence in all numeracy and computational skills is high. Moreover, 30% reported that their self-confidence

in at least one such skill is low.

Skills institutes were asked to rate, for each numeracy and computational skill, the demand in the job market, their satisfaction with quality produced, and their focus on it. Figure 2.16 below shows that they rated satisfaction with the level of skills that they produced in their students noticeably lower than the demand in the job market for all numeracy and computational skills. The deficits with regard to the respective skills are similar in magnitude. The responses from skills institute representatives are broadly in line with the responses given by the employers and graduates in this regard.

Skills institutes also report that their focus on the skill to use calculators is lower than its demand in the job market. This is surprising insofar as skill institutes typically rate their focus as at least equal to its demand in the job market.

Figure 2.16 Skill institutes ratings of demand in the job market, their satisfaction with quality produced, and their emphasis regarding numeracy and computational skills



2.2.2.4. Proficiency in updated technology

71% of all employers and 87% of graduates consider this skill to be relevant. Nonetheless, the quality achieved by students and job seekers is seen as below par by employers, graduates, and skill institutes. 82% of employers and 81% of graduates gave this skill a high (4-5) score and 75% of skill institute representatives provided the same score to its demand in the

market. However, only 59% of employers gave its quality in the available labour force the same score. 67% of graduates gave their confidence in skill attainment a high score and only 64% of skill institutes were as satisfied of the quality produced. Moreover, only 69% of employers provided the same rating to the availability of the skill, indicating a deficit in this regard as well. Only 67% of graduates rated their skills institute's emphasis on the skill highly.

3. RECOMMENDATIONS

Based on our research findings, we recommend a series of policy interventions to support the development of Sindh's increasing population and its economic growth.

1. Improving the efficiency of the Technical Vocational Education and Training (TVET) system

There is a clear need for better coordination and oversight of the TVET system in Pakistan. In 2008, the Sindh government established the Sindh Technical Education and Vocational Training Authority (STEVTA), which united the previously disparate TVET policy makers. STEVTA's board is predominantly drawn from the private sector. STEVTA needs to support greater collaboration by the Higher, Technical Education, Research and School Education Department, the Labour and Human Resources Department, the National Vocational and Technical Training Commission (NVATTC), industry representatives, and the more than five hundred TVET institutes across the province. This is required to ensure the relevancy and quality of what is taught at skills institutions. This will also help the TVET sector be responsive to the commercial needs of the Sindh economy. The incorporation of the private sector in this process will engender a more agile and adaptive skills development sector in Sindh.

Furthermore, there is a need to integrate the TVET sector into the Sindh education system. The province should adopt a long-term strategy for skills development. Many of the skills identified in this research require teaching from an early age. Therefore TVET should be closely aligned with the secondary and university education sectors. Lastly, the standard of TVET education in Sindh should be benchmarked, both nationally and internationally, to ensure Sindh TVET education is producing graduates capable of competing in the job market globally.

2. Continued monitoring and evaluation

The importance of monitoring and evaluation in the TVET system cannot be understated. It is essential in order to ensure the efficacy of the skills training and to ascertain the efficiency of the allocation of resources. This should be supported with a frequent review of TVET curricula to ensure that what is being taught is fit for purpose.

3. Promotion of the value of TVET

Arguably one of the greatest challenges facing the TVET sector is the deeply-held belief that vocational qualifications are inferior to their academic counterparts. It is therefore important to promote the value of technical and vocational education to students, parents, teachers

and employers. This can be supported by the introduction of accredited and rigorously assessed qualifications.

This also requires capacity building for the thousands of teachers at these institutes. Better remuneration would attract more qualified teachers. In addition, continual professional development for teachers, including knowledge exchanges between industry and the classroom, would ensure they could master the skills they teach; and that their course design is relevant to the needs of employers.

4. Incorporate English language training into TVET curricula

English should be seen a complementary skill set for most of the subjects taught at TVET institutes. Our research shows that English language proficiency will make graduates more employable, especially in the service sector. Furthermore, we found that English is beneficial to the development of other skills. This should be an integrated approach across schools, institutes and employer training centres. Thus English should be incorporated in most of the TVET courses offered in Sindh. This would need significant capacity building but it would be the most efficient means to train students across the province.

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ANNEX 1: ALL SKILLS AND THEIR APPLICABILITY

	Employers			Graduates
	All	Secondary	Tertiary	
Theoretical knowledge of the field of my specialization	84	84	85	94
Practical and applied knowledge of the field of my specialization	94	97	90	95
Skill to monitor the quality of raw material supply	86	92	76	62
Troubleshooting skills (ability to identify cause of stoppage/ breakage on machines and repair it)	84	94	67	66
Skill to understand machines and their settings/adjustments	85	93	73	69
Skill to understand the good and bad practices during the manufacturing process	81	92	62	60
Teamwork skills (ability to complete work/assignments in a team)	86	82	93	88
Ability to understand and use updated technologies	71	72	72	86
Ability to read and understand technical manuals and adjust the equipment	68	75	61	77
Ability to ensure workplace safety (of self and co-workers)	89	87	95	82
English communication skills	70	59	90	
Importance of English communication skill to find a job				94
Importance of English communication skill at workplace				88
Importance of English communication skill for career advancement				93
Communication skills (Urdu Language)	87	83	97	90
Computer and Information Technology (IT) skills	66	60	74	
Computer literacy				91
Internet browsing/searching				90
Emails send/receive				89
Numeric and computation skills	75	73	76	
Basic arithmetic skills				82
Usage of calculators				76
Usage of spreadsheets				75
Self-management skills	81	73	95	
Ethical course of action				90
Life-long learning				91
Setting and accomplishing personal and professional goals				91
Performance in team	86	83	95	88
Tolerance to criticism				87
Contribution to group efforts				85
Adjustment with cultural diversity				87
Adjustment with members of opposite gender				83
Helping other team members				87

ANNEX 2: AVERAGES OF EMPLOYER RESPONSES FOR DIFFERENT SKILLS

	Skill	Importance of skill	Skill availability in labour market	Quality of skill in available labour force	Difference between availability and importance	Difference between quality and importance
1	Theoretical knowledge	4.3	3.9	3.8	-0.4	-0.5
2	Practical and applied knowledge	4.5	4.2	4.2	-0.3	-0.3
3	Skill to monitor the quality of raw material	4.6	4.4	4.3	-0.2	-0.3
4	Troubleshooting skills	4.6	4.3	4.4	-0.3	-0.2
5	Understanding operations and settings of all machines	4.5	4.3	4.2	-0.2	-0.3
6	Familiarity with production ethics	4.4	4.2	4.2	-0.2	-0.2
7	Skill to understand and use updated technologies	4.5	4.1	3.8	-0.4	-0.7
8	Skill to work through technical manuals	4.5	4.2	4	-0.3	-0.5
9	Ability to ensure workplace safety	4.4	4	4.1	-0.4	-0.3
10	Urdu communication skills (reading)	4.1	4.4	4	0.3	-0.1
11	Urdu communication skills (writing)	4	4.3	3.8	0.3	-0.2
12	Urdu communication skills (speaking)	4.7	4.7	4.6	0	-0.1
13	English communication skills (reading for job entry)	3.9	4.1	3.1	0.2	-0.8
14	English communication skills (writing for job entry)	3.9	4.1	3.1	0.2	-0.8
15	English communication skills (speaking for job entry)	3.4	3.2	2.5	-0.2	-0.9
16	English communication skills (reading for routine tasks)	3.7	4.1	3.1	0.4	-0.6
17	English communication skills (writing for routine tasks)	3.8	4.1	3.1	0.3	-0.7
18	English communication skills (speaking for routine tasks)	3	3.2	2.5	0.2	-0.5
19	English communication skills (reading for career advancement)	4.4	4.1	3.1	-0.3	-1.3
20	English communication skills (writing for career advancement)	4.3	4.1	3.1	-0.2	-1.2
21	English communication skills (speaking for career advancement)	4.1	3.2	2.5	-0.9	-1.6
22	Computer and Information Technology skills (computer literacy)	4.2	3.9	3.1	-0.3	-1.1

23	Computer and Information Technology skills (internet browsing)	4.1	3.7	3.1	-0.4	-1
24	Computer and Information Technology skills (send & receive emails)	3.9	3.7	2.8	-0.2	-1.1
25	Numeracy and computational skill (basic arithmetic)	4.2	4.1	3.6	-0.1	-0.6
26	Numeracy and computational skill (usage of calculators)	4.1	4	3.4	-0.1	-0.7
27	Numeracy and computational skill (usage of spreadsheets)	3.5	3.4	2.8	-0.1	-0.7
28	Self-management skills (ethical course of action)	4.4	4.1	3.9	-0.3	-0.5
29	Self-management skills (life-long learning)	4.5	4.2	4	-0.3	-0.5
30	Self-management skills (personal and professional goals)	4.5	4.1	3.9	-0.4	-0.6
31	Teamwork skills (performance in team)	4.6	4.3	4.3	-0.3	-0.3
32	Teamwork skills (tolerance to criticism)	4	3.8	3.7	-0.2	-0.3
33	Teamwork skills (contribution to group effort)	4.5	4.2	4.1	-0.3	-0.4
34	Teamwork skills (helping other team members)	4.5	4.2	4.2	-0.3	-0.3
35	Adjustment with cultural diversity	4.2	3.9	3.9	-0.3	-0.3
36	Adjustment with members of opposite gender	3.4	3.3	3	-0.1	-0.4

ANNEX 3: AVERAGES OF GRADUATE RESPONSES FOR DIFFERENT SKILLS

	Skill	Importance of the skill	Skill institute's emphasis on the skill	Self confidence in the skill	Difference between skill institute's emphasis and importance	Difference between self-confidence and importance
1	Theoretical knowledge	4.1	3.8	3.9	-0.3	-0.2
2	Practical and applied knowledge	4.3	3.9	4.1	-0.4	-0.2
3	Skill to monitor the quality of raw material	4.1	3.8	3.8	-0.3	-0.3
4	Troubleshooting skills	4.2	3.8	3.8	-0.4	-0.4
5	Understanding operations and settings of all machines	4.2	3.8	3.8	-0.4	-0.4
6	Familiarity with production ethics	4.2	3.8	3.8	-0.4	-0.4
7	Skill to understand and use updated technologies	4.2	3.6	3.8	-0.6	-0.4
8	Skill to work through technical manuals	4.1	3.6	3.7	-0.5	-0.4
9	Ability to ensure workplace safety	4.1	3.4	3.8	-0.7	-0.3
10	Urdu communication skills (reading)	4.1	3.7	4.1	-0.4	0
11	Urdu communication skills (writing)	4	3.6	4.1	-0.4	0.1
12	Urdu communication skills (speaking)	4.3	4	4.2	-0.3	-0.1
13	English communication skills (reading for job entry)	4.1	3.6	3.8	-0.5	-0.3
14	English communication skills (writing for job entry)	4	3.7	3.7	-0.3	-0.3
15	English communication skills (speaking for job entry)	3.7	3.4	3.3	-0.3	-0.4
16	English communication skills (reading for routine tasks)	3.9	3.6	3.8	-0.3	-0.1
17	English communication skills (writing for routine tasks)	3.9	3.7	3.7	-0.2	-0.2
18	English communication skills (speaking for routine tasks)	3.6	3.4	3.3	-0.2	-0.3
19	English communication skills (reading for career advancement)	4.3	3.6	3.8	-0.7	-0.5
20	English communication skills (writing for career advancement)	4.3	3.7	3.7	-0.6	-0.6

21	English communication skills (speaking for career advancement)	4.2	3.4	3.3	-0.8	-0.9
22	Computer and Information Technology skills (computer literacy)	4.2	3.7	3.9	-0.5	-0.3
23	Computer and Information Technology skills (internet browsing)	4.1	3.6	4	-0.5	-0.1
24	Computer and Information Technology skills (send & receive emails)	4.1	3.6	3.9	-0.5	-0.2
25	Numeracy and computational skill (basic arithmetic)	4.1	3.8	3.8	-0.3	-0.3
26	Numeracy and computational skill (usage of calculators)	3.9	3.5	3.7	-0.4	-0.2
27	Numeracy and computational skill (usage of spreadsheets)	3.9	3.5	3.6	-0.4	-0.3
28	Self-management skills (ethical course of action)	4.2	3.7	3.9	-0.5	-0.3
29	Self-management skills (life-long learning)	4.3	3.8	4	-0.5	-0.3
30	Self-management skills (personal and professional goals)	4.3	3.8	4	-0.5	-0.3
31	Teamwork skills (performance in team)	4.3	3.8	4	-0.5	-0.3
32	Teamwork skills (tolerance to criticism)	3.9	3.5	3.6	-0.4	-0.3
33	Teamwork skills (contribution to group effort)	4	3.5	3.7	-0.5	-0.3
34	Teamwork skills (helping other team members)	4.2	3.8	4	-0.4	-0.2
35	Adjustment with cultural diversity	4.2	3.7	4	-0.5	-0.2
36	Adjustment with members of opposite gender	4.1	3.5	4	-0.6	-0.1

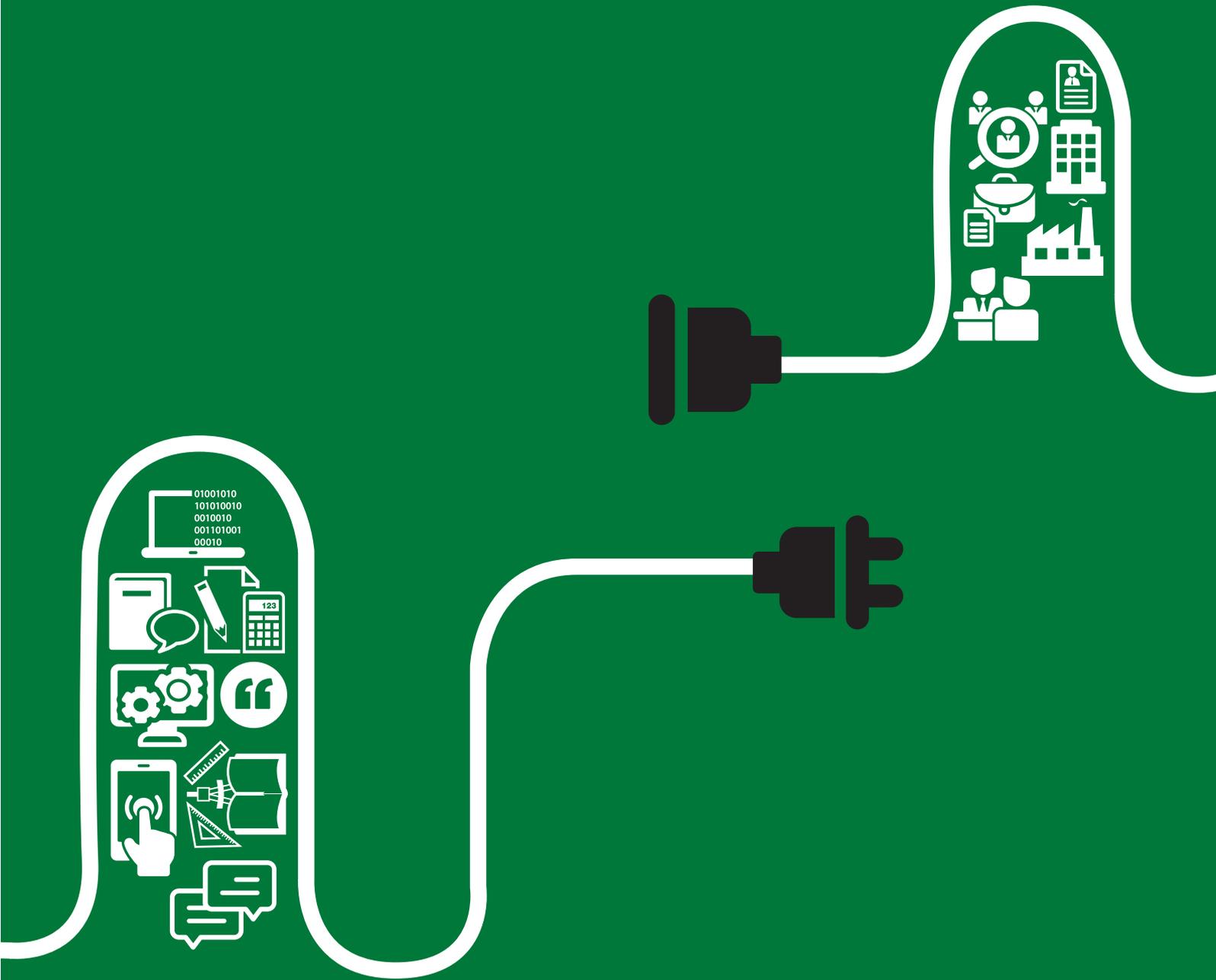
ANNEX 4: AVERAGES OF SKILL INSTITUTE RESPONSES FOR DIFFERENT SKILLS

	Skill	Demand in job market	Institute's emphasis on skill	Satisfaction with quality produced	Difference between institute's emphasis on skill and demand in job market	Difference between and satisfaction with quality produced and demand in job market
1	Theoretical knowledge	4	4.1	4	0.1	0
2	Practical and applied knowledge	4.3	4.3	4.1	0	-0.2
3	Skill to monitor the quality of raw material	3.8	3.9	3.6	0.1	-0.2
4	Troubleshooting skills	3.8	3.9	3.7	0.1	-0.1
5	Understanding operations and settings of all machines	4	4.1	3.8	0.1	-0.2
6	Familiarity with production ethics	3.8	3.9	3.6	0.1	-0.2
7	Skill to understand and use updated technologies	4	4	3.7	0	-0.3
8	Skill to work through technical manuals	3.9	3.9	3.7	0	-0.2
9	Ability to ensure workplace safety	3.9	4	3.8	0.1	-0.1
10	Urdu communication skills (reading)	4	4.2	3.9	0.2	-0.1
11	Urdu communication skills (writing)	3.9	4	3.9	0.1	0
12	Urdu communication skills (speaking)	4.3	4.3	4.2	0	-0.1
13	English communication skills (reading)	3.9	3.9	3.8	0	-0.1
14	English communication skills (writing)	3.9	3.9	3.7	0	-0.2
15	English communication skills (speaking)	3.7	3.4	3.3	-0.3	-0.4
16	Computer and Information Technology skills (computer literacy)	4.2	4	3.9	-0.2	-0.3
17	Computer and Information Technology skills (internet browsing)	4.1	4	3.9	-0.1	-0.2
18	Computer and Information Technology skills (send & receive emails)	4	3.9	3.8	-0.1	-0.2
19	Numeracy and computational skill (basic arithmetic)	3.9	3.8	3.6	-0.1	-0.3
20	Numeracy and computational skill (usage of calculators)	3.7	3.6	3.4	-0.1	-0.3
21	Numeracy and computational skill (usage of spreadsheets)	3.6	3.6	3.4	0	-0.2

22	Self-management skills (ethical course of action)	4.1	4.2	3.8	0.1	-0.3
23	Self-management skills (life-long learning)	4.3	4.3	4.1	0	-0.2
24	Self-management skills (personal and professional goals)	4.3	4.4	4	0.1	-0.3
25	Teamwork skills (performance in team)	4.3	4.4	4.1	0.1	-0.2
26	Teamwork skills (tolerance to criticism)	3.6	3.6	3.3	0	-0.3
27	Teamwork skills (contribution to group effort)	4.1	4.1	4	0	-0.1
28	Teamwork skills (helping other team members)	4.2	4.3	4	0.1	-0.2
29	Adjustment with cultural diversity	4.1	4.2	4	0.1	-0.1
30	Adjustment with members of opposite gender	3.9	4.1	3.8	0.2	-0.1

ANNEX 5: FIRM TYPES

	Frequency	Valid Percent
Food processing	35	29.9
Textile and Garments	22	18.8
Hoteling and Catering	9	7.7
Construction and property	8	6.8
Chemical and pharmaceutical	4	3.4
Consultancy	4	3.4
Vehicle manufacturing	4	3.4
Engineering works	3	2.6
Milk, drinks and beverages	3	2.6
Beauty Parlour	2	1.7
Cold Storage	2	1.7
Electrical appliances	2	1.7
Health	2	1.7
Information and Communication Technology	2	1.7
Other	2	1.7
Proprietorship	2	1.7
Steel and Iron works	2	1.7
Wood works and furniture	2	1.7
Cement Industry	1	.9
Event management	1	.9
Fibre optics	1	.9
Repair and maintenance	1	.9
Transport	1	.9
Travels and tourism	1	.9



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